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Dr. CA Ravi Agarwal

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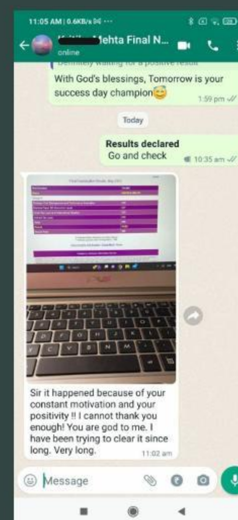

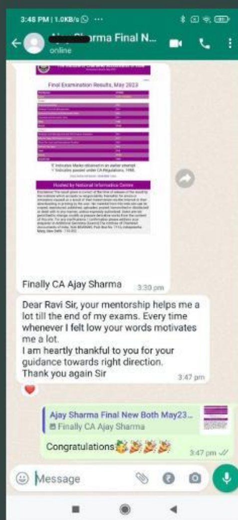

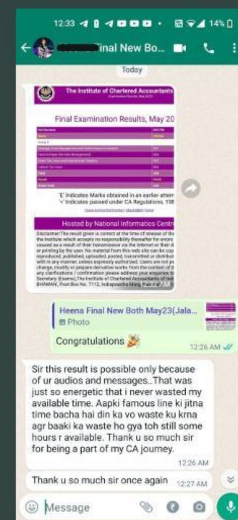

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Chapter 1
Scope & Objectives of Financial Management

Attempt wise Distribution

Q & A													
Attempts	May' 18	Nov' 18	May' 19	Nov' 19	May' 20	Nov' 20	Jan' 21	Jul' 21	Dec' 21	May' 22	Nov' 22	May' 23	Nov' 23
MTP	Q9	Q4,Q18 ,Q20	Q23			Q12		Q22	Q10	Q2	Q21	Q8	
PYP	Q3	Q15				Q5	Q1	Q17	Q16	Q14			
RTP	Q19		Q7, Q11						Q6	Q13			

Section A

Question 1

DISCUSS the points that demonstrates the Importance of good financial management. (PYP 4 Marks Jan'21)

Answer 1

Points that demonstrate the "Importance of good financial management":

- **Taking care** not to over-invest in fixed assets
- **Balancing** cash-outflow with cash-inflows
- **Ensuring** that there is a sufficient level of short-term working capital
- **Setting sales** revenue targets that will deliver growth
- **Increasing gross** profit by setting the correct pricing for products or services
- **Controlling** the level of general and administrative expenses by finding more cost-efficient ways of running the day-to-day business operations, and
- **Tax planning** that will minimize the taxes a business has to pay.

Question 2

'Financial distress is a position where Cash inflows of a firm are inadequate to meet all its current obligations.' Based on above mentioned context, EXPLAIN Financial Distress along with Insolvency. [MTP 4 Marks March 22]

Answer 2

There are various factors like price of the product/ service, demand, price of inputs e.g. raw material, Labour etc., which is to be managed by an organization on a continuous basis. Proportion of debt also needs to be managed by an organization very delicately. Higher debt requires higher interest and if the cash inflow is not sufficient then it will put lot of pressure to the organization. Both short term and long term creditors will put stress to the firm. If all the above factors are not well managed by the firm, it can create situation known as distress, so financial distress is a position where Cash inflows of a

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firm are inadequate to meet all its current obligations.

Now if distress continues for a long period of time, firm may have to sell its asset, even many times at a lower price. Further when revenue is inadequate to revive the situation, firm will not be able to meet its obligations and become insolvent. So, insolvency basically means inability of a firm to repay various debts and is a result of continuous financial distress.

Question 3

What are the two main aspects of the Finance Function? (PYP 2 Marks, May '18)

Answer 3

Inter-relationship between Investment, Financing and Dividend Decisions: The finance functions are divided into three major decisions, viz., investment, financing and dividend decisions. It is correct to say that these decisions are inter-related because the underlying objective of these three decisions is the same, i.e. maximization of shareholders' wealth. Since investment, financing and dividend decisions are all interrelated, one has to consider the joint impact of these decisions on the market price of the company's shares and these decisions should also be solved jointly. The decision to invest in a new project needs the finance for the investment. The financing decision, in turn, is influenced by and influences dividend decision because retained earnings used in internal financing deprive shareholders of their dividends. An efficient financial management can ensure optimal joint decisions. This is possible by evaluating each decision in relation to its effect on the shareholders' wealth.

The above three decisions are briefly examined below in the light of their inter-relationship and to see how they can help in maximizing the shareholders' wealth i.e. market price of the company's shares.

Investment decision: The investment of long term funds is made after a careful assessment of the various projects through capital budgeting and uncertainty analysis. However, only that investment proposal is to be accepted which is expected to yield at least so much return as is adequate to meet its cost of financing. This have an influence on the profitability of the company and ultimately on its wealth.

Financing decision: Funds can be raised from various sources. Each source of funds involves different issues. The finance manager has to maintain a proper balance between long-term and short-term funds. With the total volume of long-term funds, he has to ensure a proper mix of loan funds and owner's funds. The optimum financing mix will increase return to equity shareholders and thus maximize their wealth.

Dividend decision: The finance manager is also concerned with the decision to pay or declare dividend. He assists the top management in deciding as to what portion of the profit should be paid to the shareholders by way of dividends and what portion should be retained in the business. An optimal dividend pay-out ratio maximizes shareholders' wealth.

The above discussion makes it clear that investment, financing and dividend decisions are interrelated and are to be taken jointly keeping in view their joint effect on the shareholders' wealth.

Question 4

STATE Agency Cost. DISCUSS The Ways to Reduce the Effect of It. (MTP 4 Marks,

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Aug'18)

Answer 4

Agency Cost: In a sole proprietorship firm, partnership etc., owners participate in management but in corporate, owners are not active in management so, there is a separation between owner/ shareholders and managers. In theory managers should act in the best interest of shareholders however in reality, managers may try to maximize their individual goal like salary, perks etc., so there is a principal-agent relationship between managers and owners, which is known as Agency Problem. In a nutshell, Agency Problem is the chances that managers may place personal goals ahead of the goal of owners. Agency Problem leads to Agency Cost. Agency cost is the additional cost borne by the shareholders to monitor the manager and control their behavior so as to maximize shareholder's wealth. Generally, Agency Costs are of four types (I) monitoring (ii) bonding (iii) opportunity (iv) structuring

Addressing the agency problem

The agency problem arises if manager's interests are not aligned to the interests of the debt lender and equity investors. The agency problem of debt lender would be addressed by imposing negative covenants i.e. the managers cannot borrow beyond a point. This is one of the most important concepts of modern day finance and the application of this would be applied in the Credit Risk Management of Bank, Fund Raising, Valuing distressed companies.

Agency problem between the managers and shareholders can be addressed if the interests of the managers are aligned to the interests of the share- holders. It is easier said than done.

However, following efforts have been made to address these issues:

(A) Managerial compensation is linked to profit of the company to some extent and also with the long term objectives of the company.

(B) Employee is also designed to address the issue with the underlying assumption that maximisation of the stock price is the objective of the investors.

(C) Effecting monitoring can be done.

Question 5

List out the role of Chief Financial Officer in today's World. (PYP 4 Marks, Nov'20)

OR

What are the roles of Finance Executive in Modem World? (PYP 2 Marks, May'18)

Answer 5

Role of Chief Financial Officer (CFO) in Today's World: Today, the role of chief financial officer, or CFO, is no longer confined to accounting, financial reporting and risk management. It's about being a strategic business partner of the chief executive officer, or CEO. Some of the role of a CFO in today's world are as follows-

- Budgeting
- Forecasting
- Managing M&As
- Profitability analysis (for example, by customer or product)

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- Pricing analysis
- Decisions about outsourcing
- Overseeing the IT function.
- Overseeing the HR function.
- Strategic planning (sometimes overseeing this function).
- Regulatory compliance.
- Risk management

Question 6

DISCUSS the points that demonstrates the Importance of good financial management. (RTP Nov '21)

Answer 6

Points that demonstrate the "Importance of good financial management":

- **Taking care** not to over-invest in fixed assets
- **Balancing** cash-outflow with cash-inflows
- **Ensuring** that there is a sufficient level of short-term working capital
- **Setting sales** revenue targets that will deliver growth
- **Increasing gross** profit by setting the correct pricing for products or services
- **Controlling** the level of general and administrative expenses by finding more cost-efficient ways of running the day-to-day business operations, and
- **Tax planning** that will minimize the taxes a business has to pay.

Question 7

Functions of Finance Manager. (RTP May '19)

Answer 7

Functions of Finance Manager

The Finance Manager's main objective is to manage funds in such a way so as to ensure their optimum utilization and their procurement in a manner that the risk, cost and control considerations are properly balanced in a given situation. To achieve these objectives the Finance Manager performs the following functions:

(i) **Estimating the requirement of Funds:** Both for long-term purposes i.e. investment in fixed assets and for short-term i.e. for working capital. Forecasting the requirements of funds involves the use of techniques of budgetary control and long-range planning.

(ii) **Decision regarding Capital Structure**: Once the requirement of funds has been estimated, a decision regarding various sources from which these funds would be raised has to be taken. A proper balance has to be made between the loan funds and own funds. He has to ensure that he raises sufficient long term funds to finance fixed assets and other long term investments and to provide for the needs of working capital.

(iii) **Investment Decision:** The investment of funds, in a project has to be made after careful assessment of various projects through capital budgeting. Assets management policies are to be laid down regarding various items of current assets. For e.g. receivable in coordination with sales manager, inventory in coordination with production manager.

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(iv) **Dividend decision**: The finance manager is concerned with the decision as to how much to retain and what portion to pay as dividend depending on the company's policy. Trend of earnings, trend of share market prices, requirement of funds for future growth, cash flow situation etc., are to be considered.

(v) **Evaluating financial performance:** A finance manager has to constantly review the financial performance of the various units of organisation generally in terms of ROI Such a review helps the management in seeing how the funds have been utilised in various divisions and what can be done to improve it.

(vi) **Financial negotiation**: The finance manager plays a very important role in carrying out negotiations with the financial institutions, banks and public depositors for raising of funds on favourable terms.

(vii) **Cash management**: The finance manager lays down the cash management and cash disbursement policies with a view to supply adequate funds to all units of organisation and to ensure that there is no excessive cash.

(viii) **Keeping touch with stock exchange**: Finance manager is required to analyse major trends in stock market and their impact on the price of the company share.

Question 8

DISTINGUISH between Profit maximisation vis-a-vis wealth maximization. (MTP 5 Marks April '23)

Answer 8

It has traditionally been argued that the primary objective of a company is to earn profit; hence the objective of financial management is also profit maximisation. This implies that the finance manager has to make his decisions in a manner so that the profits of the concern are maximised. Each alternative, therefore, is to be seen as to whether or not it gives maximum profit.

However, profit maximisation cannot be the sole objective of a company. It is at best a limited objective. If profit is given undue importance, a number of problems can arise. Some of these have been discussed below:

(i) The term profit is vague. It does not clarify what exactly it means. It conveys a different meaning to different people. For example, profit may be in short term or long term period; it may be total profit or rate of profit etc.

(ii) Profit maximisation has to be attempted with a realisation of risks involved. There is a direct relationship between risk and profit. Many risky propositions yield high profit. Higher the risk, higher is the possibility of profits. If profit maximisation is the only goal, then risk factor is altogether ignored. This implies that finance manager will accept highly risky proposals also, if they give high profits. In practice, however, risk is very important consideration and has to be balanced with the profit objective.

(iii) Profit maximisation as an objective does not take into account the time pattern of returns. Proposal A may give a higher amount of profits as compared to proposal B, yet if the returns of proposal A begin to flow say 10 years later, proposal B may

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be preferred which may have lower overall profit but the returns flow is more early and quick.

(iv) Profit maximisation as an objective is too narrow. It fails to take into account the social considerations as also the obligations to various interests of workers, consumers, society, as well as ethical trade practices. If these factors are ignored, a company cannot survive for long. Profit maximization at the cost of social and moral obligations is a short sighted policy.

Wealth / Value Maximisation

We will first like to define what is Wealth / Value Maximization Model. Shareholders wealth are the result of cost benefit analysis adjusted with their timing and risk i.e. time value of money.

So, It is important that benefits measured by the finance manager are in terms of cash flow. Finance manager should emphasis on Cash flow for investment or financing decisions not on Accounting profit. The shareholder value maximization model holds that the primary goal of the firm is to maximize its market value and implies that business decisions should seek to increase the net present value of the economic profits of the firm. So for measuring and maximising shareholders wealth finance manager should follow:

A) Cash Flow approach not Accounting Profit
B) Cost benefit analysis
C) Application of time value of money.

How do we measure the value/wealth of a firm?

According to Van Horne, "Value of a firm is represented by the market price of the company's common stock. The market price of a firm's stock represents the focal judgment of all market participants as to what the value of the particular firm is. It takes into account present and prospective future earnings per share, the timing and risk of these earnings, the dividend policy of the firm and many other factors that bear upon the market price of the stock. The mark et price serves as a performance index or report card of the firm's progress. It indicates how well management is doing on behalf of stockholder's".

Why Wealth Maximization Works? Before we answer this question it is important to first understand and know what other goals a business enterprise may have. Some of the other goals a business enterprise may follow are:-

A) Achieving a higher growth rate
B) Attaining a larger market share
C) Gaining leadership in the market in terms of products and technology
D) Promoting employee welfare
E) Increasing customer satisfaction
F) Improving community life, supporting education and research, solving societal

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problems, etc.

Though, the above goals are important but the primary goal remains to be wealth maximization, as it is critical for the very existence of the business enterprise. If this goal is not met, public/institutions would lose confidence in the enterprise and will not invest further in the growth of the organization. If the growth of the organization is restricted than the other goals like community welfare will not get fulfilled.

Conflicts in Profit vs. Value maximisation principle

In any company, the management is the decision taking authority. As a normal tendency the management may pursue its own personal goals (profit maximization). But in an organization where there is a significant outside participation (shareholding, lenders etc.), the management may not be able to exclusively pursue its personal goals due to the constant supervision of the various stakeholders of the company-employees, creditors, customers, government, etc.

Every entity associated with the company will evaluate the performance of the management from the fulfilment of its own objective. The survival of the management will be threatened if the objective of any of the entities remains unfulfilled.

The wealth maximization objective is generally in accord with the interests of the various groups such as owners, employees, creditors and society, and thus, it may be consistent with the management objective of survival.

Owing to limitation (timing, social consideration etc.) in profit maximization, in today's real world situations which is uncertain and multi-period in nature, wealth maximization is a better objective. Where the time period is short and degree of uncertainty is not great, wealth maximization and profit maximization amount to essentially the same.

The table below highlights some of the advantages and disadvantages of both profit maximization and wealth maximization goals:-

Goal	Objective	Advantages	Disadvantages
Profit Maximization	Large amount of profits	(i) Easy to calculate profits (ii) Easy to determine the link between financial decisions and profits.	(i) Emphasizes the short term gains (ii) Ignores risk or uncertainty (iii) Ignores the timing of returns (iv) Requires immediate resources.
Shareholders Wealth Maximisation	Highest market value of shares.	(i) Emphasizes the long term gains (ii) Recognises risk or uncertainty (iii) Recognises the timing of returns (iv) Considers	(i) Offers no clear relationship between financial decisions and share price. (ii) Can lead to management anxiety and frustration.

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		shareholders' return.	

Example: Profit maximization can be achieved in the short term at the expense of the long term goal, that is, wealth maximization. For example, a costly investment may experience losses in the short term but yield substantial profits in the long term. Also, a firm that wants to show a short term profit may, for example, postpone major repairs or replacement, although such postponement is likely to hurt its long term profitability.

Question 9

EXPLAIN Financial Distress and explain its relationship with Insolvency. (MTP 4 Marks, March'18)

Answer 9

There are various factors like price of the product/ service, demand, price of inputs e.g. raw material, Labour etc., which is to be managed by an organization on a continuous basis. Proportion of debt also needs to be managed by an organization very delicately. Higher debt requires higher interest and if the cash inflow is not sufficient then it will put lot of pressure to the organization. Both short term and long term creditors will put stress to the firm. If all the above factors are not well managed by the firm, it can create situation known as distress, so financial distress is a position where Cash inflows of a firm are inadequate to meet all its current obligations.

Now if distress continues for a long period of time, firm may have to sell its asset, even many times at a lower price. Further when revenue is inadequate to revive the situation, firm will not be able to meet its obligations and become insolvent. So, insolvency basically means inability of a firm to repay various debts and is a result of continuous financial distress.

Question 10

WRITE two main objectives of Financial Management. [MTP 2 Marks, Oct'21)

Answer 10

Two main objectives of Financial Management

Profit Maximization

It has traditionally been argued that the primary objective of a company is to earn profit; hence the objective of financial management is also profit maximization. This implies that the finance manager has to make his decisions in a manner so that the profits of the concern are maximized. Each alternative, therefore, is to be seen as to whether or not it gives maximum profit.

Wealth / Value Maximization

We will first like to define what is Wealth / Value Maximization Model. Shareholders wealth are the result of cost benefit analysis adjusted with their timing and risk i.e. time value of money.

So, Wealth = Present Value of benefits – Present Value of Costs

It is important that benefits measured by the finance manager are in terms of cash flow. Finance manager should emphasis on Cash flow for investment or financing decisions not on Accounting profit. The shareholder value maximization model holds that the primary goal of the firm is to maximize its market value and implies that business decisions should seek to increase the net present value of the economic profits of the

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firm.

Question 11

BRIEFLY explain the three finance function decisions. [MTP 4 Marks, Oct'21, RTP Nov '19, RTP May'19, PYP 3 Marks Nov'19)

Answer 11

Inter-relationship between Investment, Financing and Dividend Decisions: The finance functions are divided into three major decisions, viz., investment, financing and dividend decisions. It is correct to say that these decisions are inter-related because the underlying objective of these three decisions is the same, i.e. maximization of shareholders' wealth. Since investment, financing and dividend decisions are all interrelated, one has to consider the joint impact of these decisions on the market price of the company's shares and these decisions should also be solved jointly. The decision to invest in a new project needs the finance for the investment. The financing decision, in turn, is influenced by and influences dividend decision because retained earnings used in internal financing deprive shareholders of their dividends. An efficient financial management can ensure optimal joint decisions. This is possible by evaluating each decision in relation to its effect on the shareholders' wealth.

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The above discussion makes it clear that investment, financing and dividend decisions are interrelated and are to be taken jointly keeping in view their joint effect on the shareholders' wealth.

Question 12

DISCUSS Agency Problem and Agency Cost. [MTP 4 Marks, Oct'20, MTP 4 Marks March '23, MTP 4 Marks Apr'21, MTP 5 Marks April '23)

Answer 12

Agency Cost: In a sole proprietorship firm, partnership etc., owners participate in management but in corporate, owners are not active in management so, there is a separation between owner/ shareholders and managers. In theory managers should act

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in the best interest of shareholders however in reality, managers may try to maximize their individual goal like salary, perks etc., so there is a principal-agent relationship between managers and owners, which is known as Agency Problem. In a nutshell, Agency Problem is the chances that managers may place personal goals ahead of the goal of owners. Agency Problem leads to Agency Cost. Agency cost is the additional cost borne by the shareholders to monitor the manager and control their behavior so as to maximize shareholder's wealth. Generally, Agency Costs are of four types (I) monitoring (ii) bonding (iii) opportunity (iv) structuring

Addressing the agency problem

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Agency problem between the managers and shareholders can be addressed if the interests of the managers are aligned to the interests of the share- holders. It is easier said than done.

However, following efforts have been made to address these issues:

(A) Managerial compensation is linked to profit of the company to some extent and also with the long term objectives of the company.

(B) Employee is also designed to address the issue with the underlying assumption that maximisation of the stock price is the objective of the investors.

(C) Effecting monitoring can be done.

Question 13

'Profit maximization is not the sole objective of a company. It is at best a limited objective. If profit is given undue importance, a number of problems can arise.' DISCUSS four of such problems. (RTP May 22, RTP May 21)

Answer 13

It has traditionally been argued that the primary objective of a company is to earn profit; hence the objective of financial management is also profit maximisation. This implies that the finance manager has to make his decisions in a manner so that the profits of the concern are maximised. Each alternative, therefore, is to be seen as to whether or not it gives maximum profit.

However, profit maximisation cannot be the sole objective of a company. It is at best a limited objective. If profit is given undue importance, a number of problems can arise. Some of these have been discussed below:

(v) The term profit is vague. It does not clarify what exactly it means. It conveys a different meaning to different people. For example, profit may be in short term or long term period; it may be total profit or rate of profit etc.

(vi) Profit maximisation has to be attempted with a realisation of risks involved. There

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is a direct relationship between risk and profit. Many risky propositions yield high profit. Higher the risk, higher is the possibility of profits. If profit maximisation is the only goal, then risk factor is altogether ignored. This implies that finance manager will accept highly risky proposals also, if they give high profits. In practice, however, risk is very important consideration and has to be balanced with the profit objective.

(vii) Profit maximisation as an objective does not take into account the time pattern of returns. Proposal A may give a higher amount of profits as compared to proposal B, yet if the returns of proposal A begin to flow say 10 years later, proposal B may be preferred which may have lower overall profit but the returns flow is more early and quick.

(viii) Profit maximisation as an objective is too narrow. It fails to take into account the social considerations as also the obligations to various interests of workers, consumers, society, as well as ethical trade practices. If these factors are ignored, a company cannot survive for long. Profit maximization at the cost of social and moral obligations is a short sighted policy.

Wealth / Value Maximisation

We will first like to define what is Wealth / Value Maximization Model. Shareholders wealth are the result of cost benefit analysis adjusted with their timing and risk i.e. time value of money.

So, It is important that benefits measured by the finance manager are in terms of cash flow. Finance manager should emphasis on Cash flow for investment or financing decisions not on Accounting profit. The shareholder value maximization model holds that the primary goal of the firm is to maximize its market value and implies that business decisions should seek to increase the net present value of the economic profits of the firm. So for measuring and maximising shareholders wealth finance manager should follow:

A) Cash Flow approach not Accounting Profit

B) Cost benefit analysis

C) Application of time value of money.

How do we measure the value/wealth of a firm?

According to Van Horne, "Value of a firm is represented by the market price of the company's common stock. The market price of a firm's stock represents the focal judgment of all market participants as to what the value of the particular firm is. It takes into account present and prospective future earnings per share, the timing and risk of these earnings, the dividend policy of the firm and many other factors that bear upon the market price of the stock. The mark et price serves as a performance index or report card of the firm's progress. It indicates how well management is doing on behalf of stockholder's".

Why Wealth Maximization Works? Before we answer this question it is important to first understand and know what other goals a business enterprise may have. Some of the

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other goals a business enterprise may follow are:-

A) Achieving a higher growth rate

B) Attaining a larger market share

C) Gaining leadership in the market in terms of products and technology

D) Promoting employee welfare

E) Increasing customer satisfaction

F) Improving community life, supporting education and research, solving societal problems, etc.

Though, the above goals are important but the primary goal remains to be wealth maximization, as it is critical for the very existence of the business enterprise. If this goal is not met, public/institutions would lose confidence in the enterprise and will not invest further in the growth of the organization. If the growth of the organization is restricted than the other goals like community welfare will not get fulfilled.

Conflicts in Profit vs. Value maximisation principle

In any company, the management is the decision taking authority. As a normal tendency the management may pursue its own personal goals (profit maximization). But in an organization where there is a significant outside participation (shareholding, lenders etc.), the management may not be able to exclusively pursue its personal goals due to the constant supervision of the various stakeholders of the company-employees, creditors, customers, government, etc.

Every entity associated with the company will evaluate the performance of the management from the fulfilment of its own objective. The survival of the management will be threatened if the objective of any of the entities remains unfulfilled.

The wealth maximization objective is generally in accord with the interests of the various groups such as owners, employees, creditors and society, and thus, it may be consistent with the management objective of survival.

Owing to limitation (timing, social consideration etc.) in profit maximization, in today's real world situations which is uncertain and multi-period in nature, wealth maximization is a better objective. Where the time period is short and degree of uncertainty is not great, wealth maximization and profit maximization amount to essentially the same.

The table below highlights some of the advantages and disadvantages of both profit maximization and wealth maximization goals:-

Goal	Objective	Advantages	Disadvantages

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Profit Maximization	Large amount of profits	(iii) Easy to calculate profits (iv) Easy to determine the link between financial decisions and profits.	(v) Emphasizes the short term gains (vi) Ignores risk or uncertainty (vii) Ignores the timing of returns (viii) Requires immediate resources.
Shareholders Wealth Maximisation	Highest market value of shares.	(v) Emphasizes the long term gains (vi) Recognises risk or uncertainty (vii) Recognises the timing of returns (viii) Considers shareholders' return.	(iii) Offers no clear relationship between financial decisions and share price. (iv) Can lead to management anxiety and frustration.

Example: Profit maximization can be achieved in the short term at the expense of the long term goal, that is, wealth maximization. For example, a costly investment may experience losses in the short term but yield substantial profits in the long term. Also, a firm that wants to show a short term profit may, for example, postpone major repairs or replacement, although such postponement is likely to hurt its long term profitability.

Question 14

DISCUSS the advantages and disadvantages of Wealth maximization principle. (PYP 2 Marks May'22)

Answer 14

Advantages and disadvantages of Wealth maximization principle.

Advantages:

(i) Emphasizes the long term gains
(ii) Recognizes risk or uncertainty
(iii) Recognizes the timing of returns
(iv) Considers shareholders' return.

Disadvantages:

(i) Offers no clear relationship between financial decisions and share price.
(ii) Can lead to management anxiety and frustration.

Question 15

WRITE two main objectives of Financial Management. [PYP 2 Marks Nov '18)

Answer 15

Two main objectives of Financial Management

Profit Maximization

It has traditionally been argued that the primary objective of a company is to earn profit;

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hence the objective of financial management is also profit maximization. This implies that the finance manager has to make his decisions in a manner so that the profits of the concern are maximized. Each alternative, therefore, is to be seen as to whether or not it gives maximum profit.

Wealth / Value Maximization

We will first like to define what is Wealth / Value Maximization Model. Shareholders wealth are the result of cost benefit analysis adjusted with their timing and risk i.e. time value of money.

So, Wealth = Present Value of benefits – Present Value of Costs

It is important that benefits measured by the finance manager are in terms of cash flow. Finance manager should emphasis on Cash flow for investment or financing decisions not on Accounting profit. The shareholder value maximization model holds that the primary goal of the firm is to maximize its market value and implies that business decisions should seek to increase the net present value of the economic profits of the firm.

Question 16

Explain in brief the phases of the evolution of financial management. (PYP 2 Marks Dec '21)

Answer 16

Evolution of Financial Management: Financial management evolved gradually over the past 50 years. The evolution of financial management is divided into three phases. Financial Management evolved as a separate field of study at the beginning of the century.

The three stages of its evolution are:

The Traditional Phase: During this phase, financial management was considered necessary only during occasional events such as takeovers, mergers, expansion, liquidation, etc. Also, when taking financial decisions in the organization, the needs of outsiders (investment bankers, people who lend money to the business and other such people) to the business was kept in mind.

The Transitional Phase: During this phase, the day-to-day problems that financial managers faced were given importance. The general problems related to funds analysis, planning and control were given more attention in this phase.

The Modern Phase: Modern phase is still going on. The scope of financial management has greatly increased now. It is important to carry out financial analysis for a company. This analysis helps in decision making. During this phase, many theories have been developed regarding efficient markets, capital budgeting, option pricing, valuation models and also in several other important fields in financial management. Here, financial management is viewed as a supportive and facilitative function, not only for top management but for all levels of management.

Question 17

List out the steps to be followed by the manager to measure and maximize the Shareholder's Wealth? (PYP 2 Marks, July'21)

Answer 17

For measuring and maximizing shareholders' wealth, manager should follow:

- Cash Flow approach not Accounting Profit

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- Cost benefit analysis
- Application of time value of money.

Question 18

DISCUSS the Inter relationship between investment, financing and dividend decisions. (MTP 4 Marks, Oct'19]

OR

DISCUSS the three major decisions taken by a finance manager to maximize the wealth of shareholders. (MTP 4 Marks, Oct'18)

Answer 18

Inter-relationship between Investment, Financing and Dividend Decisions: The finance functions are divided into three major decisions, viz., investment, financing and dividend decisions. It is correct to say that these decisions are inter-related because the underlying objective of these three decisions is the same, i.e. maximization of shareholders' wealth. Since investment, financing and dividend decisions are all interrelated, one has to consider the joint impact of these decisions on the market price of the company's shares and these decisions should also be solved jointly. The decision to invest in a new project needs the finance for the investment. The financing decision, in turn, is influenced by and influences dividend decision because retained earnings used in internal financing deprive shareholders of their dividends. An efficient financial management can ensure optimal joint decisions. This is possible by evaluating each decision in relation to its effect on the shareholders' wealth.

The above three decisions are briefly examined below in the light of their inter-relationship and to see how they can help in maximizing the shareholders' wealth i.e. market price of the company's shares.

Investment decision: The investment of long term funds is made after a careful assessment of the various projects through capital budgeting and uncertainty analysis. However, only that investment proposal is to be accepted which is expected to yield at least so much return as is adequate to meet its cost of financing. This have an influence on the profitability of the company and ultimately on its wealth.

Financing decision: Funds can be raised from various sources. Each source of funds involves different issues. The finance manager has to maintain a proper balance between long-term and short-term funds. With the total volume of long-term funds, he has to ensure a proper mix of loan funds and owner's funds. The optimum financing mix will increase return to equity shareholders and thus maximize their wealth.

Dividend decision: The finance manager is also concerned with the decision to pay or declare dividend. He assists the top management in deciding as to what portion of the profit should be paid to the shareholders by way of dividends and what portion should be retained in the business. An optimal dividend pay-out ratio maximizes shareholders' wealth.

The above discussion makes it clear that investment, financing and dividend decisions are interrelated and are to be taken jointly keeping in view their joint effect on the shareholders' wealth.

Question 19

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"The profit maximization is not an operationally feasible criterion. DISCUSS (RTP May '18, Nov '18 & May'20)

Answer 19

"The profit maximization is not an operationally feasible criterion." This statement is true because Profit maximization can be a short-term objective for any organization and cannot be its sole objective. Profit maximization fails to serve as an operational criterion for maximizing the owner's economic welfare. It fails to provide an operationally feasible measure for ranking alternative courses of action in terms of their economic efficiency. It suffers from the following limitations:

(a) **Vague term:** The definition of the term profit is ambiguous. Does it mean short term or long term profit? Does it refer to profit before or after tax? Total profit or profit per share?

(b) **Timing of Return**: The profit maximization objective does not make distinction between returns received in different time periods. It gives no consideration to the time value of money, and values benefits received today and benefits received after a period as the same.

(c) It ignores the risk factor.

(d) The term maximization is also vague

Question 20

STATE Agency Cost. DISCUSS The Ways to Reduce the Effect of It. (MTP 4 Marks, Aug'18)

OR

DISCUSS Agency Problem and Agency Cost. (RTP Nov 20, May'22 & Nov '23)

Answer 20

Agency Cost: In a sole proprietorship firm, partnership etc., owners participate in management but in corporate, owners are not active in management so, there is a separation between owner/ shareholders and managers. In theory managers should act in the best interest of shareholders however in reality, managers may try to maximize their individual goal like salary, perks etc., so there is a principal-agent relationship between managers and owners, which is known as Agency Problem. In a nutshell, Agency Problem is the chances that managers may place personal goals ahead of the goal of owners. Agency Problem leads to Agency Cost. Agency cost is the additional cost borne by the shareholders to monitor the manager and control their behavior so as to maximize shareholder's wealth. Generally, Agency Costs are of four types (I) monitoring (ii) bonding (iii) opportunity (iv) structuring

Addressing the agency problem

The agency problem arises if manager's interests are not aligned to the interests of the debt lender and equity investors. The agency problem of debt lender would be addressed by imposing negative covenants i.e. the managers cannot borrow beyond a point. This is one of the most important concepts of modern day finance and the application of this would be applied in the Credit Risk Management of Bank, Fund Raising, Valuing distressed companies.

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Agency problem between the managers and shareholders can be addressed if the interests of the managers are aligned to the interests of the share- holders. It is easier said than done.

However, following efforts have been made to address these issues:

(D) Managerial compensation is linked to profit of the company to some extent and also with the long term objectives of the company.

(E) Employee is also designed to address the issue with the underlying assumption that maximisation of the stock price is the objective of the investors.

(F) Effecting monitoring can be done.

Question 21

A finance executive of an organisation plays an important role in the company's goals, policies, and financial success. WHAT his responsibilities include? (MTP 4 Marks Sep'22)

Answer 21

A finance executive of an organisation plays an important role in the company's goals,policies, and financial success. His responsibilities include:

(i) **Financial analysis and planning**: Determining the proper amount of funds to employ in the firm, i.e. designating the size of the firm and its rate of growth.

(ii) **Investment decisions**: The efficient allocation of funds to specific assets.

(iii) Financing and capital structure decisions: Raising funds on favourable terms as possible i.e. determining the composition of liabilities.

(iv) **Management of financial resources** (such as working capital).

(v) **Risk management**: Protecting assets.

Question 22

DISCUSS the advantages and disadvantages of Wealth maximization principle. (MTP 4 Marks, March'21)

Answer 22

Advantages and disadvantages of Wealth maximization principle.

Advantages:

(v) Emphasizes the long term gains
(vi) Recognizes risk or uncertainty
(vii) Recognizes the timing of returns
(viii) Considers shareholders' return.

Disadvantages:

(iii) Offers no clear relationship between financial decisions and share price.
(iv) Can lead to management anxiety and frustration.

Question 23

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EXPLAIN as to how the wealth maximization objective is superior to the profit maximization objective What is the cost of these sources? [MTP 4 Marks, March'19]

Answer 23

A firm's financial management may often have the following as their objectives:

(i) The maximization of firm's profit.
(ii) The maximization of firm's value / wealth.

The maximization of profit is often considered as an implied objective of a firm. To achieve the aforesaid objective various type of financing decisions may be taken. Options resulting into maximization of profit may be selected by the firm's decision makers. They even sometime may adopt policies yielding exorbitant profits in short run which may prove to be unhealthy for the growth, survival and overall interests of the firm. The profit of the firm in this case is measured in terms of its total accounting profit available to its shareholders.

The value/wealth of a firm is defined as the market price of the firm's stock. The market price of a firm's stock represents the focal judgment of all market participants as to what the value of the particular firm is. It takes into account present and prospective future earnings per share, the timing and risk of these earnings, the dividend policy of the firm and many other factors that bear upon the market price of the stock.

The value maximization objective of a firm is superior to its profit maximization objective due to following reasons.

1. The value maximization objective of a firm considers all future cash flows, dividends, earning per share, risk of a decision etc. whereas profit maximization objective does not consider the effect of EPS, dividend paid or any other returns to shareholders or the wealth of the shareholder.
2. A firm that wishes to maximize the shareholder's wealth may pay regular dividends whereas a firm with the objective of profit maximization may refrain from dividend payment to its shareholders.
3. Shareholders would prefer an increase in the firm's wealth against its generation of increasing
   flow of profits.
4. The market price of a share reflects the shareholders expected return, considering the long- term prospects of the firm, reflects the differences in timings of the returns, considers risk and recognizes the importance of distribution of returns.

The maximization of a firm's value as reflected in the market price of a share is viewed as a proper goal of a firm. The profit maximization can be considered as a part of the wealth maximization strategy.

Section B

1. **Which of the following need not be followed by the finance manager for measuring and maximising shareholders' wealth?**

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(a) Accounting profit analysis.

(b) Cash Flow approach.

(c) Cost benefit analysis.

(d) Application of time value of money.

Ans: (a)

2. Which of the following are microeconomic variables that help define and explain the discipline of finance?

(a) Risk and return

(b) Capital structure

(c) Inflation

(d) All of the above.

Ans: (d)

3. To achieve wealth maximization, the finance manager has to take careful decision in respect of:

(a) Investment

(b) Financing

(c) Dividend

(d) All the above.

Ans: (d)

4. Which of the following is the disadvantage of having shareholder's wealth maximisation goals?

(a) Emphasizes the short-term gains.

(b) Ignores the timing of returns.

(c) Requires immediate resources.

(d) Offers no clear relationship between financial decisions and share price.

Ans: (d)

5. Wealth maximisation approach is based on the concept of:

(a) Cost benefit analysis

(b) Cash flow approach

(c) Time value of money

(d) All of the above.

Ans: (d)

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6. The main objective of financial management is to:

(a) Secure profitability

(b) Maximise shareholder wealth

(c) Enhancing the cost of debt

(d) None of above.

Ans: (b)

7. Financial Management is mainly concerned with the-

(a) Acquiring and developing assets to forfeit its overall benefit.

(b) Acquiring, financing and managing assets to accomplish the overall goal of a business enterprise.

(c) Efficient management of the business.

(d) Sole objective of profit maximisation.

Ans: (b)

8. Early in the history of finance, an important issue was:

(a) Liquidity

(b) Technology

(c) Capital structure

(d) Financing options.

Ans: (a)

9. The most important goal of financial management is:

(a) Profit maximisation

(b) Matching income and expenditure

(c) Using business assets effectively

(d) Wealth maximisation.

Ans: (d)

10. Management of all matters related to an organization's finances is called:

(a) Cash inflows and outflows

(b) Allocation of resources

(c) Financial management

(d) Finance.

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Ans: (c)

11. The shareholder value maximisation model holds that the primary goal of the firm is to maximise its:

(a) Accounting profit

(b) Liquidity

(c) Market value

(d) Working capital.

Ans: (c)

12. Focus of financial management is mainly concerned with the decision related to:

(a) Financing

(b) Investing

(c) Dividend

(d) All of above.

Ans: (d)

Theoretical Questions Answers

Question Answer Illustration 1

Profit maximization does not consider risk or uncertainty, whereas wealth maximization considers both risk and uncertainty. Suppose there are two products, X and Y and their projected earnings over the next 5 years are as shown below:

Year	Product X (`)	Product Y (`)
1.	10,000	11,000
2.	10,000	11,000
3.	10,000	11,000
4.	10,000	11,000
5.	10,000	11,000
	50,000	55,000

A profit maximization approach would favour product Y over product X. However, if product Y is more risky than product X, then the decision is not as straightforward as

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the figures seem to indicate. It is important to realize that a trade-off exists between risk and return. Stockholders expect greater returns from investments of higher risk and vice-versa. To choose product Y, stockholders would demand a sufficiently large return to compensate for the comparatively greater level of risk.

Question 2

DISCUSS the role of a chief financial officer.

Answer 2

The finance executive of an organization plays an important role inthe company's goals, policies, and financial success. His responsibilities include:

(a) **Financial analysis and planning:** Determining the proper amount of funds to employ in the firm, i.e. designating the size of the firm and its rate of growth.

(b) **Investment decisions:** The efficient allocation of funds to specific assets.

(c) **Financing and capital structure decisions:** Raising funds on favourable termsas possible i.e. determining the composition of liabilities.

(d) **Management of financial resources** (such as working capital).

(e) **Risk management:** Protecting assets.

Today, the role of chief financial officer, or CFO, is no longer confined to accounting, financial reporting and risk management. It's about being a strategic business partner of the chief executive officer, or CEO. Some of the key differences that highlight the changing role of a CFO are as follows:-

What a CFO used to do?	What a CFO now does?
Budgeting	Budgeting
Forecasting	Forecasting
Accounting	Managing M&As
Treasury (cash management)	Profitability analysis (for example, by customer or product)
Preparing internal financial reports for management.	Pricing analysis
Preparing quarterly, annual filings for investors.	Decisions about outsourcing
Tax filing	Overseeing the IT function.
Tracking accounts payable and accounts receivable.	Overseeing the HR function.
Travel and entertainment expense management.	Strategic planning (sometimes overseeing this function). Regulatory compliance. Risk management.

Questions 3

DISCUSS three main considerations in procuring funds?

Answer 3

Since funds can be obtained from different sources therefore their procurement is always considered as a complex problem by business concerns. In a global competitive

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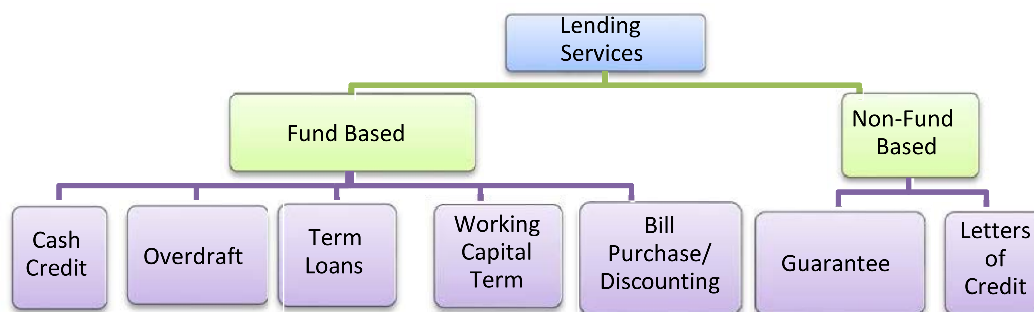
scenario, it is not enough to depend on the available ways of raising finance but resource mobilization has to be undertaken through innovative ways on financial products which may meet the needs of investors. We are constantly seeing new and creative sources of funds which are helping the modern businesses to grow faster. For example: trading in Carbon Credits is turning out to be another source of funding. Funds procured from different sources have different characteristics in terms of risk, cost and control. The cost of funds should be at the minimum level for that a proper balancing of risk and control factors must be carried out.

Another key consideration in choosing the source of new business finance is to strike a balance between equity and debt to ensure the funding structure suits the business. Let us discuss some of the sources of funds (discussed in detail in later chapters):

(a) Equity: The funds raised by the issue of equity shares are the best from the risk point of view for the firm, since there is no question of repayment of equity capital except when the firm is under liquidation. From the cost point of view, however, equity capital is usually the most expensive source of funds. This is because the dividend expectations of shareholders are normally higher than prevalent interest rate and also because dividends are an appropriation of profit, not allowed as an expense under the Income Tax Act. Also the issue of new shares to public may dilute the control of the existing shareholders.

(b) Debentures: Debentures as a source of funds are comparatively cheaper than the shares because of their tax advantage. The interest the company pays on a debenture is free of tax, unlike a dividend payment which is made from the taxed profits. However, even when times are hard, interest on debenture loans must be paid whereas dividends need not be. However, debentures entail a high degree of risk since they have to be repaid as per the terms of agreement. Also, the interest payment has to be made whether or not the company makes profits.

(c) Funding from Banks: Commercial Banks play an important role in funding of the business enterprises. Apart from supporting businesses in their routine activities (deposits, payments etc.) they play an important role in meeting the long term and short term needs of a business enterprise. Different lending services provided by Commercial Banks are depicted as follows:-



(d) International Funding: Funding today is not limited to domestic market. With liberalization and globalization a business enterprise has options to raise capital from International markets also. Foreign Direct Investment (FDI) and Foreign Institutional Investors (FII) are two major routes for raising funds from foreign sources besides ADR's (American depository receipts) and GDR's (Global depository receipts). Obviously, the

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mechanism of procurement of funds has to be modified in the light of the requirements of foreign investors.

(e) **Angel Financing:** Angel Financing is a form of an equity-financing where an angel investor is a wealthy individual who provides capital for start-up or expansion, in exchange for an ownership/equity in the company. Angel investors have idle cash available and are looking for a higher rate of return than what is given by traditional investments. Typically, angels, as they are known as, will invest around 25 to 60 per cent to help a company get started. This source of finance sometimes is the last option for startups which doesn't qualify for bank funding and are too small for venture capital financing.

Question 4

Financial management is concerned with acquisition & financing of short term & long-term credit". ELABORATE.

Answer 4

financial management is concerned with **efficient acquisition (financing) and allocation** (investment in assets, working capital etc.) of funds with an objective to make profit (dividend) for owners. In other words, focus of financial management is to address three major financial decision areas namely, **investment, financing and dividend decisions.**

Forthe purpose of starting any new business/venture, an entrepreneur goes through the following stages of decision making:-

Stage 1	Stage 2	Stage 3	Stage 4
Decide which assets (premises, machinery, equipment etc.) to buy.	Determining what is total investment (since assets cost money) required for buying assets.	Apart from buying assets the entrepreneur would also need to determine how much cash he would need to run the daily operations (payment for raw material, salaries, wages etc.). In other words this is also defined as Working Capital requirement.	The next stage is to decide what all sources, does the entrepreneur need to tap to finance the total investment (assets and working capital). The sources could be Share Capital (Including Entrepreneur's own funds) or Borrowing from Banks or Investment from Financial Institutions etc.

Question 5

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In recent years, there have been a number of environmental, pollution and other regulations imposed on businesses. In view of these changes, is maximisation of shareholder wealth still a realistic objective? EXPLAIN.

Answer 5

In any company, the management is the decision taking authority. As a normal tendency the management may pursue its own personal goals (profit maximization). But in an organization where there is a significant outside participation (shareholding, lenders etc.), the management may not be able to exclusively pursue its personal goals due to the constant supervision of the various stakeholders of the company-employees, creditors, customers, government, etc.

Every entity associated with the company will evaluate the performance of the management from the fulfilment of its own objective. The survival of the management will be threatened if the objective of any of the entities remains unfulfilled.

The wealth maximization objective is generally in accord with the interests of the various groups such as owners, employees, creditors and society, and thus, it maybe consistent with the management objective of survival.

Owing to limitation (timing, social consideration etc.) in profit maximization, in today's real world situations which is uncertain and multi-period in nature, wealth maximization is a better objective. Where the time period is short and degree of uncertainty is not great, wealth maximization and profit maximization amount to essentially the same.

The table below highlights some of the advantages and disadvantages of both profit maximization and wealth maximization goals:-

Goal	Objective	Advantages	Disadvantages
Profit Maximization	Large amount of	(i) Easy to calculateprofits	(i) Emphasizes th eshort term gains
	profits	(ii) Easy to determine the link between financial decisions and profits.	(ii) Ignores risk or uncertainty (iii) Ignores the timing of returns (iv) Requires immediate resources.
Shareholders Wealth Maximisation	Highest market value of shares.	(i) Emphasizes th e long term gains (ii) Recognises risk or uncertainty (iii) Recognises th e timing of returns (iv) Considers	(i) Offers no clear relationship between financial decisions and share price. (ii) Can lead to management anxiety and frustration.

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		shareholders' return.	

Question 6

EXPLAIN "Wealth maximisation" and "Profit maximisation" objectives of financial management.

Answer 6

Profit Maximization

It has traditionally been argued that the primary objective of a company is to earn profit; hence the objective of financial management is also profit maximisation.This implies that the finance manager has to make his decisions in a manner sothat the profits of the concern are maximised. Each alternative, therefore, is to beseen as to whether or not it gives maximum profit.

However, profit maximisation cannot be the sole objective of a company. It is atbest a limited objective. If profit is given undue importance, a number of problems can arise. Some of these have been discussed below:

(i) **The term profit is vague. It does not clarify what exactly it means.** It conveys a different meaning to different people. For example, profit may bein short term or long term period; it may be total profit or rate of profit etc.

(ii) **Profit maximisation has to be attempted with a realisation of risks involved.** There is a direct relationship between risk and profit. Many risky propositions yield high profit. Higher the risk, higher is the possibility of profits. If profit maximisation is the only goal, then risk factor is altogether ignored. This implies that finance manager will accept highly risky proposals also, if they give high profits. In practice, however, risk is very important consideration and has to be balanced with the profit objective.

(iii) **Profit maximisation as an objective does not take into account the time pattern of returns.** Proposal A may give a higher amount of profits as compared to proposal B, yet if the returns of proposal A begin to flow say10 years later, proposal B may be preferred which may have lower overallprofit but the returns flow is more early and quick.

(iv) **Profit maximisation as an objective is too narrow.** It fails to take intoaccount the social considerations as also the obligations to various interests of workers, consumers, society, as well as ethical trade practices. If these factors are ignored, a company cannot survive for long. Profit maximizationat the cost of social and moral obligations is a short sighted policy.

Wealth Maximization

We will first like to define what is Wealth / Value Maximization Model. Shareholders wealth are the result of cost benefit analysis adjusted with their timing and risk i.e. time value of money.

So,

Wealth = Present value of benefits – Present Value of Costs

It is important that benefits measured by the finance manager are in terms ofcash flow. Finance manager should emphasis on Cash flow for investment or financing decisions not on Accounting profit. The shareholder value maximization model holds

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that the primary goal of the firm is to maximize its market value and implies that business decisions should seek to increase the net present value ofthe economic profits of the firm. So for measuring and maximising shareholders wealth finance manager should follow:

- **Cash Flow approach not Accounting Profit**
- **Cost benefit analysis**
- **Application of time value of money.**

Question 7

DISCUSS the two main aspects of the finance function?

Answer 7

The finance functions are divided into long term and short term functions/decisions

Long term Finance Function Decisions.

(a) **Investment decisions (I)**: These decisions relate to the **selection of assets in which funds will be invested by a firm.** Funds procured from different sources have to be invested in various kinds of assets. Long term funds areused in a project for various fixed assets and also for current assets. The investment of funds in a project has to be made after careful assessment of the various projects through capital budgeting. A part of long term funds is also to be kept for financing the working capital requirements. Asset management policies are to be laid down regarding various items of current assets. The inventory policy would be determined by the production manager and the finance manager keeping in view the requirement of production and the futureprice estimates of raw materials and the availability of funds.

(b) **Financing decisions (F):** These decisions relate to **acquiring the optimum finance** to meet financial objectives and seeing that fixed and working capital areeffectively managed. The financial manager needs to possess a good knowledgeof the sources of available funds and their respective costs and needs to ensurethat the company has a sound capital structure, i.e. a proper balance between equity capital and debt. Such managers also need to have a very clear understanding as to the difference between profit and cash flow, bearing in mindthat profit is of little avail unless the organisation is adequately supported by cashto pay for assets and sustain the working capital cycle. Financing decisions also callfor a good knowledge of evaluation of risk, e.g. excessive debt carried high risk foran organization's equity because of the priority rights of the lenders. A major area for risk-related decisions is in overseas trading, where an organisation is vulnerableto currency fluctuations, and the manager must be well aware of the various protective procedures such as hedging (it is a strategy designed to minimize, reduce or cancel out the risk in another investment) available to him. For example,someone who has a shop, takes care of the risk of the goods being destroyed byfire by hedging it via a fire insurance contract.

(c) **Dividend decisions(D):** These decisions relate to the **determination as to howmuch and how frequently cash can be paid out of the profits** of an organisation as income for its owners/shareholders. The owner of any profit- making organization looks for reward for his investment in two ways, the growthof the capital invested and the cash paid out as income; for a sole trader this income would be termed as drawings and for a limited liability company the termis dividends.

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The dividend decision thus has two elements – the amount to be paid out and the amount to be retained to support the growth of the organisation, the latter being also a financing decision; the level and regular growth of dividends represent a significant factor in determining a profit-making company's market value, i.e. the value placed on its shares by the stock market.

All three types of decisions are interrelated, the first two pertaining to any kind of organisation while the third relates only to profit-making organisations, thus it can be seen that financial management is of vital importance at every level ofbusiness activity, from a sole trader to the largest multinational corporation.

Short- term Finance Decisions/Function.

Working capital Management (WCM): Generally short term decision are reduced to management of current asset and current liability (i.e., working capital Management)

Question 8

POINT OUT the difference between Financial Management & Financial Accounting?

Answer 8

The relationship between financial management and accounting are closely related to the extent that accounting is an important input in financial decision making. In other words, accounting is a necessary input into the financial management function. Financial accounting generates information relating to operations of the organisation. The outcome of accounting is the financial statements such as balance sheet, income statement, and the statement of changes in financial position. The information contained in these statements and reports helps the financial managers in gauging the past performance and future directions of the organisation.

Though financial management and accounting are closely related, still they differ in the treatment of funds and also with regards to decision making. Some of the differences are:-

Treatment of Funds

In accounting, the measurement of funds is based on the accrual principle i.e. revenue is recognised at the point of sale and not when collected and expenses are recognised when they are incurred rather than when actually paid. The accrual based accounting data do not reflect fully the financial conditions of the organisation. An organisation which has earned profit (sales less expenses) may said to be profitable in the accounting sense but it may not be able to meet its current obligations due to shortage of liquidity as a result of say, uncollectible receivables. Such an organisation will not survive regardless of its levels of profits. Whereas, the treatment of funds in financial management is based on cash flows. The revenues are recognised onlywhen cash is actually received (i.e. cash inflow) and expenses are recognised onactual payment (i.e. cash outflow). This is so because the finance manager is concerned with maintaining solvency of the organisation by providing the cash flows necessary to satisfy its obligations and acquiring and financing the assets needed to achieve the goals of the organisation. Thus, cash flow based returns help financial managers to avoid insolvency and achieve desired financial goals.

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Decision – making

The purpose of accounting is to collect and present financial data of the past, present and future operations of the organization. The financial manager uses these data for financial decision making. It is not that the financial managers cannot collect data or accountants cannot make decisions, but the chief focus of an accountant is to collect data and present the data while the financial manager's primary responsibility relates to financial planning, controlling and decision making. Thus, in a way it can be stated that financial management begins where accounting ends.

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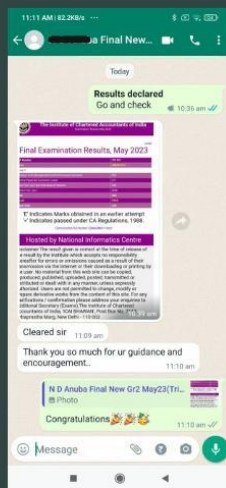
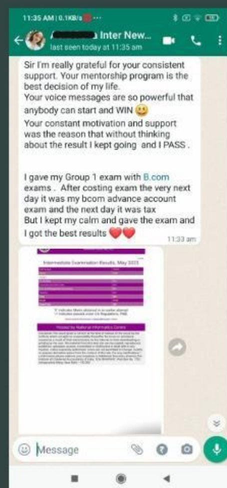
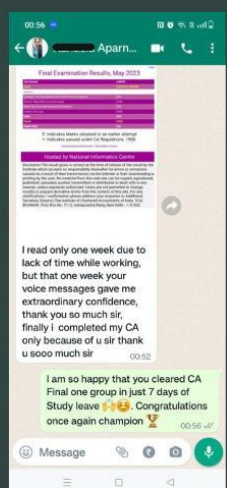

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Chapter 2
Types of Financing

Attempt wise Distribution

Q & A													
Attempts	May' 18	Nov' 18	May' 19	Nov' 19	May' 20	Nov' 20	Jan' 21	Jul' 21	Dec' 21	May' 22	Nov' 22	May' 23	Nov' 23
MTP		Q48	Q24, Q47	Q40		Q46		Q21, Q22, Q38, Q44, Q45	Q14, Q19, Q20, Q34, Q43	Q18, Q41	Q15, Q16, Q17, Q26, Q39		
PYP	Q30	Q8,Q32	Q28, Q42	Q1, Q9		Q2	Q27	Q33	Q31	Q7	Q6	Q5,Q29	
RTP	Q25, Q37	Q13				Q23		Q36	Q12		Q3, Q4	Q35	Q10, Q11

Section A

Question 1

Briefly describe any four sources of short-term finance. (PYP 4 Marks Nov'19)

Answer 1

Sources of Short Term Finance: There are various sources available to meet short- term needs of finance. The different sources are discussed below-

(i) **Trade Credit**: It represents credit granted by suppliers of goods, etc., as an incident of sale. The usual duration of such credit is 15 to 90 days. It generates automatically in the course of business and is common to almost all business operations. It can be in the form of an 'open account' or 'bills payable'.

(ii) **Accrued Expenses and Deferred Income**: Accrued expenses represent liabilities which a company has to pay for the services which it has already received like wages, taxes, interest and dividends. Such expenses arise out of the day-to-day activities of the company and hence represent a spontaneous source of finance.
Deferred Income: These are the amounts received by a company in lieu of goods and services to be provided in the future. Since these receipts increases a company's liquidity, they are also considered to be an important sources of short-term finance.

(iii) **Advances from Customers**: Manufacturers and contractors engaged in producing or constructing costly goods involving considerable length of manufacturing or construction time usually demand advance money from their customers at the time of accepting their orders for executing their contracts or supplying the goods. This is a cost free source of finance and really useful.

(iv) **Commercial Paper**: A Commercial Paper is an unsecured money market instrument issued in the form of a promissory note. The Reserve Bank of India

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introduced the commercial paper scheme in the year 1989 with a view to enabling highly rated corporate borrowers to diversify their sources of short-term borrowings and to provide an additional instrument to investors.

(v) **Treasury Bills:** Treasury bills are a class of Central Government Securities. Treasury bills, commonly referred to as T-Bills are issued by Government of India to meet short term borrowing requirements with maturities ranging between 14 to 364 days.

(vi) **Certificates of Deposit (CD):** A certificate of deposit (CD) is basically a savings certificate with a fixed maturity date of not less than 15 days up to a maximum of one year.

(vii) **Bank Advances**: Banks receive deposits from public for different periods at varying rates of interest. These funds are invested and lent in such a manner that when required, they may be called back. Lending results in gross revenues out of which costs, such as interest on deposits, administrative costs, etc., are met and a reasonable profit is made. A bank's lending policy is not merely profit motivated but has to also keep in mind the socio- economic development of the country. Some of the facilities provided by banks are Short Term Loans, Overdraft, Cash Credits, Advances against goods, Bills Purchased/Discounted.

(viii) **Financing of Export Trade by Banks**: Exports play an important role in accelerating the economic growth of developing countries like India. Of the several factors influencing export growth, credit is a very important factor which enables exporters in efficiently executing their export orders. The commercial banks provide short-term export finance mainly by way of pre and post-shipment credit. Export finance is granted in Rupees as well as in foreign currency.

(ix) **Inter Corporate Deposits**: The companies can borrow funds for a short period say 6 months from other companies which have surplus liquidity. The rate of interest on
inter corporate deposits varies depending upon the amount involved and time period.

(x) **Certificate of Deposit (CD):** The certificate of deposit is a document of title similar to a time deposit receipt issued by a bank except that there is no prescribed interest rate on such funds.
The main advantage of CD is that banker is not required to encase the deposit before maturity period and the investor is assured of liquidity because he can sell the CD in secondary market.

(xi) **Public Deposits:** Public deposits are very important source of short-term and medium term finances particularly due to credit squeeze by the Reserve Bank of India. A company can accept public deposits subject to the stipulations of Reserve Bank of India from time to time maximum up to 35 per cent of its paid up capital and reserves, from the public and shareholders. These deposits may be accepted for a period of six months to three years. Public deposits are unsecured loans; they should not be used for acquiring fixed assets since they are to be repaid within a period of 3 years. These are mainly used to finance working capital requirements.

Question 2

EXPLAIN some common methods of Venture capital financing. (PYP 4 Marks, Nov '20)

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Answer 2

Some common methods of venture capital financing are as follows:

(i) Equity financing: The venture capital undertakings generally require funds for a longer period but may not be able to provide returns to the investors during the initial stages. Therefore, the venture capital finance is generally provided by way of equity share capital. The equity contribution of venture capital firm does not exceed 49% of the total equity capital of venture capital undertakings so that the effective control and ownership remains with the entrepreneur.

(ii) Conditional loan: A conditional loan is repayable in the form of a royalty after the venture is able to generate sales. No interest is paid on such loans. In India venture capital financiers charge royalty ranging between 2 and 15 per cent; actual rate depends on other factors of the venture such as gestation period, cash flow patterns, risk and other factors of the enterprise. Some Venture capital financiers give a choice to the enterprise of paying a high rate of interest (which could be well above 20 per cent) instead of royalty on sales once it becomes commercially sound.

(iii) Income note: It is a hybrid security which combines the features of both conventional loan and conditional loan. The entrepreneur has to pay both interest and royalty on sales but at substantially low rates. IDBI's VCF provides funding equal to 80 – 87.50% of the projects cost for commercial application of indigenous technology.

(iv) Participating debenture: Such security carries charges in three phases — in the start-up phase no interest is charged, next stage a low rate of interest is charged up to a particular level of operation, after that, a high rate of interest is required to be paid.

Question 3

STATE in brief four features of Samurai Bond. [RTP Nov'22)

Answer 3

Features of Samurai Bond:

- Samurai bonds are denominated in Japanese Yen JPY
- Issued in Tokyo
- Issuer Non- Japanese Company
- Regulations: Japanese
- Purpose: Access of capital available in Japanese market
- Issue proceeds can be used to fund Japanese operation
- Issue proceeds can be used to fund a company's local opportunities.
- It can also be used to hedge foreign exchange risk

Question 4

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Under financial lease, lessee bears the risk of obsolescence; while under operating lease, lessor bears the risk of obsolescence. In view of this, you are required to COMPARE the financial lease and operating lease. (RTP Nov'22)

Answer 4

Difference between Financial Lease and Operating Lease

	Financial Lease	Operating Lease
1.	The risk and reward incident to ownership are passed on to the lessee. The lessor only remains the legal owner of the asset.	The lessee is only provided the use of the asset for a certain time. Risk incident to ownership belong wholly to the lessor.
2.	The lessee bears the risk of obsolescence.	The lessor bears the risk of obsolescence.
3.	The lessor is interested in his rentals and not in the asset. He must get his principal back along with interest. Therefore, the lease is non-cancellable by either party.	As the lessor does not have difficulty in leasing the same asset to other willing lessor, the lease is kept cancelable by the lessor.
4.	The lessor enters into the transaction only as financier. He does not bear the cost of repairs, maintenance or operations.	Usually, the lessor bears cost of repairs, maintenance or operations.
5.	The lease is usually full payout, that is, the single lease repays the cost of the asset together with the interest.	The lease is usually non-payout, since the lessor expects to lease the same asset over and over again to several users.

Question 5

Discuss features of Secured Premium Notes. (PYP 2 Marks May '23)

Answer 5

Features of Secured Premium Notes:

- SPN instruments are issued with a detachable warrant.
- These instruments are redeemable after a notified period of say 4 to 7 years.
- No interest is paid during the lock in period.
- The conversion of detachable warrant into equity shares will have to be done within time period notified by the company.

Question 6

These bonds are issued by non-US Banks and non-US corporations in US. What this bond is called and what are the other features of this Bond? (PYP 4 Marks Nov '22)

Answer 6

The Bond is called as Yankee Bond. Features of the bond:

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- These bonds are denominated in Dollars
- Bonds are to be registered in SEC (Securities and Exchange Commission)
- Bonds are issued in tranches
- Time taken can be up to 14 weeks

Question 7

Distinguish between American Depository Receipts and Global Depository Receipts. (PYP 2 Marks May'22)

Answer 7

Distinguish Between American Depository Receipts and Global Depository Receipts:

	American Depository Receipts	**Global Depository Receipts**
Meaning	It is a negotiable instrument which is issued by US bank, which represent the nazon-US Company stock that is being traded in US stock Exchange	It is a negotiable instrument which is issued by the international depository bank that represent the foreign company's stock trading world-wide.
Issued where	In the US domestic capital market.	European capital market.
Listed in	In the American Stock Exchange	In the Non-US Stock Exchange
Relevance	Foreign companies are able to trade in the US Stock Market.	Foreign companies can trade in any country's stock market other than that of the US.

Alternatively:

American Depository Receipts (ADRs): These are securities offered by non-US companies who want to list on any of the US exchange. Each ADR represents a certain number of a company's regular shares. ADRs allow US investors to buy shares of these companies without the costs of investing directly in a foreign stock exchange.

Global Depository Receipts (GDRs): These are negotiable certificates held in the bank of one country representing a specific number of shares of a stock traded on the exchange of another country. These financial instruments are used by companies to raise capital in either dollars or Euros. These are mainly traded in European countries and particularly in London.

Question 8

Discuss the Advantages of Leasing. (PYP 4 Marks, Nov'18)

Answer 8

i. **Lease may low cost alternative**: Leasing is alternative to purchasing. As the

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lessee is to make a series of payments for using an asset, a lease arrangement is similar to a debt contract. The benefit of lease is based on a comparison between leasing and buying an asset. Many lessees find lease more attractive because of low cost.

ii. **Tax benefit**: In certain cases, tax benefit of depreciation available for owning an asset may be less than that available for lease payment

iii. **Working capital conservation**: When a firm buy an equipment by borrowing from a bank (or financial institution), they never provide 100% financing. But in case of lease one gets normally 100% financing. This enables conservation of working capital.

iv. **Preservation of Debt Capacity:** So, operating lease does not matter in computing debt equity ratio. This enables the lessee to go for debt financing more easily. The access to and ability of a firm to get debt financing is called debt capacity (also, reserve debt capacity).

v. **Obsolescence and Disposal**: After purchase of leased asset there may be technological obsolescence of the asset. That means a technologically upgraded asset with better capacity may come into existence after purchase. To retain competitive advantage, the lessee as user may have to go for the upgraded asset.

Question 9

Briefly describe any four sources of short-term finance. (PYP 4 Marks Nov'19)

Answer 9

Sources of Short Term Finance: There are various sources available to meet short- term needs of finance. The different sources are discussed below-

(i) **Trade Credit**: It represents credit granted by suppliers of goods, etc., as an incident of sale. The usual duration of such credit is 15 to 90 days. It generates automatically in the course of business and is common to almost all business operations. It can be in the form of an 'open account' or 'bills payable'.

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to meet short term borrowing requirements with maturities ranging between 14 to 364 days.

(vi) Certificates of Deposit (CD): A certificate of deposit (CD) is basically a savings certificate with a fixed maturity date of not less than 15 days up to a maximum of one year.

(vii) Bank Advances: Banks receive deposits from public for different periods at varying rates of interest. These funds are invested and lent in such a manner that when required, they may be called back. Lending results in gross revenues out of which costs, such as interest on deposits, administrative costs, etc., are met and a reasonable profit is made. A bank's lending policy is not merely profit motivated but has to also keep in mind the socio- economic development of the country. Some of the facilities provided by banks are Short Term Loans, Overdraft, Cash Credits, Advances against goods, Bills Purchased/Discounted.

(viii) Financing of Export Trade by Banks: Exports play an important role in accelerating the economic growth of developing countries like India. Of the several factors influencing export growth, credit is a very important factor which enables exporters in efficiently executing their export orders. The commercial banks provide short-term export finance mainly by way of pre and post-shipment credit. Export finance is granted in Rupees as well as in foreign currency.

(ix) Inter Corporate Deposits: The companies can borrow funds for a short period say 6 months from other companies which have surplus liquidity. The rate of interest on inter corporate deposits varies depending upon the amount involved and time period.

(x) Certificate of Deposit (CD): The certificate of deposit is a document of title similar to a time deposit receipt issued by a bank except that there is no prescribed interest rate on such funds.
The main advantage of CD is that banker is not required to encase the deposit before maturity period and the investor is assured of liquidity because he can sell the CD in secondary market.

(xi) Public Deposits: Public deposits are very important source of short-term and medium term finances particularly due to credit squeeze by the Reserve Bank of India. A company can accept public deposits subject to the stipulations of Reserve Bank of India from time to time maximum up to 35 per cent of its paid up capital and reserves, from the public and shareholders. These deposits may be accepted for a period of six months to three years. Public deposits are unsecured loans; they should not be used for acquiring fixed assets since they are to be repaid within a period of 3 years. These are mainly used to finance working capital requirements.

Question 10

STATE the meaning of debt securitization (RTP Nov '23)

Answer 10

Debt Securitisation: It is a method of recycling of funds. It is especially beneficial to financial intermediaries to support the lending volumes. Assets generating steady cash flows are packaged together and against this asset pool, market securities can be issued, e.g., housing finance, auto loans, and credit card receivables.

Process of Debt Securitisation

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(i) The origination function – A borrower seeks a loan from a finance company, bank. The credit worthiness of borrower is evaluated, and contract is entered into with repayment schedule structured over the life of the loan.

(ii) The pooling function – Similar loans on receivables are clubbed together to create an underlying pool of assets. The pool is transferred in favour of Special purpose Vehicle (SPV), which acts as a trustee for investors.

(iii) The securitisation function – SPV will structure, and issue securities based on asset pool. The securities carry a coupon and expected maturity which can be asset-based/mortgage based. These are generally sold to investors through merchant bankers. Investors are – pension funds, mutual funds, insurance funds.

Question 11

DESCRIBE the interrelationship between investing, financing, and dividend decisions. (RTP Nov '23)

Answer 11

Inter-relationship between Investment, Financing and Dividend Decisions

The finance functions are divided into three major decisions, viz., investment, financing, and dividend decisions. It is correct to say that these decisions are inter - related because the underlying objective of these three decisions is the same, i.e., maximisation of shareholders' wealth. Since investment, financing and dividend decisions are all interrelated, one must consider the joint impact of these decisions on the market price of the company's shares and these decisions should also be solved jointly. The decision to invest in a new project needs the finance for the investment. The financing decision, in turn, is influenced by and influences dividend decision because retained earnings used in internal financing deprive shareholders of their dividends. An efficient financial management can ensure optimal joint decisions. This is possible by evaluating each decision in relation to its effect on the shareholders' wealth.

The above three decisions are briefly examined below in the light of their inter - relationship and to see how they can help in maximising the shareholders' wealth i.e., market price of the company's shares.

Investment decision: The investment of long-term funds is made after a careful assessment of the various projects through capital budgeting and uncertainty analysis. However, only that investment proposal is to be accepted which is expected to yield at least so much return as is adequate to meet its cost of financing. This has an influence on the profitability of the company and ultimately on its wealth.

Financing decision: Funds can be raised from various sources. Each source of funds involves different issues. The finance manager must maintain a proper balance between long-term and short-term funds. With the total volume of long-term funds,

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he must ensure a proper mix of loan funds and owner's funds. The optimum f inancing mix will increase return to equity shareholders and thus maximise their wealth.

Dividend decision: The finance manager is also concerned with the decision to pay or declare dividend. He assists the top management in deciding as to what portion of the profit should be paid to the shareholders by way of dividends and what portion should be retained in the business. An optimal dividend pay-out ratio maximises shareholders' wealth.

The above discussion makes it clear that investment, financing, and dividend decisions are interrelated and are to be taken jointly keeping in view their joint effect on the shareholders' wealth.

Question 12

EXPLAIN some common methods of Venture capital financing. (RTP Nov '21)

Answer 12

Some common methods of venture capital financing are as follows:

(v) **Equity financing**: The venture capital undertakings generally require funds for a longer period but may not be able to provide returns to the investors during the initial stages. Therefore, the venture capital finance is generally provided by way of equity share capital. The equity contribution of venture capital firm does not exceed 49% of the total equity capital of venture capital undertakings so that the effective control and ownership remains with the entrepreneur.

(vi) **Conditional loan**: A conditional loan is repayable in the form of a royalty after the venture is able to generate sales. No interest is paid on such loans. In India venture capital financiers charge royalty ranging between 2 and 15 per cent; actual rate depends on other factors of the venture such as gestation period, cash flow patterns, risk and other factors of the enterprise. Some Venture capital financiers give a choice to the enterprise of paying a high rate of interest (which could be well above 20 per cent) instead of royalty on sales once it becomes commercially sound.

(vii) **Income note**: It is a hybrid security which combines the features of both conventional loan and conditional loan. The entrepreneur has to pay both interest and royalty on sales but at substantially low rates. IDBI's VCF provides funding equal to 80 – 87.50% of the projects cost for commercial application of indigenous technology.

(viii) **Participating debenture**: Such security carries charges in three phases — in the start-up phase no interest is charged, next stage a low rate of interest is charged up to a particular level of operation, after that, a high rate of interest is required to be paid.

Question 13

EXPLAIN the difference between Financial Lease and Operating Lease. (RTP Nov '18 & Nov '20)

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Answer 13

Difference between Financial Lease and Operating Lease

	Financial Lease	Operating Lease
1.	The risk and reward incident to ownership are passed on to the lessee. The lessor only remains the legal owner of the asset.	The lessee is only provided the use of the asset for a certain time. Risk incident to ownership belong wholly to the lessor.
2.	The lessee bears the risk of obsolescence.	The lessor bears the risk of obsolescence.
3.	The lessor is interested in his rentals and not in the asset. He must get his principal back along with interest. Therefore, the lease is non-cancellable by either party.	As the lessor does not have difficulty in leasing the same asset to other willing lessor, the lease is kept cancelable by the lessor.
4.	The lessor enters into the transaction only as financier. He does not bear the cost of repairs, maintenance or operations.	Usually, the lessor bears cost of repairs, maintenance or operations.
5.	The lease is usually full payout, that is, the single lease repays the cost of the asset together with the interest.	The lease is usually non-payout, since the lessor expects to lease the same asset over and over again to several users.

Question 14

BRIEFLY describe the financial needs of a business. [MTP 2 Marks, Oct'21]

Answer 14

Financial Needs of a Business: Business enterprises need funds to meet their different types of requirements. All the financial needs of a business may be grouped into the following three categories-

Long-term financial needs: Such needs generally refer to those requirements of funds which are for a period exceeding 5-10 years. All investments in plant, machinery, land, buildings, etc., are considered as long-term financial needs.

Medium- term financial needs: Such requirements refer to those funds which are required for a period exceeding one year but not exceeding 5 years.

Short- term financial needs: Such type of financial needs arises to finance current assets such as stock, debtors, cash, etc. Investment in these assets is known as meeting of working capital requirements of the concern for a period not exceeding one year.

Question 15

Write a short note on seed capital assistance. (MTP 2 Marks Oct'22)

Answer 15

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Seed Capital Assistance: The seed capital assistance has been designed by IDBI for professionally or technically qualified entrepreneurs. All the projects eligible for financial assistance from IDBI, directly or indirectly through refinance are eligible under the scheme. The project cost should not exceed ₹ 2 crores and the maximum assistance under the project will be restricted to 50% of the required promoter's contribution or ₹ 15 lacs whichever is lower.

The seed capital assistance is interest free but carries a security charge of one percent per annum for the first five years and an increasing rate thereafter

Question 16

BRIEF OUT certain sources of finance- Inter Corporate Deposits and Certificate of Deposit. (MTP 2 Marks Sep'22)

Answer 16

Inter Corporate Deposits: The companies can borrow funds for a short period, say 6 months, from other companies which have surplus liquidity. The rate of interest on inter corporate deposits varies depending upon the amount involved and the time period.

Certificate of Deposit (CD): The certificate of deposit is a document of title similar to a time deposit receipt issued by a bank except that there is no prescribed interest rate on such funds.
The main advantage of CD is that banker is not required to encash the deposit before maturity period and the investor is assured of liquidity because he can sell the CD in secondary market

Question 17

WHAT is the meaning of Venture Capital Financing. STATE some characteristics of it. [MTP 4 Marks Sep'22)

Answer 17

Venture Capital Financing: The venture capital financing refers to financing of new high risky venture promoted by qualified entrepreneurs who lack experience and funds to give shape to their ideas. In broad sense, under venture capital financing, venture capitalist make investment to purchase equity or debt securities from inexperienced entrepreneurs who undertake highly risky ventures with potential to succeed in future.

Some of the characteristics of Venture Capital financing are:

- It is basically an equity finance in new companies.
- It can be viewed as a long-term investment in growth-oriented small/medium firms.
- Apart from providing funds, the investor also provides support in form of sales strategy, business networking and management expertise, enabling the growth of the entrepreneur.

Question 18

STATE in brief four features of Samurai Bond. [MTP 2 Marks March 22)

Answer 18

Features of Samurai Bond:

- Samurai bonds are denominated in Japanese Yen JPY

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- Issued in Tokyo
- Issuer Non- Japanese Company
- Regulations: Japanese
- Purpose: Access of capital available in Japanese market
- Issue proceeds can be used to fund Japanese operation
- Issue proceeds can be used to fund a company's local opportunities.
- It can also be used to hedge foreign exchange risk

Question 19

EXPLAIN: Callable bonds and Puttable bonds. (MTP 2 Marks, Nov '21 & March '22)

Answer 19

(i) **Callable bonds:** A callable bond has a call option which gives the issuer the right to redeem the bond before maturity at a predetermined price known as the call price (Generally at a premium).

(ii) **Puttable bonds:** Puttable bonds give the investor a put option (i.e. the right to sell the bond) back to the company before maturity.

Question 20

BRIEF out any four types of Preference shares along with its feature. [MTP 4 Marks, Nov'21]

Answer 20

Sl. No.	Type of Preference Shares	Salient Features
1	Cumulative	Arrear Dividend will accumulate.
2	Non-cumulative	No right to arrear dividend.
3	Redeemable	Redemption should be done.
4	Participating	Can participate in the surplus which remains after payment to equity shareholders.
5	Non- Participating	Cannot participate in the surplus after payment of fixed rate of Dividend.
6	Convertible	Option of converting into equity Shares.

Question 21

DEFINE Masala bond. (MTP 2 Marks, March'21)

Answer 21

Masala bond: Masala (means spice) bond is an Indian name used for Rupee denominated bond that Indian corporate borrowers can sell to investors in overseas markets. These bonds are issued outside India but denominated in Indian Rupees. NTPC raised Rest. 2,000 crores via masala bonds for its capital expenditure in the year 2016.

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Question 22

DISCUSS in brief the characteristics of Debentures. (MTP 4 Marks, March'21)

Answer 22

Characteristics of Debentures are as follows:

- Normally, debentures are issued on the basis of a debenture trust deed which lists the terms and conditions on which the debentures are floated.
- Debentures are either secured or unsecured.
- May or may not be listed on the stock exchange.
- The cost of capital raised through debentures is quite low since the interest payable on debentures can be charged as an expense before tax.
- From the investors' point of view, debentures offer a more attractive prospect than the preference shares since interest on debentures is payable whether or not the company makes profits.
- Debentures are thus instruments for raising long-term debt capital.
- The period of maturity normally varies from 3 to 10 years and may also increase for projects having high gestation period.

Question 23

What is debt securitization? EXPLAIN the basics of debt securitization process. (RTP May '20, RTP May'23)

Answer 23

Debt Securitization: It is a method of recycling of funds. It is especially beneficial to financial intermediaries to support the lending volumes. Assets generating steady cash flows are packaged together and against this asset pool, market securities can be issued, e.g. housing finance, auto loans, and credit card receivables.

Process of Debt Securitization

(i) **The origination function** – A borrower seeks a loan from a finance company, bank, HDFC. The credit worthiness of borrower is evaluated and contract is entered into with repayment schedule structured over the life of the loan.

(ii) **The pooling function** – Similar loans on receivables are clubbed together to create an underlying pool of assets. The pool is transferred in favor of Special Purpose Vehicle (SPV), which acts as a trustee for investors.

(iii) **The securitization function** – SPV will structure and issue securities on the basis of asset pool. The securities carry a coupon and expected maturity which can be asset-based/mortgage based. These are generally sold to investors through merchant bankers. Investors are – pension funds, mutual funds, insurance funds.

The process of securitization is generally without recourse i.e. investors bear the credit risk and issuer is under an obligation to pay to investors only if the cash flows are received by him from the collateral. The benefits to the originator are that assets are shifted off the balance sheet, thus giving the originator recourse to off-balance sheet funding.

Question 24

DESCRIBE Bridge Finance. (MTP 4 Marks, April'19)

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Answer 24

Bridge finance refers, normally, to loans taken by the business, usually from commercial banks for a short period, pending disbursement of term loans by financial institutions, normally it takes time for the financial institution to finalize procedures of creation of security, tie-up participation with other institutions etc. even though a positive appraisal of the project has been made. However, once the loans are approved in principle, firms in order not to lose further time in starting their projects arrange for bridge finance. Such temporary loan is normally repaid out of the proceeds of the principal term loans. It is secured by hypothecation of moveable assets, personal guarantees and demand promissory notes. Generally, rate of interest on bridge finance is higher as compared with that on term loans.

Question 25

Briefly DESCRIBE bridge finance. [RTP May '18)

Answer 25

Bridge finance refers, normally, to loans taken by the business, usually from commercial banks for a short period, pending disbursement of term loans by financial institutions, normally it takes time for the financial institution to finalize procedures of creation of security, tie-up participation with other institutions etc. even though a positive appraisal of the project has been made. However, once the loans are approved in principle, firms in order not to lose further time in starting their projects arrange for bridge finance. Such temporary loan is normally repaid out of the proceeds of the principal term loans. It is secured by hypothecation of moveable assets, personal guarantees and demand promissory notes. Generally, rate of interest on bridge finance is higher as compared with that on term loans.

Question 26

EXPLAIN in brief the features of Commercial Papers. [MTP 4 Marks Oct'22, Oct'20)

Answer 26

Commercial Paper: A Commercial Paper is an unsecured money market instrument issued in the form of a promissory note. The Reserve Bank of India introduced the commercial paper scheme in the year 1989 with a view to enabling highly rated corporate borrowers to diversify their sources of short- term borrowings and to provide an additional instrument to investors. Subsequently, in addition to the Corporate, Primary Dealers and All India Financial Institutions have also been allowed to issue Commercial Papers. Commercial papers are issued in denominations of ₹ 5 lakhs or multiples thereof and the interest rate is generally linked to the yield on the one-year government bond.

All eligible issuers are required to get the credit rating from Credit Rating Information Services of India Ltd, (CRISIL), or the Investment Information and Credit Rating Agency of India Ltd (ICRA) or the Credit Analysis and Research Ltd (CARE) or the FITCH Ratings India Pvt. Ltd or any such other credit rating agency as is specified by the Reserve Bank of India.

Question 27

EXPLAIN: Callable bonds and Puttable bonds. (PYP 2 Marks Jan'21)

Answer 27

(i) **Callable bonds:** A callable bond has a call option which gives the issuer the right to

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redeem the bond before maturity at a predetermined price known as the call price (Generally at a premium).

(ii) **Puttable bonds:** Puttable bonds give the investor a put option (i.e. the right to sell the bond) back to the company before maturity.

Question 28

What is debt securitization? EXPLAIN the basics of debt securitization process. (PYP 4 Marks, May '19)

Answer 28

Debt Securitization: It is a method of recycling of funds. It is especially beneficial to financial intermediaries to support the lending volumes. Assets generating steady cash flows are packaged together and against this asset pool, market securities can be issued, e.g. housing finance, auto loans, and credit card receivables.

Process of Debt Securitization

(iv) **The origination function** – A borrower seeks a loan from a finance company, bank, HDFC. The credit worthiness of borrower is evaluated and contract is entered into with repayment schedule structured over the life of the loan.

(v) **The pooling function** – Similar loans on receivables are clubbed together to create an underlying pool of assets. The pool is transferred in favor of Special Purpose Vehicle (SPV), which acts as a trustee for investors.

(vi) **The securitization function** – SPV will structure and issue securities on the basis of asset pool. The securities carry a coupon and expected maturity which can be asset-based/mortgage based. These are generally sold to investors through merchant bankers. Investors are – pension funds, mutual funds, insurance funds.
The process of securitization is generally without recourse i.e. investors bear the credit risk and issuer is under an obligation to pay to investors only if the cash flows are received by him from the collateral. The benefits to the originator are that assets are shifted off the balance sheet, thus giving the originator recourse to off-balance sheet funding.

Question 29

List out the conditions, framed by SEBI, which a company needs to fulfil in order to issue of bonus shares. (PYP 4 Marks May '23)

Answer 29

To issue Bonus shares, a Company needs to fulfill all the conditions given by Securities Exchange Board of India (SEBI):

(i) As per SEBI, the bonus shares are issued not in lieu of cash dividends.

(ii) A bonus issue should be authorized by Article of Association (AOA) and not to be declared unless all partly paid-up shares have been converted into fully paid-up shares.

(iii) The Company should not have defaulted on re-payment of loan, interest, and any statutory dues.

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(iv) Bonus shares are to be issued only from share premium and free reserves and not from capital reserve on account of fixed assets revaluation.

Question 30

DEFINE Masala bond. (PYP 2 Marks May '18)

Answer 30

Masala bond: Masala (means spice) bond is an Indian name used for Rupee denominated bond that Indian corporate borrowers can sell to investors in overseas markets. These bonds are issued outside India but denominated in Indian Rupees. NTPC raised Rest. 2,000 crores via masala bonds for its capital expenditure in the year 2016.

Question 31

Write short notes on Bridge Finance and Clean Packing Credit. (PYP 4 Marks Dec '21)

Answer 31

Bridge Finance: Bridge finance refers to loans taken by a company normally from commercial banks for a short period because of pending disbursement of loans sanctioned by financial institutions. Though it is of short-term nature but since it is an important step in the facilitation of long-term loan, therefore it is being discussed along with the long term sources of funds. Normally, it takes time for financial institutions to disburse loans to companies. However, once the loans are approved by the term lending institutions, companies, in order not to lose further time in starting their projects, arrange short term loans from commercial banks. The bridge loans are repaid/ adjusted out of the term loans as and when disbursed by the concerned institutions. Bridge loans are normally secured by hypothecating movable assets, personal guarantees and demand promissory notes. Generally, the rate of interest on bridge finance is higher as compared with that on term loans.

Clean packing credit: This is an advance made available to an exporter only on production of a firm export order or a letter of credit without exercising any charge or control over raw material or finished goods. It is a clean type of export advance. Each proposal is weighed according to particular requirements of the trade and credit worthiness of the exporter. A suitable margin has to be maintained. Also, Export Credit Guarantee Corporation (ECGC) cover should be obtained by the bank.

Question 32

Explain in brief following Financial Instruments:

(i) **Euro Bonds**

(ii) **Floating Rate Notes**

(iii) **Euro Commercial paper**

(iv) **Fully Hedged Bond (PYP 4 Marks, Nov'18)**

Answer 32

i. **Euro bonds**: Euro bonds are debt instruments which are not denominated in the currency of the country in which they are issued. E.g. a Yen note floated in Germany.

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ii. **Floating Rate Notes**: Floating Rate Notes: are issued up to seven years' maturity. Interest rates are adjusted to reflect the prevailing exchange rates. They provide cheaper money than foreign loans.

iii. **Euro Commercial Paper(ECP):** ECPs are short term money market instruments. They are for maturities less than one year. They are usually designated in US Dollars.

iv. **Fully Hedged Bond**: In foreign bonds, the risk of currency fluctuations exists. Fully hedged bonds eliminate the risk by selling in forward markets the entire stream of principal and interest payments.

Question 33

Explain in brief the forms of Post Shipment Finance. (PYP 4 Marks, July'21)

Answer 33

Post-shipment Finance: It takes the following forms:

a. **Purchase/discounting of documentary export bills:** Finance is provided to exporters by purchasing export bills drawn payable at sight or by discounting since export bills covering confirmed sales and backed by documents including documents of the title of goods such as bill of lading, post parcel receipts, or air consignment notes.

b. **E.C.G.C. Guarantee**: Post-shipment finance, given to an exporter by a bank through purchase, negotiation or discount of an export bill against an order, qualifies for post- shipment export credit guarantee. It is necessary, however, that exporters should obtain a shipment or contracts risk policy of E.C.G.C. Banks insist on the exporters to take a contracts shipment (comprehensive risks) policy covering both political and commercial risks. The Corporation, on acceptance of the policy, will fix credit limits for individual exporters and the Corporation's liability will be limited to the extent of the limit so fixed for the exporter concerned irrespective of the amount of the policy.

c. **Advance against export bills sent for collection**: Finance is provided by banks to exporters by way of advance against export bills forwarded through them for collection, taking into account the creditworthiness of the party, nature of goods exported, since, standing of drawee, etc.

d. **Advance against duty draw backs, cash subsidy, etc**.: To finance export losses sustained by exporters, bank advance against duty draw-back, cash subsidy, etc., receivable by them against export performance. Such advances are of clean nature; hence necessary precaution should be exercised.

Question 34

Briefly DESCRIBE bridge finance. [MTP 2 Marks, Nov'21)

Answer 34

Bridge finance refers, normally, to loans taken by the business, usually from commercial banks for a short period, pending disbursement of term loans by financial institutions, normally it takes time for the financial institution to finalize procedures of creation of security, tie-up participation with other institutions etc. even though a positive appraisal of the project has been made. However, once the loans are approved in principle, firms in order not to lose further time in starting their projects arrange for

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bridge finance. Such temporary loan is normally repaid out of the proceeds of the principal term loans. It is secured by hypothecation of moveable assets, personal guarantees and demand promissory notes. Generally, rate of interest on bridge finance is higher as compared with that on term loans.

Question 35

HIGHLIGHT the similarities and differences between Samurai Bond and Bull Dog Bond. (RTP May 23)

Answer 35

Samurai Bond	• Samurai bonds are denominated in Japanese Yen JPY • Issued in Tokyo • Issuer Non- Japanese Company • Regulations: Japanese • Purpose: Access of capital available in Japanese market • Issue proceeds can be used to fund Japanese operation • Issue proceeds can be used to fund a company's local opportunities. • It can also be used to hedge foreign exchange risk
Bulldog Bond	• It is denominated in Bulldog Pound Sterling/Great Britain Pound (GBP)
	Issued in London Issuer Non- UK Company Regulations: Great Britain Purpose: Access of capital available in UK market Issue proceeds can be used to fund UK operation Issue proceeds can be used to fund a company's local opportunities

Question 36

DISCUSS the advantages and disadvantages of raising funds by issue of preference shares. (RTP May '21)

Answer 36

Advantages and disadvantages of raising funds by issue of preference shares

Advantages

(i) No dilution in EPS on enlarged capital base – On the other hand if equity shares are issued it reduces EPS, thus affecting the market perception about the company.

(ii) There is also the advantage of leverage as it bears a fixed charge (because companies are required to pay a fixed rate of dividend in case of issue of preference shares). Non-payment of preference dividends does not force a company into liquidity.

(iii) There is no risk of takeover as the preference shareholders do not have voting rights except where dividend payment are in arrears.

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(iv) The preference dividends are fixed and pre-decided. Hence preference shareholders cannot participate in surplus profits as the ordinary shareholders can except in case of participating preference shareholders.

(v) Preference capital can be redeemed after a specified period.

Disadvantages

(i) One of the major disadvantages of preference shares is that preference dividend is not tax deductible and so does not provide a tax shield to the company. Hence, preference shares are costlier to the company than debt e.g. debenture.

(ii) Preference dividends are cumulative in nature. This means that if in a particular year preference dividends are not paid they shall be accumulated and paid later. Also, if these dividends are not paid, no dividend can be paid to ordinary shareholders. The non-payment of dividend to ordinary shareholders could seriously impair the reputation of the concerned company.

Question 37

EXPLAIN the followings:

(a) Floating Rate Bonds

(b) Packing Credit. (RTP May '18)

Answer 37

(a) **Floating Rate Bonds**: These are the bonds where the interest rate is not fixed and is allowed to float depending upon the market conditions. These are ideal instruments which can be resorted to by the issuers to hedge themselves against the volatility in the interest rates. They have become more popular as a money market instrument and have been successfully issued by financial institutions like IDBI, ICICI etc.

(b) **Packing Credit**: Packing credit is an advance made available by banks to an exporter. Any exporter, having at hand a firm export order placed with him by his foreign buyer on an irrevocable letter of credit opened in his favour, can approach a bank for availing of packing credit. An advance so taken by an exporter is required to be liquidated within 180 days from the date of its commencement by negotiation of export bills or receipt of export proceeds in an approved manner. Thus Packing Credit is essentially a short-term advance.

Question 38

EXPLAIN in brief the features of Commercial Papers. [MTP 4 Mark, Apr'21, & Oct '23)

Answer 38

Commercial Paper: A Commercial Paper is an unsecured money market instrument issued in the form of a promissory note. The Reserve Bank of India introduced the commercial paper scheme in the year 1989 with a view to enabling highly rated corporate borrowers to diversify their sources of short- term borrowings and to provide an additional instrument to investors. Subsequently, in addition to the Corporate, Primary Dealers and All India Financial Institutions have also been allowed to issue Commercial Papers. Commercial papers are issued in denominations of ₹ 5 lakhs or multiples thereof and the interest rate is generally linked to the yield on the one-year government bond.

All eligible issuers are required to get the credit rating from Credit Rating Information

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Services of India Ltd, (CRISIL), or the Investment Information and Credit Rating Agency of India Ltd (ICRA) or the Credit Analysis and Research Ltd (CARE) or the FITCH Ratings India Pvt. Ltd or any such other credit rating agency as is specified by the Reserve Bank of India.

Question 39

STATE in brief four features of Plain Vanilla Bond. (MTP 2 Marks Sep'22)

Answer 39

Features of Plain Vanilla Bond:

- The issuer would pay the principal amount along with the interest rate.
- This type of bond would not have any options.
- This bond can be issued in the form of discounted bond or can be issued in the form of coupon bearing bond.

Question 40

What is debt securitization? EXPLAIN the basics of debt securitization process. (MTP 4 Marks, Oct'19 & March '23)

Answer 40

Debt Securitization: It is a method of recycling of funds. It is especially beneficial to financial intermediaries to support the lending volumes. Assets generating steady cash flows are packaged together and against this asset pool, market securities can be issued, e.g. housing finance, auto loans, and credit card receivables.

Process of Debt Securitization

(vii) **The origination function** – A borrower seeks a loan from a finance company, bank, HDFC. The credit worthiness of borrower is evaluated and contract is entered into with repayment schedule structured over the life of the loan.

(viii) **The pooling function** – Similar loans on receivables are clubbed together to create an underlying pool of assets. The pool is transferred in favor of Special Purpose Vehicle (SPV), which acts as a trustee for investors.

(ix) **The securitization function** – SPV will structure and issue securities on the basis of asset pool. The securities carry a coupon and expected maturity which can be asset-based/mortgage based. These are generally sold to investors through merchant bankers. Investors are – pension funds, mutual funds, insurance funds.
The process of securitization is generally without recourse i.e. investors bear the credit risk and issuer is under an obligation to pay to investors only if the cash flows are received by him from the collateral. The benefits to the originator are that assets are shifted off the balance sheet, thus giving the originator recourse to off-balance sheet funding.

Question 41

DISCUSS in briefly any two long term sources of finance for a partnership firm. (MTP 4 Marks April 22)

Answer 41

The two sources of long-term finance for a partnership firm are as follows:

Loans from Commercial Banks: Commercial banks provide long term loans for the

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purpose of expansion or setting up of new units. Their repayment is usually scheduled over a long period of time. The liquidity of such loans is said to depend on the anticipated income of the borrowers.

As part of the long term funding for a partnership firm, the banks also fund the long term working capital requirement (it is also called WCTL i.e. working capital term loan).

Lease financing: Leasing is a general contract between the owner and user of the asset over a specified period of time. The asset is purchased initially by the lessor (leasing company) and thereafter leased to the user (lessee firm) which pays a specified rent at periodical intervals. Thus, leasing is an alternative to the purchase of an asset out of own or borrowed funds. Moreover, lease finance can be arranged much faster as compared to term loans from financial institutions.

Question 42

EXPLAIN the limitations of Leasing? (PYP 2 Marks, May '19)

Answer 42

Limitations are:

The lease rentals become payable soon after the acquisition of assets and no moratorium period is permissible as in case of term loans from financial institutions. The lease arrangement may, therefore, not be suitable for setting up of the new projects as it would entail cash outflows even before the project comes into operation.

1) The leased assets are purchased by the lessor who is the owner of equipment. The seller's warranties for satisfactory operation of the leased assets may sometimes not be available to lessee.
2) Lessor generally obtains credit facilities from banks etc. to purchase the leased equipment which are subject to hypothecation charge in favor of the bank. Default in payment by the lessor may sometimes result in seizure of assets by banks causing loss to the lessee.
3) Lease financing has a very high cost of interest as compared to interest charged on term loans by financial institutions/banks.

Despite all these disadvantages, the flexibility and simplicity offered by lease finance is bound to make it popular. Lease operations will find increasing use in the near future.

Question 43

EXPLAIN any four types of Packing Credit. [MTP 4 Marks, Nov'21, Mar'22, & Oct '23)

Answer 43

(i) **Clean packing credit**: This is an advance made available to an exporter only on production of a firm export order or a letter of credit without exercising any charge or control over raw material or finished goods. It is a clean type of export advance. Each proposal is weighed according to particular requirements of the trade and credit worthiness of the exporter. A suitable margin has to be maintained. Also, Export Credit Guarantee Corporation (ECGC) cover should be obtained by the bank.

(ii) **Packing credit against hypothecation of goods:** Export finance is made available

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on certain terms and conditions where the exporter has pledge able interest and the goods are hypothecated to the bank as security with stipulated margin. At the time of utilizing the advance, the exporter is required to submit, along with the firm export order or letter of credit relative stock statements and thereafter continue submitting them every fortnight and/or whenever there is any movement in stocks.

(iii) **Packing credit against pledge of goods**: Export finance is made available on certain terms and conditions where the exportable finished goods are pledged to the banks with approved clearing agents who will ship the same from time to time as required by the exporter. The possession of the goods so pledged lies with the bank and is kept under its lock and key.

(iv) **E.C.G.C. guarantee:** Any loan given to an exporter for the manufacture, processing, purchasing, or packing of goods meant for export against a firm order qualifies for the packing credit guarantee issued by Export Credit Guarantee Corporation.

(v) **Forward exchange contract**: Another requirement of packing credit facility is that if the export bill is to be drawn in a foreign currency, the exporter should enter into a forward exchange contact with the bank, thereby avoiding risk involved in a possible change in the rate of exchange.

Question 44

DEFINE Debt Securitization. (MTP 2 Marks, April'21)

Answer 44

Debt Securitization is a process in which illiquid assets are pooled into marketable securities that can be sold to investors. The process leads to the creation of financial instruments that represent ownership interest in, or are secured by a segregated income producing asset or pool of assets. These assets are generally secured by personal or real property such as automobiles, real estate, or equipment loans but in some cases are unsecured.

Question 45

DEFINE Secured Premium Notes. (MTP 2 Marks, March'21 & March '23)

Answer 45

Secured Premium Notes: Secured Premium Notes is issued along with a detachable warrant and is redeemable after a notified period of say 4 to 7 years. The conversion of detachable warrant into equity shares will have to be done within time period notified by the company.

Question 46

EXPLAIN in short the term Letter of Credit. [MTP 4 Marks, May'20 & Sep '23]

Answer 46

Letter of Credit: It is an arrangement by which the issuing bank on the instructions of a customer or on its own behalf undertakes to pay or accept or negotiate or authorizes another bank to do so against stipulated documents subject to compliance with specified terms and conditions.

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Question 47

EXPLAIN the limitations of Leasing? (MTP 4 Marks, April'19)

Answer 47

Limitations are:

The lease rentals become payable soon after the acquisition of assets and no moratorium period is permissible as in case of term loans from financial institutions. The lease arrangement may, therefore, not be suitable for setting up of the new projects as it would entail cash outflows even before the project comes into operation.

1) The leased assets are purchased by the lessor who is the owner of equipment. The seller's warranties for satisfactory operation of the leased assets may sometimes not be available to lessee.
2) Lessor generally obtains credit facilities from banks etc. to purchase the leased equipment which are subject to hypothecation charge in favor of the bank. Default in payment by the lessor may sometimes result in seizure of assets by banks causing loss to the lessee.
3) Lease financing has a very high cost of interest as compared to interest charged on term loans by financial institutions/banks.

Despite all these disadvantages, the flexibility and simplicity offered by lease finance is bound to make it popular. Lease operations will find increasing use in the near future.

Question 48

EXPLAIN the importance of trade credit and accruals as source of short-term finance. DISCUSS the cost of these sources?. (MTP 4 Marks, Aug'18)

Answer 48

Trade credit and accruals as source of short-term finance like working capital refers to credit facility given by suppliers of goods during the normal course of trade. It is a short term source of finance. Micro small and medium enterprises (MSMEs) in particular are heavily dependent on this source for financing their working capital needs. The major advantages of trade credit are easy availability, flexibility and informality.

There can be an argument that trade credit is a cost free source of finance. But it is not. It involves implicit cost. The supplier extending trade credit incurs cost in the form of opportunity cost of funds invested in trade receivables. Generally, the supplier passes on these costs to the buyer by increasing the price of the goods or alternatively by not extending cash discount facility.

Section B

1. **External Commercial Borrowings can be accessed through ....**

(a) only automatic route

(b) only approval route

(c) both automatic and approval route

(d) neither automatic nor approval route

Ans: (c)

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2. **Reserves & Surplus are which form of financing?**
   - (a) Security Financing
   - (b) Internal Financing
   - (c) Loans Financing
   - (d) International Financing

Ans: (b)

3. **Which of the following marketable securities is the obligation of a commercial bank?**
   - (a) Commercial paper
   - (b) Negotiable certificate of deposit
   - (c) Repurchase agreement
   - (d) T-bills

Ans: (b)

4. **Internal sources of finance do not include:**
   - (a) Better management of working capital
   - (b) Ordinary shares
   - (c) Retained earnings
   - (d) Reserve and Surplus

Ans: (b)

5. **Equity shares:**
   - (a) Have an unlimited life, and voting rights and receive dividends
   - (b) Have a limited life, with no voting rights but receive dividends
   - (c) Have a limited life, and voting rights and receive dividends
   - (d) Have an unlimited life, and voting rights but receive no dividends

Ans: (a)

6. **External sources of finance do not include:**
   - (a) Debentures
   - (b) Retained earnings
   - (c) Overdrafts
   - (d) Leasing

Ans: (b)

7. **Debt capital refers to:**

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(a) Money raised through the sale of shares.

(b) Funds raised by borrowing that must be repaid.

(c) Factoring accounts receivable.

(d) Inventory loans.

Ans: (b)

8. In preference shares:

(a) Dividends are not available

(b) Limited voting rights are available

(c) Are not part of a company's share capital?

(d) Interest can be received

Ans: (b)

9. A debenture:

(a) Is a long-term loan

(b) Does not require security

(c) Is a short-term loan

(d) Receives dividend payments

Ans: (a)

10. The most popular source of short-term funding is:

(a) Factoring.

(b) Trade credit.

(c) Family and friends.

(d) Commercial banks.

Ans: (b)

11. Marketable securities are primarily:

(a) short-term debt instruments.

(b) short-term equity securities.

(c) long-term debt instruments.

(d) long-term equity securities.

Ans: (a)

12. With reference to `IFC Masala Bonds', which of the statements given below is/are correct?

1. The International Finance Corporation, which offered these bonds, is anarm of the World Bank.

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2. They are rupee-denominated bonds and are a source of debt financingfor the public and private sector.

(a) 1 only

(b) 2 only

(c) Both 1 and 2

(d) Neither 1 nor 2

Ans: (c)

Theoretical Questions Answers

Question 6

DISTINGUISH between Preference Shares and Debentures

Answer 6

Difference between Preference Shares and Debentures:

Basis of difference	Preference shares	Debentures
Ownership	Preference Share Capital is aspecial kind of share	Debenture is a type of loan which can be raised from the public
Payment of Dividend/ Interest	The preference shareholders enjoy priority both as regard to the payment of a fixed amountof dividend and also towards repayment of capital in case of winding up of a company	It carries fixed percentage of interest.
Nature	Preference shares are a hybrid form of financing with some characteristic of equity shares and some attributes of DebtCapital.	Debentures are instrument for raising long term capital with a fixed period of maturity.

Question 4

DISCUSS the features of Secured Premium Notes (SPNs).

Answer 4

Secured Premium Notes: Secured Premium Notes is issued along with a detachable warrant and is redeemable after a notified period of say 4 to 7years. The conversion of detachable warrant into equity shares will have to be done within time period notified by the company.

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Question 1

DESCRIBE the different types of Packing Credit.

Answer 1

Types of Packing Credit

(a) **Clean packing credit:** This is an advance made available to an exporter only on production of a firm export order or a letter of credit without exercising any charge or control over raw material or finished goods. Itis a clean type of export advance. Each proposal is weighed according to particular requirements of the trade and credit worthiness of the exporter. A suitable margin has to be maintained. Also, Export Credit Guarantee Corporation (ECGC) cover should be obtained by the bank.

(b) **Packing credit against hypothecation of goods:** Export finance is made available on certain terms and conditions where the exporter has pledge able interest and the goods are hypothecated to the bank as security with stipulated margin. At the time of utilising the advance, the exporter is required to submit, along with the firm export order or letter of credit relative stock statements and thereafter continue submitting them every fortnight and/or whenever there is any movement in stocks.

(c) **Packing credit against pledge of goods:** Export finance is made available on certain terms and conditions where the exportable finished goods are pledged to the banks with approved clearing agents who will ship the same from time to time as required by the exporter. The possession of the goods so pledged lies with the bank and is kept under its lock and key.

(d) **E.C.G.C. guarantee:** Any loan given to an exporter for the manufacture, processing, purchasing, or packing of goods meant for export against a firm order qualifies for the packing credit guarantee issued by Export Credit Guarantee Corporation.

(e) **Forward exchange contract:** Another requirement of packing credit facility is that if the export bill is to be drawn in a foreign currency, the exporter should enter into a forward exchange contact with the bank, thereby avoiding risk involved in a possible change in the rate of exchange.

Question 5

DISCUSS ADRs and GDRs.

Answer 5

Indian companies are permitted to raise foreign currency resources through issue of ordinary equity shares through Global Depository Receipts (GDRs)/ American Depository Receipts (ADRs) and / or issue of Foreign Currency Convertible Bonds (FCCB) to foreign investors i.e. institutional investors or individuals (including NRIs) residing abroad. Such an investment is treated as Foreign Direct Investment (FDI). The government guidelines on these issues are covered under the Foreign Currency Convertible Bonds and Ordinary Shares (through depositary receipt mechanism) Scheme, 1993 and notifications issued after the implementationof the said scheme.

(a) **American Depository Receipts (ADRs):** These are securities offered by **non-US companies who want to list on any of the US exchange**. Each ADR represents a certain number of a company's regular shares. ADRs allow US investors to buy

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shares of these companies without the costsof investing directly in a foreign stock exchange.

The Indian companies have preferred the GDRs to ADRs because the US market exposes them to a higher level of responsibility than a European listing in the areas of disclosure, costs, liabilities and timing. The regulations are somewhat more stringent and onerous, even for companies already listed and held by retail investors in their home country. The most onerous aspect of a US listing for the companies isto provide full, half yearly and quarterly accounts in accordance with, orat least reconciled with US GAAPs.

(b) **Global Depository Receipts (GDRs):** These are negotiable certificates held in the bank of one country representing a **specific number of shares of a stock traded on the exchange of another country.** These financial instruments are used by companies to raise capital in either dollars or Euros. These are mainly traded in European countries and particularly in London.

ADRs/GDRs and the Indian Scenario: Indian companies are shedding their reluctance to tap the US markets. Infosys Technologies was thefirst Indian company to be listed on Nasdaq in 1999. However, the first Indian firm to issue sponsored GDR or ADR was Reliance industriesLimited. Beside these two companies there are several other Indian firms which are also listed in the overseas bourses. These are Wipro, MTNL, State Bank of India, Tata Motors, Dr. Reddy's Lab, etc.

Question 3

EXPLAIN in brief the features of Commercial Paper.

Answer 3

A Commercial Paper is an unsecured money market instrument issued in the form of a promissory note. The Reserve Bank of India introduced the commercial paper scheme in the year 1989 with a view to enabling highly rated corporate borrowers to diversify their sources of short- term borrowings and to provide an additional instrument to investors. Subsequently, in addition to the Corporate, Primary Dealers and All India Financial Institutions have also been allowed to issue Commercial Papers. Commercial papers are issued in denominations of `5 lakhs or multiples thereofand the interest rate is generally linked to the yield on the one-year government bond.

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Question 2

Discuss the advantages of raising funds by issue of equity shares.

Answer 2

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Advantages of raising funds by issue of equity shares are:

(i) It is a permanent source of finance. Since such shares are not redeemable, the company has no liability for cash outflows associated with its redemption. In other words, once the company has issued equity shares, they are tradable i.e. they can be purchased and sold. So, a company is in no way responsible for any cash outflows of investors by which they become the shareholders of the company by purchasing the shares of existing shareholders.

(ii) Equity capital increases the company's financial base and thus helps to further the borrowing powers of the company. In other words, by issuing equity shares, a company manage to raise some money for its capital expenditures and this helps it to raise more funds with the help of debt. This is because; debt will enable the company to increase its earnings per share and consequently, its share prices.

(iii) A company is not obliged legally to pay dividends. Hence in times of uncertainties or when the company is not performing well, dividend payments can be reduced or even suspended.

(iv) A company can make further increase its share capital by initiating a right issue.

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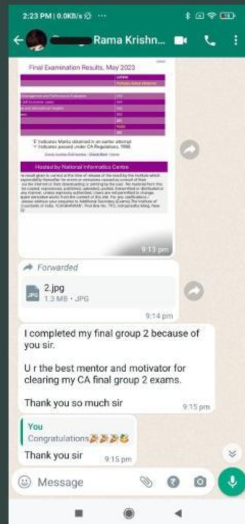

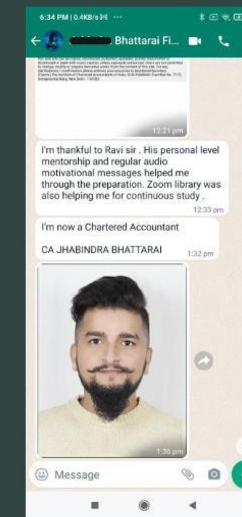

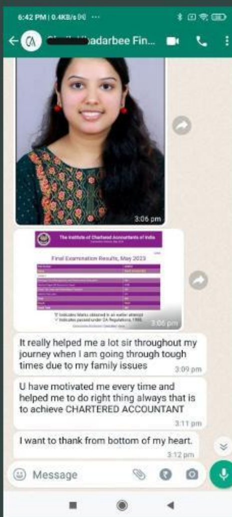

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Chapter 3
Financial Analysis and Planning Ratio Analysis

Attempt wise Distribution

Q & A													
Attempts	May '18	Nov' 18	May '19	Nov'19	May '20	Nov' 20	Jan '21	Jul' 21	Dec' 21	May' 22	Nov' 22	May' 23	Nov' 23
MTP	Q20	Q22, Q29	Q19	Q37		Q18, Q36		Q17, Q35	Q16, Q34	Q15,Q25,Q33	Q14, Q32	Q13	
PYP	Q6	Q7	Q26	Q1		Q27	Q2	Q9	Q5	Q24	Q4	Q23	
RTP	Q3	Q31		Q30		Q11, Q21		Q10	Q8	Q38	Q39	Q28	Q12

Section A

Question 1

Following information has been gathered from the books of Tram Ltd. the equity shares of which is trading in the stock market at Rs.14.

Particulars	Amount (₹)
Equity Share Capital (face value Rs.10)	10,00,000
10% Preference Shares	2,00,000
Reserves	8,00,000
10% Debentures	6,00,000
Profit before Interest and Tax for the year	4,00,000
Interest	60,000
Profit after Tax for the year	2,40,000

Calculate the following:

i. **Return on Capital Employed**

ii. **Earnings per share**

iii. **PE ratio. (PYP 5 Marks, Nov'19)**

Answer 1

i. Calculation of Return on capital employed (ROCE)

Capital employed = Equity Shareholders' funds + Debenture + Preference shares

= ₹ (10,00,000 + 8,00,000 + 6,00,000 + 2,00,000)

= Rs.26,00,000

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Return on capital employed [ROCE-(Pre-tax)]= $\frac{\text{PBIT}}{\text{Capital Employed}} \times 100$

$= \frac{\text{Rs.4,00,000}}{\text{Rs.26,00,000}} \times 100 = 15.38\%$ (approx.)

Return on capital employed [ROCE-(Post-tax)]= $\frac{\text{Profit After tex}}{\text{Capital Employed}} \times 100$

ii. $\frac{\text{Rs.240,000}}{\text{Rs.26,00,000}} \times 100 = 9.23\%$ (approx.)

iii. Calculation of Earnings per share

Earnings per share = $\frac{\text{Earnings available to equity shareholders}}{\text{No of equity shares}}$

$= \frac{\text{Profit after tax} - \text{preference Dividend}}{\text{No of equity shares}}$

$= \frac{\text{Rs(.2,40,000} - \text{20,000)}}{\text{Rs.1,00,000}} = \text{Rs.2.20}$

iv. Calculation of PE ratio

PE = $\frac{\text{Market Price per Share (MPS)}}{\text{Earning per Shares (EPS)}}$

$= \frac{\text{Rs14}}{\text{Rs 2.20}} = 6.364$ (approx.)

Question 2

XYZ Ltd. has Owner's equity of Rs. 2,00,000 and the ratios of the company are as follows: (PYP 5 Marks Jan'21)

Current debt to total debt	**0.3**
Total debt to Owner's equity	**0.5**
Fixed assets to Owner's equity	**0.6**
Total assets turnover Inventory	**2 times**
Inventory turnover	**10 times**

COMPLETE the following Balance Sheet from the information given above:

Liabilities	(Rs.)	Assets	(Rs.)
Current Debt	-	Cash	-
Long-term Debt	-	Inventory	-
Total Debt	-	Total Current Assets	-
Owner's Equity	-	Fixed Assets	-

Answer 2

Balance Sheet

Liabilities	(Rs.)	Assets	(Rs.)

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Current debt	30,000	Cash (balancing figure)	1,20,000
Long term debt	70,000	Inventory	60,000
Total Debt	1,00,000	Total Current Assets	1,80,000
Owner's Equity	2,00,000	Fixed Assets	1,20,000
Total liabilities	3,00,000	Total Assets	3,00,000

Workings:

Total debt = 0.50 x Owner's Equity = 0.50 x Rs. 2,00,000 = Rs. 1,00,000 Further,

Current debt to Total debt = 0.30

So, Current debt = 0.30 × Rs. 1,00,000 = Rs. 30,000 Long term debt = Rs. 1,00,000 - Rs. 30,000 = Rs. 70,000

2.Fixed assets = 0.60 × Owner's Equity = 0.60 × Rs. 2,00,000 = Rs. 1,20,000
3.Total Liabilities = Total Debt + Owner's Equity
= Rs. 1,00,000 + Rs. 2,00,000 = Rs. 3,00,000
Total Assets = Total Liabilities = Rs. 3,00,000
Total assets to turnover = 2 Times; Inventory turnover = 10 Times

Hence, Inventory /Total assets = 2/10=1/5,

Therefore, Inventory = Rs. 3,00,000/5 = Rs. 60,000

Question 3

Based on the following particulars, PREPARE a balance sheet showing various assets and liabilities of T Ltd. (RTP May '18)

Fixed assets turnover ratio	**8 times**
Capital turnover ratio	**2 times**
Inventory Turnover	**8 times**
Receivable turnover	**4 times**
Payable turnover	**6 times**
GP Ratio	**25%**

Gross profit during the year amounts to Rs.8,00,000. There is no long-term loan or overdraft. Reserve and surplus amount to RS.2,00,000. Ending inventory of the year is RS. 20,000 above the beginning inventory.

Answer 3

a. G.P. ratio = $\frac{\text{Gross Profit}}{\text{Sales}}$

Sales = $\frac{\text{Gross Profit}}{25} \times 100$

$\frac{8,00,000}{25} \times 100$=32,00,000

b. Cost of Sales= Sales – Gross profit
= RS.32,00,000 - Rs.8,00,000
= RS.24,00,000

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c. Receivable turnover r $= \frac{\text{Sales}}{\text{Receivables}} = 4$

$= \text{Receivables} = \frac{\text{Sales}}{4}$

$= \frac{\text{Rs.32,00,000}}{4} = \text{Rs.8,00,000}$

d. Fixed assets turnover $= \frac{\text{Cost of Sales}}{\text{Fixed Assets}} = 8$

Fixed assets $= \frac{\text{Cost of Sales}}{8} = \frac{\text{Rs.24,00,000}}{8} = \text{RS.3,00,000}$

e. Inventory turnover $= \frac{\text{Cost of Sales}}{\text{Average Stock}} = 8$

Average Stock $= \frac{\text{Cost of Sales}}{\text{Average Stock}} = \frac{\text{Rs.24,00,000}}{8} = \text{RS.3,00,000}$

Average Stock $= \frac{\text{Opening Stock + Closing Stock}}{2}$

Average Stock $= \frac{\text{Opening Stock + Closing Stock+20,000}}{2}$

Average Stock Opening Stock	= Opening Stock + RS. 10,000 = Average Stock - RS.10,000
	= RS.3,00,000 - ₹10,000
	= RS.2,90,000
Closing Stock	= Opening Stock + RS.20,000
f. Payable turnover	= RS.2,90,000 + RS. 20,000 = RS.3,10,000 $= \frac{\text{Purchase}}{\text{Capital Emploayed}} = 2$

Purchases= Cost of Sales + Increase in Stock
= RS.24,00,000 + RS. 20,000 = RS.24,20,000

Payables $= \frac{\text{Purchase}}{6} = \frac{24,20.000}{2} = 12,00,000$

g. Capital turnover $= \frac{\text{Cost of Sales}}{\text{Capital Emploayed}} = 2$

Capital Employed $= \frac{\text{Cost of Sales}}{\text{Capital Emploayed}} = 2 = \frac{24,20.000}{2} = 12,00,000$

h. Capital= Capital Employed – Reserves & Surplus
= Rs 12,00,000 – Rs 2,00,000 = Rs 10,00,000

Balance Sheet of T Ltd as on……

Liabilities	Amount (₹)	Assets	Amount (₹)
Capital	10,00,000	Fixed Assets	3,00,000

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Reserve & Surplus	2,00,000	Inventories	3,10,000
Payables	4,03,333	Receivables	8,00,000
		Other Current Assets	1,93,333
	16,03,333		16,03,333

Question 4

The following figures are related to the trading activities of M Ltd.

Total assets	**₹ 10,00,000**
Debt to total assets	**50%**
Interest cost	**10% per year**
Direct Cost	**10 times of the interest cost**
Operating Exp.	**₹ 1,00,000**

The goods are sold to customers at a margin of 50% on the direct cost Tax Rate is 30%

You are required to calculate

(i) **Net profit margin**

(ii) **Net operating profit margin**

(iii) **Return on assets**

(iv) **Return on owner's equity (PYP 5 Marks Nov '22)**

Answer 4

(i) **Computation of Net Profit Margin**

Debt = (10,00,000 x 50%) = ₹5,00,000

Interest cost = $5,00,000 \times \left(\frac{10}{100}\right) = 50,000$

Direct cost = 50,000 x 10 = ₹5,00,000

Sales = 5,00,000 x 150% = ₹7,50,000

	(₹)
Gross profit = 7,50,000 – 5,00,000	= 2,50,000
Less: Operating expenses	= 1,00,000
∴ EBIT	= 1,50,000
Less: Interest	= 50,000

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∴ EBT	=	1,00,000
Less: Tax @ 30%	=	30,000
∴ PAT	=	70,000

Net profit margin $= \left(\frac{70,000}{7,50,000}\right) \times 100 = 9.33\ \%$

(ii) Net Operating Profit margin

Net operating profit margin $= \left(\frac{EBIT}{Sales}\right) \times 100$

$= \left(\frac{1,50,000}{7,50,000}\right) \times 100 = 20\ \%$

(iii) Return on Assets

Return on Assets $= \left[\left(\frac{PAT+Interest}{Total\ Assets}\right)\right] \times 100$

$= \left[\left(\frac{1,20,000}{10,00,000}\right)\right] \times 100 = 12\ \%$

(OR)

Return on Assets $= \frac{EBIT}{Assets}$ X 100

$= \left(\frac{1,50,000}{10,00,000}\right) \times 100 = 15\ \%$

(OR)

$= \frac{70,000}{10,00,000}$ X 100 = 7%

(OR)

$= \left[\frac{1,50,000(1-0.3)}{10,00,000}\right]$ X 100 = 10.5%

(iv) Return on owner's equity

Return $= \frac{PAT}{Owner's\ equity}$ X100 $= \frac{70,000}{5,00,000}$ X 100 = 14%

Question 5

Following are the data in respect of ABC Industries for the year ended 31 st March, 2021:

Debt to Total assets ratio	**:**	**0.40**
Long-term debts to equity ratio	**:**	**30%**
Gross profit margin on sales	**:**	**20%**
Accounts receivables period	**:**	**36 days**
Quick ratio	**:**	**0.9**
Inventory holding period	**:**	**55 days**

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Cost of goods sold :	**₹ 64,00,000**

Liabilities	₹	Assets	₹
Equity Share Capital	**20,00,000**	**Fixed assets**	
Reserves & surplus		**Inventories**	
Long-term debts		**Accounts receivable**	
Accounts payable		**Cash**	
Total	**50,00,000**	**Total**	

Required:
Complete the Balance Sheet of ABC Industries as on 31st March, 2021. All calculations should be in nearest Rupee. Assume 360 days in a year. (PYP 10 Marks Dec '21)

Answer 5

(1) Total liability = Total Assets

= '50,00,000 Debt to Total

Asset Ratio = 0.40

$$\frac{Debt}{Total\ Assets} = 0.40$$

Or, $\frac{Debt}{50,00,000} = 0.40$

So, Debt = 20,00,000

(2) Total Liabilities = ₹ 50,00,000

Equity share Capital + Reserves + Debt = ₹ 50,00,000

So, Reserves = ₹ 50,00,000 - ₹ 20,00,000 - ₹ 20,00,000

So, Reserves & Surplus = ₹ 10,00,000

(3) $\frac{Long\ term\ Debt}{Equity\ Shareholders'Fund} = 30\%$*

$= \frac{Long\ term\ Debt}{(20,00,000+10,00,000)} = 30\%$

Long Term Debt = ₹ 9,00,000

(4) So, Accounts Payable = ₹ 20,00,000 – ₹ 9,00,000

Accounts Payable = ₹ 11,00,000

(5) Gross Profit to sales = 20%

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Cost of Goods Sold = 80% of Sales = ₹ 64,00,000
Sales = 100/80 X 64,00,000 = 80,00,000

(6) Inventory Turnover = $\frac{360}{55}$

$\frac{COGS}{Closing\ Inventory} = \frac{360}{55}$

$\frac{64,00,000}{Closing\ inventory} = \frac{360}{55}$

Closing inventory = 9,77,778

(7) Accounts Receivable period = 36 days

$\frac{Accounts\ Receivable}{Credit\ Sales} \times 360 = 36$

Accounts Receivable = 36/360 × credit sales
= 36 / 360 × 80,00,000 (assumed all sales are on credit)

Accounts Receivable = ₹ 8,00,000

(8) Quick Ratio = 0.9

$\frac{Quick\ Assets}{Current\ liablities} = 0.9$

$\frac{Cash+Debtors}{11,00,000} = 0.9$

Cash + 8,00,000 = ₹ 9,90,000

Cash = ₹ 1,90,000

(9) Fixed Assets = Total Assets- Current Assets = 50,00,000 – (9,77,778+8,00,000+1,90,000)

= 30,32,222

Balance Sheet of ABC Industries as on 31st March 2021

Liabilities	(₹)	Assets	(₹)
Share Capital	20,00,000	Fixed Assets	30,32,222
Reserved surplus	10,00,000	Current Assets:	
Long Term Debt	9,00,000	Inventory	9,77,778
Accounts Payable	11,00,000	Accounts Receivables	8,00,000
		Cash	1,90,000
Total	50,00,000	Total	50,00,000

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(*Note: Equity shareholders' fund represent equity in 'Long term debts to equity ratio'. The question can be solved assuming only share capital as 'equity')

Question 6

The accountant of Moon Ltd. has reported the following data:

Gross profit	**Rs.60,000**
Gross Profit Margin	**20 per cent**
Total Assets Turnover	**0.30:1**
Net Worth to Total Assets	**0.90:1**
Current Ratio	**1.5:1**
Liquid Assets to Current Liability	**1:1**
Credit Sales to Total Sales	**0.80:1**
Average Collection Period	**60 days**

Assume 360 days in a year You are required to complete the following:
Balance Sheet of Moon Ltd. (PYP 5 Marks, May'18)

Liabilities	₹	Assets	₹
Net Worth		Fixed Assets	
Current Liabilities		Stock	
		Debtors	
		Cash	
Total Liabilities		Total Assets	

Answer 6

Preparation of Balance Sheet Working Notes:

Sales = Gross Profit / Gross Profit Margin
= 60,000 / 0.2 = Rs.3,00,000
Total Assets = Sales / Total Asset Turnover
= 3,00,000 / 0.3 = Rs.10,00,000
Net Worth = 0.9 X Total Assets
= 0.9 X Rs.10,00,000 = Rs.9,00,000
Current Liability = Total Assets – Net Worth
= Rs.10,00,000 – Rs.9,00,000
= Rs.1,00,000
Current Assets = 1.5 x Current Liability
= 1.5 x Rs.1,00,000 = Rs.1,50,000
Stock = Current Assets – Liquid Assets
= Current Assets – (Liquid Assets / Current Liabilities =1)
= 1,50,000 – (LA / 1,00,000 = 1) = Rs. 50,000
Debtors = Average Collection Period X Credit Sales / 360
= 60 x 0.8 x 3,00,000 / 360 = Rs. 40,000

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Cash = Current Assets – Debtors – Stock
= Rs.1,50,000 – Rs. 40,000 – Rs. 50,000
=Rs. 60,000
Fixed Assets = Total Assets – Current Assets
= Rs.10,00,000 – Rs.1,50,000
= ₹ 8,50,000
Balance Sheet

Liabilities	₹	Assets	₹
Net Worth Current Liabilities	9,00,000 1,00,000	Fixed Assets Stock Debtors Cash	8,50,000 50,000 40,000 60,000
Total liabilities	10,00,000	Total Assets	10,00,000

Question 7

The following is the information of XML Ltd. relate to the year ended 31-03-2018:

Gross Profit	**20% of Sales**
Net Profit	**10% of Sales**
Inventory Holding period	**3 months**
Receivable collection period	**3 months**
Non-Current Assets to Sales	**1 : 4**
Non-Current Assets to Current Assets	**1 : 2**
Current Ratio	**2 : 1**
Non-Current Liabilities to Current Liabilities	**1 : 1**
Share Capital to Reserve and Surplus	**4 : 1**
Non-current Assets as on 31st March, 2017	**Rs.50,00,000**
Assume that:	

(i) No change in Non-Current Assets during the year 2017-18
(ii) No depreciation charged on Non-Current Assets during the year 2017-18.
(iii) Ignoring Tax

You are required to Calculate cost of goods sold, Net profit, Inventory, Receivables and Cash for the year ended on 31st March, 2018(PYP 5 Marks, Nov'18)

Answer 7

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Workings

$$\frac{\textbf{Non Current Assets}}{\textbf{Curent Assets}} = \frac{1}{2}$$

Or $\frac{50,00,000}{\text{Curent Assets}} = \frac{1}{2}$

So, Current Assets = Rs.1,00,00,000 Now further,

$$\frac{\text{Non CurrentAssets}}{\text{Sales}} = \frac{1}{4}$$

$Or \frac{50,00,000}{\text{Curent Assets}} = \frac{1}{4}$

So, Sales = Rs.2,00,00,000

Calculation of Cost of Goods sold, Net profit, Inventory, Receivables and Cash:

Cost of Goods Sold (COGS):

Cost of Goods Sold = Sales- Gross Profit

= Rs.2,00,00,000 – 20% of Rs.2,00,00,000

= Rs.1,60,00,000

Net Profit = 10% of Sales = 10% of Rs.2,00,00,000

= Rs.20,00,000

Inventory:

Inventory Holding Period = $\frac{12\ month}{\text{InventoryTurnover Ratio}}$

$4 = \frac{COGC}{\text{verageInventory}}$

$4 = \frac{1,60,00,000}{\text{AverageInventory}}$

Average or Closing Inventory = Rs.40,00,000

Receivables:

Receivable Collection Period = $\frac{12\ month}{\text{ReceivablesTurnover Ratio}}$

Or Receivables Turnover Ratio = 12/ 3 = 4 = $\frac{Credit\ Sales}{\text{Average AccountsReceivable}}$

Or 4 = $\frac{\textbf{2,00,00,000}}{\text{Average Accounts Receivable}}$

So, Average Accounts Receivable/Receivables = Rs.50,00,000/-

Cash:

Cash* = Current Assets* – Inventory- Receivables Cash = Rs.1,00,00,000 - Rs.40,00,000 - Rs.50,00,000

= Rs.10,00,000

(it is assumed that no other current assets are included in the Current Asset)

Question 8

Following information has been gathered from the books of Tram Ltd. the equity shares of which is trading in the stock market at Rs.14.

Particulars	Amount (₹)
Equity Share Capital (face value	**10,00,000**

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Rs.10)	
10% Preference Shares	**2,00,000**
Reserves	**8,00,000**
10% Debentures	**6,00,000**
Profit before Interest and Tax for the year	**4,00,000**
Interest	**60,000**
Profit after Tax for the year	**2,40,000**

Calculate the following:

iv. Return on Capital Employed

v. Earnings per share

vi. PE ratio. (RTP Nov'21)

Answer 8

v. Calculation of Return on capital employed (ROCE)

Capital employed = Equity Shareholders' funds + Debenture + Preference shares

= ₹ (10,00,000 + 8,00,000 + 6,00,000 + 2,00,000)

= Rs.26,00,000

Return on capital employed [ROCE-(Pre-tax)]= $\frac{\text{PBIT}}{\text{Capital Employed}} \times 100$

= $\frac{\text{Rs.4,00,000}}{\text{Rs.26,00,000}} \times 100$ = 15.38% (approx.)

Return on capital employed [ROCE-(Post-tax)]= $\frac{\text{Profit After tex}}{\text{Capital Employed}} \times 100$

vi. $\frac{\text{Rs.240,000}}{\text{Rs.26,00,000}} \times 100 = 9.23\%$ (approx.)

vii. Calculation of Earnings per share

Earnings per share = $\frac{\text{Earnings availableto equity shareholders}}{\text{No of equity shares}}$

= $\frac{\text{Profit after tax} - \text{preference Dividend}}{\text{No of equity shares}}$

= $\frac{\text{Rs(.2,40,000} - \text{20,000)}}{\text{Rs.1,00,000}}$ = Rs.2.20

viii. Calculation of PE ratio

PE = $\frac{\text{Market Price per Share (MPS)}}{\text{Earning per Shares (EPS)}}$

= $\frac{\text{Rs14}}{\text{Rs 2.20}}$ = 6.364 (approx.)

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Question 9

Masco Limited has furnished the following ratios and information relating to the year ended 31st March 2021

Sales	**Rs.75,00,000**
Return on net worth	**25%**
Rate of income tax	**50%**
Share capital to reserves	**6:4**
Current ratio	**2.5**
Net profit to sales (After Income Tax)	**6.50%**
Inventory turnover (based on cost of goods sold)	**12**
Cost of goods sold	**Rs.22,50,000**
Interest on debentures	**Rs.75,000**
Receivables (includes debtors Rs.1,25,000)	**Rs.2,00,000**
Payables	**Rs.2,50,000**
Bank Overdraft	**Rs.1,50,000**

You are required to:

a. **Calculate the operating expenses for the year ended 31st March, 2021.**
b. **Prepare a balance sheet as on 31st March in the following format:**

Liabilities	Rs	Assets	Rs.
Share Capital		Fixed Assets	
Reserves and Surplus		Current Assets	
15% Debentures		Stock	
Payables		Receivables	
Bank Term Loan		Cash	

(PYP 10 Marks, July'21)

Answer 9

(a) **Calculation of Operating Expenses for the year ended 31st March, 2021**

Particulars		(Rs.)
Net Profit [@ 6.5% of Sales]		4,87,500
Add: Income Tax (@ 50%)		4,87,500
Profit Before Tax (PBT)		9,75,000
Add: Debenture Interest		75,000
Profit before interest and tax (PBIT)		10,50,000
Sales		75,00,000
Less: Cost of goods sold	2,50,000	

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PBIT	0,50,000	33,00,000
Operating Expenses		42,00,000

(b) **Balance Sheet as on 31st March, 2021**

Liabilities	Rs.	Assets	Rs.
Share Capital	11,70,000	Fixed Assets	18,50,000
Reserve and Surplus	7,80,000	Current Assets	
15% Debentures	5,00,000	Stock	1,87,500
Payables	2,50,000	Receivables	2,00,000
Bank Overdraft(or Bank Term Loan)	1,50,000	Cash	6,12,500
	28,50,000		28,50,000

Working Notes:

(i) **Calculation of Share Capital and Reserves**

The return on net worth is 25%. Therefore, the profit after tax of Rs.4,87,500 should be equivalent to 25% of the net worth.

Net worth$\times \frac{25}{100}$ = 4,87,500

∴ Net worth $\frac{4,87,500\times100}{25}$ = 19,50,000

The ratio of share capital to reserves is 6:4

Share Capital = 19,50,000 x 6/10 = Rs.11,70,000 Reserves = 19,50,000 x 4/10 = Rs.7,80,000

(ii) Calculation of Debentures

Interest on Debentures @ 15% (as given in the balance sheet format) = Rs. 75,000

∴ Debentures $= \frac{75,000\times100}{15}$ = Rs500,000

(iii) **Calculation of Current Assets**

Current Ratio = 2.5 Payables = Rs.2,50,000 Bank overdraft = Rs.1,50,000
Total Current Liabilities = Rs.2,50,000 + Rs.1,50,000 = Rs.4,00,000
∴ Current Assets = 2.5 x Current Liabilities = 2.5 × 4,00,000 = Rs.10,00,000

(iv) Calculation of Fixed Assets

Particulars	₹
Share capital	11,70,000
Reserves	7,80,000
Debentures	5,00,000
Payables	2,50,000
Bank Overdraft	1,50,000
Total Liabilities	28,50,000
Less: Current Assets	10,00,000

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Fixed Assets	18,50,000

(v) Calculation of Composition of Current Assets

Inventory Turnover = 12

$= \frac{\text{Cost of goods sold}}{\text{Closing stok}} = 12$

Closing stock = $\frac{22,50,000}{12}$ = Closing Stok Rs.1,87,500

Particulars	₹
Stock	1,87,500
Receivables	2,00,000
Cash (balancing figure)	6,12,500
Total Current Assets	10,00,000

Question 10

Given below are the estimations for the next year by Niti Ltd.:

Particulars	(₹ in crores)
Fixed Assets	5.20
Current Liabilities	4.68
Current Assets	7.80
Sales	23.00
EBIT	2.30

The company will issue equity funds of ₹ 5 crores in the next year. It is also considering the debt alternatives of ₹ 3.32 crores for financing the assets. The company wants to adopt one of the policies given below: (₹ in crores)

Financing Policy	Short term debt @ 12%	Long term debt @ 16%	Total
Conservative	1.08	2.24	3.32
Moderate	2.00	1.32	3.32
Aggressive	3.00	0.32	3.32

Assuming corporate tax rate at 30%, CALCULATE the following for each of the financing policy:

(i) Return on total assets

(ii) Return on owner's equity

(iii) Net Working capital

(iv) Current Ratio

Also advise which Financing policy should be adopted if the company wants high returns. (RTP May '21)

Answer 10

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(i) Return on total assets

Return on total assets = $\frac{EBIT(1-T)}{Total\ assets(FA+CA)}$

$= \frac{Rs.2.30\ Crores(1-0.3)}{Rs.5.20\ Crores + Rs.7.80\ Crores} = \frac{Rs.1.61\ Crores}{Rs.13\ Crores}$ = 0.1238 or 12.38%

(ii) Return on owner's equity

(Amount in ₹)

	Financing policy (₹)		
	Conservative	**Moderate**	**Aggressive**
Expected EBIT	2,30,00,000	2,30,00,000	2,30,00,000
Less: Interest			
Short term Debt @ 12%	12,96,000	24,00,000	36,00,000
Long term Debt @ 16%	35,84,000	21,12,000	5,12,000
Earnings before tax (EBT)	1,81,20,000	1,84,88,000	1,88,88,000
Less: Tax @ 30%	54,36,000	55,46,400	56,66,400
Earnings after Tax (EAT)	1,26,84,000	1,29,41,600	1,32,21,600
Owner's Equity	5,00,00,000	5,00,00,000	5,00,00,000
Return on owner's equity $= \frac{\text{Net Profit after taxes (EAT)}}{\text{Owners 'equity}}$	$= \frac{1,26,84,000}{5,00,00,000}$ = 0.2537 or 25.37%	$= \frac{1,29,41,600}{5,00,00,000}$ = 0.2588 or 25.88%	$= \frac{1,32,21,600}{5,00,00,000}$ = 0.2644 or 26.44%

(iii) Net Working capital

(₹ in crores)

	Financing policy		
	Conservative	**Moderate**	**Aggressive**
Current Liabilities (Excluding Short Term Debt)	4.68	4.68	4.68
Short term Debt	1.08	2.00	3.00
Total Current Liabilities	5.76	6.68	7.68
Current Assets	7.80	7.80	7.80
Net Working capital = Current Assets - Current Liabilities	7.80 - 5.76 = 2.04	7.80 - 6.68 = 1.12	7.80 - 7.68 = 0.12

(iv) Current ratio

(₹ in crores)

	Financing policy		
	Conservative	**Moderate**	**Aggressive**

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Current Ratio $= \frac{Current\ Assets}{Current\ Liabilities}$	= 7.80/5.76 = 1.35	= 7.80/6.68 = 1.17	= 7.80/7.68 = 1.02

Advise: It is advisable to adopt aggressive financial policy, if the company wants high return as the return on owner's equity is maximum in this policy i.e. 26.44%.

Question 11

MT Limited has the following Balance Sheet as on March 31, 2019 and March 31, 2020: Balance Sheet

	₹ in lakhs	
	March 31, 2019	**March 31, 2020**
Sources of Funds:		
Shareholders' Funds	**2,500**	**2,500**
Loan Funds	**3,500**	**3,000**
	6,000	**5,500**
Applications of Funds:		
Fixed Assets	**3,500**	**3,000**
Cash and bank	**450**	**400**
Receivables	**1,400**	**1,100**
Inventories	**2,500**	**2,000**
Other Current Assets	**1,500**	**1,000**
Less: Current Liabilities	**(1,850)**	**(2,000)**
	6,000	**5,500**

The Income Statement of the MT Ltd. for the year ended is as follows:

	₹ in lakhs	
	March 31, 2019	**March 31, 2020**
Sales	**22,500**	**23,800**
Less: Cost of Goods sold	**(20,860)**	**(21,100)**
Gross Profit	**1,640**	**2,700**
Less: Selling, General and Administrative expenses	**(1,100)**	**(1,750)**
Earnings before Interest and Tax (EBIT)	**540**	**950**

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Less: Interest Expense	(350)	(300)
Earnings before Tax (EBT)	190	650
Less: Tax	(57)	(195)
Profits after Tax (PAT)	133	455

Required:

CALCULATE for the year 2019-20-

(a) **Financial Leverage**

(b) **Return on Capital Employed (ROCE)**

(c) **Return on Equity (ROE)**

(d) **Average Collection period. [Take 1 year = 365 days] (RTP May '20)**

Answer 11

Ratios for the year 2019-2020

(a) **Inventory turnover ratio**

$$= \frac{COGS}{Average\ Inventory}$$

$$= \frac{Rs.21,100}{\frac{Rs.(2,500+2,000)}{2}} = \mathbf{9.4}$$

(b) **Financial leverage**

$$= \frac{EBIT}{EBT} = \frac{Rs.950}{Rs.650} = 1.46$$

(c) **ROCE**

$$= \frac{EBIT(1-t)}{Average\ Capital\ Employed} = \frac{Rs.950(1-0.3)}{Rs.\left(\frac{6,000+5,500}{2}\right)} = \frac{Rs.665}{Rs.5,750} \times 100 = 11.56\%$$

[Here Return on Capital Employed (ROCE) is calculated after Tax]

(d) **ROE**

$$= \frac{\text{Profits after tax}}{\text{Average Shareholders' funds}} = \frac{Rs.455}{Rs.2,500} \times 100 = 18.2\%$$

(e) **Average Collection Period**

$$\text{Average Sales per day} = \frac{Rs.23,800}{365} = \text{Rs. 65.20 Lakhs}$$

$$\text{Average Collection Period} = \frac{Average\ Receivables}{Average\ Sales\ per\ day}$$

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$$= \frac{\frac{Rs.(1,400+1,100)}{2}}{Rs.65.2} = \frac{Rs.1,250}{Rs.65.2} = 19.17 \text{ days}$$

Question 12

From the following table of financial ratios of Prabhu Chemicals Limited, comment on various ratios given at the end:

Ratios	2021	2022	Average of Chemical Industry
Liquidity Ratios			
Current ratio	2.1	2.3	2.4
Quick ratio	1.4	1.8	1.4
Receivable turnover ratio	8	9	8
Inventory turnover	8	9	5
Receivables collection period	46 days	41 days	46 days
Operating profitability			
Operating income –ROI	24%	21%	18%
Operating profit margin	18%	18%	12%
Financing decisions			
Debt ratio	45%	44%	60%
Return			
Return on equity	26%	28%	18%

COMMENT on the following aspect of Prabhu Chemicals Limited

(i) **Liquidity**

(ii) **Operating profits**

(iii) **Financing**

(iv) **Return to the shareholders (RTP Nov '23 & May '19)**

Answer 12

Ratios	Comment

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Liquidity	Current ratio has improved from last year and matching the industry average. Quick ratio also improved than last year and above the industry average. The reduced inventory levels (evidenced by higher inventory turnover ratio) have led to better quick ratio in FY 2022 compared to FY 2021. Further the decrease in current liabilities is greater than the collective decrease in inventory and debtors as the current ratio have increase from FY2021 to FY 2022.
Operating Profits	Operating Income-ROI reduced from last year, but Operating Profit Margin has been maintained. This may happen due to decrease in operating cost. However, both the ratios are still higher than the industry average.
Financing	The company has reduced its debt capital by 1% and saved earnings for equity shareholders. It also signifies that dependency on debt compared to other industry players (60%) is low.
Return to the shareholders	Prabhu's ROE is 26 per cent in 2021 and 28 per cent in 2022 compared to an industry average of 18 per cent. The ROE is stable and improved over the last year.

Question 13

Using the following information, PREPARE the balance sheet:

Long-term debt to net worth	**0.25**
Total asset turnover	**3**
Average collection period	**9 days**
Inventory turnover	**13**
Gross profit margin	**20%**
Acid-test ratio	**1.5**

***Assume a 360-day year and all sales on credit.**

Liabilities	₹	Assets	₹
Notes and payables	**2,50,000**	**Cash**	**?**
Long-term debt	**?**	**Accounts receivable**	**?**
Common stock	**8,00,000**	**Inventory**	**?**
Retained earnings	**16,00,000**	**Plant and equipment**	**?**

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Total liabilities and equity	**?**	**Total assets**	**?**

(MTP 5 Marks April '23)

Answer 13

Working Notes:

(i) Long term Debt

Long Term Debt/ Net worth = 0.25

Long Term Debt/ (8,00,000+16,00,000) = 0.25

Long term debt = 6,00,000

(ii) Total assets

Total liabilities and Equity = Notes and payables + Long-term debt + Common stock + Retained earnings

= 2,50,000+6,00,000+8,00,000+16,00,000

Total assets = Total liabilities and Equity = 32,50,000

(iii) Sales and Cost of Goods sold

Total asset turnover = 3 = Sales/ Total Assets =

Sales/32,50,000 Sales = 97,50,000

Cost of goods sold = (100% - Gross Profit margin) x Sales

= (100% - 20%) x 97,50,000 =78,00,000.

(iv) Current Assets

Inventory turnover = 13 = COGS/ Inventory =

78,00,000/Inventory Inventory = ₹ 6,00,000

Average collection period = 9 = Receivables/Sales x 360 = Receivables/

97,50,000 x 360 Accounts receivables = 2,43,750

Acid-test ratio = 1.5 = (Cash+ Accounts Receivables) /Notes and Payables

= (Cash +2,43,750)/2,50,000

= 1.5 Cash = 1,31,250

(v) Plant and equipment

= Total Assets - Current Assets

= 32,50,000 - (1,31,250+2,43,750+6,00,000) = 22,75,000

Balance Sheet

Liabilities	₹	Assets	₹
Notes and payables	2,50,000	Cash	1,31,250

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Long-term debt	6,00,000	Accounts receivable	2,43,750
Common stock	8,00,000	Inventory	6,00,000
Retained earnings	16,00,000	Plant and equipment	22,75,000
Total liabilities and equity	32,50,000	Total assets	32,50,000

Question 14

PI Limited has the following Balance Sheet as on March 31, 2020 and March 31, 2021:

Balance Sheet

Particulars	March 31, 2020	March 31, 2021
Sources of Funds:		
Shareholders' Funds	**87,500**	**87,500**
Loan Funds	**1,22,500**	**1,05,000**
	2,10,000	**1,92,500**
Applications of Funds:		
Fixed Assets	**87,500**	**1,05,000**
Cash and bank	**15,750**	**14,000**
Receivables	**49,000**	**38,500**
Inventories	**87,500**	**70,000**
Other Current Assets	**35,000**	**35,000**
Less: Current Liabilities	**(64,750)**	**(70,000)**
	2,10,000	**1,92,500**

The Income Statement of the PI Ltd. for the year ended is as follows:

Particulars	March 31, 2020	March 31, 2021
Sales	**7,87,500**	**8,33,000**
Less: Cost of Goods sold	**(7,30,100)**	**(7,38,500)**
Gross Profit	**57,400**	**94,500**
Less: Selling, General and Administrative expenses	**(38,500)**	**(61,250)**
Earnings before Interest and Tax (EBIT)	**18,900**	**33,250**
Less: Interest Expense	**(12,250)**	**(10,500)**
Earnings before Tax (EBT)	**6,650**	**22,750**
Less: Tax	**(1,995)**	**(6,825)**
Profits after Tax (PAT)	**4,655**	**15,925**

You are required to CALCULATE for the year 2020-21:

(i) **Inventory turnover ratio**

(ii) **Financial Leverage**

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(iii) Return on Capital Employed (after tax) (MTP Sep'22 5 Marks)

Answer 14

Ratios for the year 2020-21

(i) Inventory turnover ratio

$$= \frac{\text{COGS}}{\text{Average Inventory}} = \frac{₹\ 7,38,500}{\frac{₹\ (87,500+70,00)}{2}} = 9.4$$

(ii) Financial leverage

$$= \frac{EBIT}{EBT} = \frac{Rs.33,250}{Rs.22,750} = 1.46$$

(iii) ROCE

$$= \frac{EBIT(1-t)}{Average\ Capital\ Employed} = \frac{₹\ 33,250\ (1-0.3)}{₹\left(\frac{2,10,000+1,92,500}{2}\right)} = \frac{₹\ 23,275}{₹201,250} \times 100 = 11.56\ \%$$

Question 15

From the following information, you are required to PREPARE a summarised Balance Sheet for Rudra Ltd. for the year ended 31st March, 2022

Debt Equity Ratio	**1:1**
Current Ratio	**3:1**
Acid Test Ratio	**8:3**
Fixed Asset Turnover (on the basis of sales)	**4**
Stock Turnover (on the basis of sales)	**6**
Cash in hand	**5,00,000**
Stock to Debtor	**1:1**
Sales to Net Worth	**4**
Capital to Reserve	**1:2**

Gross Profit 20% of Cost

COGS to Creditor 10:1

Interest for entire year is yet to be paid on Long Term loan @ 10%. (MTP 5 Marks April 22)

Answer 15

Balance Sheet of Rudra Ltd.

Liabilities	Amount (₹)	Assets	Amount (₹)
Capital	10,00,000	Fixed Assets	30,00,000

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Reserves	20,00,000	Current Assets:	
Long Term Loan @ 10%	30,00,000	Stock in Trade	20,00,000
Current Liabilities:		Debtors	20,00,000
Creditors	10,00,000	Cash	5,00,000
Other Short-term Current Liability (Other STCL)	2,00,000		
Outstanding Interest	3,00,000		
	75,00,000		75,00,000

Working Notes:

Let sales be ₹ x

Balance Sheet of Rudra Ltd.

Liabilities	Amount (₹)	Assets	Amount (₹)
Capital		Fixed Assets	x/4
Reserves		Current Assets:	
Net Worth	x/4	Stock in Trade	x/6
Long Term Loan @ 10%	x/4	Debtors	x/6
		Cash	5,00,000
Current liabilities:			
Creditors	x/12		
Other Short-term Current Liability			
Outstanding Interest			
Total Current Liabilities	x/9+5,00,000/3		
Total		Total	

1. Fixed Asset Turnover = 4 = $\frac{X}{Fixed\ Assets}$

   Fixed Assets = $\frac{X}{4}$

2. Stock Turnover = 6 = $\frac{X}{Stock}$

   Stock = $\frac{X}{6}$

3. Sales to net worth = 4 = $\frac{X}{net\ worth}$

   Net worth = $\frac{X}{4}$

4. Debt: Equity = 1:1

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$\frac{Long\ term\ Loan}{Net\ worth} = \frac{1}{1}$

Long term loan = Net worth $= \frac{X}{4}$

5. Gross Profit to cost = 20%

$\frac{GP}{Sales - GP} = 20\%$

$\frac{GP}{X - GP} = 20\%$

$GP =$ 0.2 X -0.2 GP

1.2 GP = 0.2X

$GP = \frac{0.2X}{1.2}$

GP = X/6

$Cost\ of\ Goods\ Sold$ = x-x/6 = 5/6 x

6. COGS to creditors = 10:1

$\frac{CoGs}{Creditors} = 10/1$

$\frac{\frac{5}{6}X}{Creditors} = 10/1$

$Creditors = \frac{5x}{60}$ = X/12

7. $\frac{Stock}{Dector} = 1$

$Debtor$ = Stock = X/6

8. $Current\ Ratio$ = 3:1

$\frac{Stock + Debtors + Cash}{Current\ Liablities} = 3/1$

$\frac{\frac{X}{6} + \frac{x}{6} + 5{,}00{,}000}{Current\ Liablities} = 3$

$\frac{\frac{x}{3} + 5{,}00{,}000}{3} = CL$

$CL = \frac{X}{9} + \frac{5{,}00{,}000}{3}$

9. CA = 3CL

$= 3(= \frac{X}{9} + \frac{5{,}00{,}000}{3})$

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CA = $\frac{X}{3}$ + 5,00,000

10. Net worth + Long Term Loan + Current Liability = Fixed Asset + Current Assets

$\frac{X}{4} + \frac{X}{4} + \frac{X}{9} + 5{,}00{,}000/3 = \frac{X}{4} + \frac{X}{3} + 5{,}00{,}000$

$\frac{X}{4} + \frac{X}{9} - \frac{X}{3} = 5{,}00{,}000 - \frac{5{,}00{,}000}{3}$

$\frac{9x+4x-12X}{36} = \frac{15{,}00{,}000-5{,}00{,}000}{3}$

$\frac{X}{36} = 10{,}00{,}000/3$

X = 1,20,00,000

11. Now, from above calculations, we get,

Fixed Asset = $\frac{X}{4} = \frac{1{,}20{,}00{,}000}{4}$ = 30,00,000

Stock = $\frac{X}{6} = \frac{1{,}20{,}00{,}000}{6}$ = 20,00,000

Debtor = $\frac{X}{6} = \frac{1{,}20{,}00{,}000}{6}$ = 20,00,000

Net worth = x/4 = 30,00,000

Now, Capital to Reserve is 1: 2

Capital = ₹ 10,00,000

and, Reserve = ₹ 20,00,000

Long Term Loan = X\4 = 30,00,000

Outstanding Interest = 30,00,000×10% = 3,00,000

Creditors = x/12 = 1,20,00,000 /12 = 10,00,000

Current Liabilities = Creditors + Other STCL + Outstanding Interest

X/9 X 5,00,000/3= 10,00,000+ Other STCL + 3,00,000

$\frac{1{,}20{,}00{,}000}{6} + \frac{5{,}00{,}000}{3}$ = 13,00,000 + Other STCL

15,00,000 = Other STCL + 13,00,000

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Other STCL = 2,00,000

Question 16

(a) **ABC Ltd. has total sales of 10,00,000 all of which are credit sales. It has a gross profit ratio of 25% and a current ratio of 2. The company's current liabilities are RS.2,00,000. Further, it has inventories of Rs. 80,000, marketable securities of ₹ 50,000 and cash of RS. 30,000. From the above information:**

(b) **CALCULATE the average inventory, if the expected inventory turnover ratio is three times?**

(c) **Also CALCULATE the average collection period if the opening balance of debtors is expected to be RS.1,50,000.**

(d) **Assume 360 days a year. (MTP 5 Marks, Oct'21 & Oct '23)**

Answer 16

I. Calculation of Average Inventory

Since gross profit is 25% of sales, the cost of goods sold should be 75% of the sales.

Cost of goods sold = 10,00,000 x$\frac{75}{100}$=7,50,000

Inventory Turnover = $\frac{\text{Cost of goods sold}}{\text{Average Iventory}}$

3 = $\frac{7,50,000}{\text{AverageInventory}}$

Average Inventory = $\frac{7,50,000}{3}$ = 2,50,000

II. Calculation of Average Collection Period

Average Collection Period=

$= \frac{\text{Average debetors}}{\text{Credits Sales}} \times 360$

Where, Average Debtors = $\frac{\text{OpeningDebtors+ClosingDebtors}}{2}$

Calculation of Closing balance of debtors

	₹	₹
Current Assets (2 x 2,00,000)		4,00,000
Less: Inventories	80,000	
Marketable Securities	50,000	
Cash	30,000	1,60,000
Debtors Closing Balance		2,40,000

Now, Average Debtors = $\frac{1,50,00,00+2,40,000}{2}$ = 1,95,000

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So, Average Collection Period $= \frac{1,95,000}{10,00,000}$ = x 360 = 70.2 or 70 days

Question 17

XYZ Ltd. has Owner's equity of Rs. 2,00,000 and the ratios of the company are as follows: (MTP 5 Marks, April'21)

Current debt to total debt	**0.3**
Total debt to Owner's equity	**0.5**
Fixed assets to Owner's equity	**0.6**
Total assets turnover Inventory	**2 times**
Inventory turnover	**10 times**

COMPLETE the following Balance Sheet from the information given above:

Liabilities	(Rs.)	Assets	(Rs.)
Current Debt	-	**Cash**	-
Long-term Debt	-	**Inventory**	-
Total Debt	-	**Total Current Assets**	-
Owner's Equity	-	**Fixed Assets**	-

Answer 17

Balance Sheet

Liabilities	(Rs.)	Assets	(Rs.)
Current debt	30,000	Cash (balancing figure)	1,20,000
Long term debt	70,000	Inventory	60,000
Total Debt	1,00,000	Total Current Assets	1,80,000
Owner's Equity	2,00,000	Fixed Assets	1,20,000
Total liabilities	3,00,000	Total Assets	3,00,000

Workings:

Total debt = 0.50 x Owner's Equity = 0.50 x Rs. 2,00,000 = Rs. 1,00,000 Further,

Current debt to Total debt = 0.30

So, Current debt = 0.30 × Rs. 1,00,000 = Rs. 30,000 Long term debt = Rs. 1,00,000 - Rs. 30,000 = Rs. 70,000

2.Fixed assets = 0.60 × Owner's Equity = 0.60 × Rs. 2,00,000 = Rs. 1,20,000
3.Total Liabilities = Total Debt + Owner's Equity
= Rs. 1,00,000 + Rs. 2,00,000 = Rs. 3,00,000
Total Assets = Total Liabilities = Rs. 3,00,000
Total assets to turnover = 2 Times; Inventory turnover = 10 Times

Hence, Inventory /Total assets = 2/10=1/5,

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Therefore, Inventory = Rs. 3,00,000/5 = Rs. 60,000

Question 18

The following accounting information and financial ratios of A&R Limited relate to the year ended 31st March, 2020:

Inventory Turnover Ratio	**6 Times**
Creditors Turnover Ratio	**10 Times**
Debtors Turnover Ratio	**8 Times**
Current Ratio	**2.4**
Gross Profit Ratio	**25%**

Total sales Rs.6,00,00,000; cash sales 25% of credit sales; cash purchases Rs.46,00,000; working capital Rs.56,00,000; closing inventory is Rs.16,00,000 more than opening inventory.

You are required to CALCULATE:

(i) **Average Inventory**
(ii) **Purchases**
(iii) **Average Debtors**
(iv) **Average Creditors**
(v) **Average Payment Period**
(vi) **Average Collection Period**
(vii) **Current Assets**
(viii) **Current Liabilities.**

Take 365 days a year [MTP 10 Marks, May'20]

Answer 18

(i) Computation of Average Inventory

Gross Profit = 25% of Rs.6,00,00,000 = Rs.1,50,00,000

Cost of goods sold (COGS) = Sales - Gross Profit

= Rs.6,00,00,000 – Rs.1,50,00,000

= Rs.4,50,00,000

Inventory Turnover Ratio = $\frac{\text{CPGS}}{\text{Average iventory}}$

= 6 = $\frac{\text{Rs.4,50,000,000}}{\text{Average iventory}}$

Average inventory = Rs.75,00,000

Computation of Purchases

Purchases = COGS + (Closing Stock – Opening Stock)

= Rs.4,50,00,000 + 16,00,000*

Purchases = Rs.4,66,00,000

* Increase in Stock = Closing Stock – Opening Stock = Rs.16,00,000

Computation of Average Debtors

Let Credit Sales be Rs.100, Cash sales = $\frac{25}{100} \times 100$ = Rs.25

Total Sales = 100 + 25 = Rs.125

Total sales are Rs.125 credit sales is Rs.100

If total sales is Rs.6,00,00,000, then credit sales is = $\frac{\text{Rs.6,00,00,000}}{125} \times 100$

Credit Sales = Rs.4,80,00,000

Cash Sales = (Rs.6,00,00,000 – Rs.4,80,00,000) = Rs.1,20,00,000

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Debtors Turnover Ratio = $\frac{\text{Net credit sales}}{\text{average debtors}}$ = 8

= $\frac{\text{Rs.4,80,00,000}}{\text{average debtors}}$ = 8

average debtors = $\frac{\text{Rs.4,80,00,000}}{8}$

Average Debtors = Rs.60,00,000

(ii) Computation of Average Creditors

Credit Purchases = Purchases – Cash Purchases

= Rs.4,66,00,000 – Rs.46,00,000 = Rs.4,20,00,000

Creditors Turnover Ratio = $\frac{\text{credit purcheses}}{\text{average creditors}}$

10 = $\frac{\text{Rs.4,20,00,000}}{\text{average creditors}}$

Average Creditors = Rs.42,00,000

(iii) Computation of Average Payment Period

Average Payment Period = $\frac{\text{verage creditors}}{\text{average Daily Credit Purchases}}$

= $\frac{\text{Rs.42,00,000}}{\frac{\text{Credit Purchases}}{365}}$ = $\frac{\text{Rs.42,00,000}}{\frac{\text{Rs.4,20,00,0000}}{365}}$

$\frac{\text{Rs.42,00,0000}}{\text{RS.4,20,00,000}}$ × 365 = 36.5 days

Alternatively

Average Payment Period = 365/Creditors Turnover Ratio

= $\frac{365}{10}$ = 36.5 days

(iv) Computation of Average Collection Period

Average Collection Period=

= $\frac{\text{Average Debtors}}{\text{Net Credit Sales}}$ × 365

$\frac{\text{= Rs.60,00,000}}{\text{Rs.4,80,00,000}}$ = × 365 = 45.625 days

Alternatively

Average collection period = $\frac{365}{\text{Debtors Turnover Ratio}}$

= $\frac{365}{8}$ = 45.625 days

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(v) Computation of Current Assets

Current Ratio = $\frac{\text{Current Assets (CA)}}{\text{CurrentLiabilities (CL)}}$

2.4 Current Liabilities = Current Assets

or CL = $\frac{CA}{2.4}$

Further, Working capital = Current Assets – Current liabilities

So, Rs.56,00,000 = CA$-\frac{CA}{2.4}$

Rs.56,00,000 $= \frac{1.4CA}{2.4}$ = Or, 1.4 CA = Rs.1,34,40,000

CA = Rs.96,00,000

(vi) Computation of Current Liabilities

Current liabilities

$= \frac{\text{Rs.96,00,000}}{2.4}$ = Rs.40,00,000

Question 19

Using the following information, PREPARE and complete the Balance Sheet given below:

(I)	**Total debt to net worth**		**1 : 2**
(ii)	**Total assets turnover**		**2**
(iii)	**Gross profit on sales**		**30%**
(iv)	**Average collection period**		**40 days**
	(Assume 360 days in a year)		
(v)	**Inventory turnover ratio based on cost of goods sold and year-end inventory**		**3**
(vi)	**Acid test ratio**		**0.75**

Balance Sheet as on [MTP 5 Marks, March 19]

Liabilities	Rs.	Assets	Rs.
Equity Shares Capital	**4,00,000**	**Plant and Machinery and other Fixed Assets**	**4,25,000**
Reserves and Surplus	**6,00,000**		
Total Debt:		**Current Assets:**	
Current Liabilities	**5,00,000**	**Inventory**	**7,00,000**
		Debtors	**3,33,333**
	-	**Cash**	**41,667**

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	15,00,000		**15,00,000**

Answer 19

Net worth = Capital + Reserves and surplus
= 4,00,000 + 6,00,000 = Rs.10,00,000
∴Total debt = Rs. 5,00,000

Total Liability side = Rs. 4,00,000 + Rs. 6,00,000 + Rs. 5,00,000
= Rs. 15,00,000
= Total Assets = $\frac{\text{Total Debit}}{\text{Networth}}$

Rs. Total debt = Rs. 5,00,000
Total Liability side = Rs. 4,00,000 + Rs. 6,00,000 + Rs. 5,00,000
= Rs. 15,00,000
= Total Assets
Total Assets Turnover = $\frac{\text{Sales}}{\text{Total assets}}$
$2 = \frac{\text{Sales}}{\text{Rs.1,50,00,000}}$

∴Sales = Rs. 30,00,000 Gross Profit on Sales: 30% i.e. Rs. 9,00,000
∴Cost of Goods Sold (COGS) = Rs. 30,00,000 – Rs. 9,00,000
= Rs. 21,00,000
Inventory turnover = $\frac{\text{COGS}}{\text{Inventory}} = 3 = \frac{\text{Rs.21,00,000}}{\text{Inventory}}$
∴ Inventory = Rs. 7,00,000
Average collection period=

$= \frac{\text{Avragedebtors}}{\text{Salse /day}}$

$40 = \frac{\text{Debtors}}{\text{Rs.30,00,000/360}}$

Debtors = Rs.3,33,333.
Acid test ratio=

$= \frac{\text{Current Assets – Stock (Quick Assett)}}{\text{Current liabilitis}}$

$0.70 = \frac{\text{Current Assets – Rs.7,00,000}}{\text{Rs.5,00,000}}$

∴Current Assets = Rs.10,75,000.

∴Fixed Assets = Total Assets – Current Assets
= Rs.15,00,000 – Rs.10,75,000 = Rs.4,25,000
Cash and Bank balance = Current Assets – Inventory – Debtors
= Rs.10,75,000 – Rs.7,00,000 – Rs.3,33,333 = Rs. 41,667

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Balance Sheet as on March 31, 20X8

Liabilities	Rs.	Assets	Rs.
Equity Share Capital Reserves & Surplus	4,00,000 6,00,000	Plant and Machinery and other Fixed Assets	4,25,000
Total Debt:		Current Assets:	
Current liabilities	5,00,000	Inventory	7,00,000
		Debtors	3,33,333
		Cash	41,667
	15,00,000		15,00,000

Question 20

Based on the following particulars, PREPARE a balance sheet showing various assets and liabilities of T Ltd. (MTP 5 Marks, March'18 & March '23)

Fixed assets turnover ratio	**8 times**
Capital turnover ratio	**2 times**
Inventory Turnover	**8 times**
Receivable turnover	**4 times**
Payable turnover	**6 times**
GP Ratio	**25%**

Gross profit during the year amounts to Rs.8,00,000. There is no long-term loan or overdraft. Reserve and surplus amount to RS.2,00,000. Ending inventory of the year is RS. 20,000 above the beginning inventory.

Answer 20

a. G.P. ratio = $\frac{\text{Gross Profit}}{\text{Sales}}$

Sales = $\frac{\text{Gross Profit}}{25} \times 100$

$\frac{8,00,000}{25} \times 100 = 32,00,000$

b. Cost of Sales= Sales – Gross profit
= RS.32,00,000 - Rs.8,00,000
= RS.24,00,000

c. Receivable turnover r = $\frac{\text{Sales}}{\text{Receivables}} = 4$

= Receivables = $\frac{\text{Sales}}{4}$

= $\frac{\text{Rs.32,00,000}}{4}$ = Rs.8,00,000

d. Fixed assets turnover = $\frac{\text{Cost of Sales}}{\text{Fixed Assets}} = 8$

Fixed assets = $\frac{\text{Cost of Sales}}{8} = \frac{\text{Rs.24,00,000}}{8}$ = RS.3,00,000

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e. Inventory turnover = $\frac{\text{Cost of Sales}}{\text{Average Stock}}$ = 8

Average Stock = $\frac{\text{Cost of Sales}}{\text{Average Stock}}$ = $\frac{\text{Rs.24,00,000}}{8}$ = RS.3,00,000

Average Stock = $\frac{\text{Opening Stock + Closing Stock}}{2}$

Average Stock = $\frac{\text{Opening Stock + Closing Stock+20,000}}{2}$

Average Stock Opening Stock	= Opening Stock + RS. 10,000 = Average Stock - RS.10,000
	= RS.3,00,000 - ₹10,000
	= RS.2,90,000
Closing Stock	= Opening Stock + RS.20,000
f. Payable turnover	= RS.2,90,000 + RS. 20,000 = RS.3,10,000 = $\frac{\text{Purchase}}{\text{Capital Emploayed}}$ = 2

Purchases= Cost of Sales + Increase in Stock
= RS.24,00,000 + RS. 20,000 = RS.24,20,000
Payables = $\frac{\text{Purchase}}{6}$ = $\frac{24,20.000}{2}$ = 12,00,000

g. Capital turnover = $\frac{\text{Cost of Sales}}{\text{Capital Emploayed}}$ = 2

Capital Employed = $\frac{\text{Cost of Sales}}{\text{Capital Emploayed}}$ = 2 = $\frac{24,20.000}{2}$ = 12,00,000

h. Capital= Capital Employed – Reserves & Surplus
= Rs 12,00,000 – Rs 2,00,000 = Rs 10,00,000

Balance Sheet of T Ltd as on……

Liabilities	**Amount (₹)**	**Assets**	**Amount (₹)**
Capital	10,00,000	Fixed Assets	3,00,000
Reserve & Surplus	2,00,000	Inventories	3,10,000
Payables	4,03,333	Receivables	8,00,000
		Other Current Assets	1,93,333
	16,03,333		16,03,333

Question 21

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Following information has been provided from the books of M/s Laxmi & Co. for the year ending on 31st March, 2020:

Net Working Capital Bank overdraft Fixed Assets to Proprietary ratio	**₹ 4,80,000 ₹ 80,000 0.75**
Reserves and Surplus	**₹ 3,20,000**
Current ratio	**2.5**
Liquid ratio (Quick Ratio)	**1.5**

You are required to PREPARE a summarized Balance Sheet as at 31st March, 2020. (RTP Nov '20)

Answer 21

Working notes:

(i) Current Assets and Current Liabilities computation:

$$\frac{Current\ assets}{Current\ Liabilities} = \frac{2.5}{1}$$

Or Current assets = 2.5 Current liabilities

Now, Working capital = Current assets - Current liabilities

Or

₹ 4,80,000 = 2.5 Current liability - Current liability Or

1.5 Current liability = ₹ 4,80,000

∴ Current Liabilities = ₹ 3,20,000

So, Current Assets = ₹ 3,20,000 X 2.5 = ₹ 8,00,000

(ii) Computation of stock

Liquid ratio $= \frac{Liquid\ assets}{Current\ Liabilities}$

Or 1.5 $= \frac{Current\ assets - Inventories}{Rs.3,20,000}$

Or 1.5 X ₹ 3, 20,000 = ₹ 8,00,000 - Inventories

Or Inventories = ₹ 8,00,000 – ₹ 4, 80,000

Or Stock = ₹ 3,20,000

(iii) Computation of Proprietary fund; Fixed assets; Capital and Sundry creditors

Fixed Asset to Proprietary ratio $= \frac{Fixed\ assets}{Proprietary\ fund} = 0.75$

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∴ Fixed Assets = 0.75 Proprietary fund (PF)[FA+NWC = PF] or NWC = PF- FA [(i.e. .75 PF)]

and Net Working Capital (NWC) = 0.25 Proprietary fund

or ₹ 4,80,000/0.25 = Proprietary fund

Or Proprietary fund = ₹ 19,20,000

and Fixed Assets = 0.75 proprietary fund

= 0.75 X ₹ 19,20,000 = ₹ 14,40,000

Capital	=	Proprietary fund - Reserves & Surplus
	=	₹ 19,20,000 - ₹ 3,20,000 = ₹ 16,00,000
Sundry Creditors	= =	(Current liabilities - Bank overdraft) (₹ 3,20,000 - ₹ 80,000) = ₹ 2,40,000

Balance Sheet as at 31st March, 2020

Liabilities	₹	Assets	₹
Capital	16,00,000	Fixed Assets	14,40,000
Reserves & Surplus	3,20,000	Stock	3,20,000
Bank overdraft	80,000	Other Current Assets	4,80,000
Sundry creditors	2,40,000		
	22,40,000		22,40,000

Question 22

Following information relate to a concern:

Debtors Velocity	**3 months**
Credits Velocity	**2 months**
Stock Turnover Ratio	**1.5**
Gross Profit Ratio	**25%**
Bills Receivables	**Rs. 25,000**
Bills Payables	**Rs. 10,000**
Gross Profit	**Rs. 4,00,000**
Fixed Assets to turnover Ratio	**4**

Closing stock of the period is Rs. 10,000 above the opening stock. CALCULATE

(i) **Sales and cost of goods sold**
(ii) **Sundry Debtors**
(iii) **Sundry Creditors**
(iv) **Closing Stock**
(v) **Fixed Assets (MTP 5 Marks, Oct'18)**

Answer 22

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(I) Determination of Sales and Cost of goods sold:

Gross Profit Ratio = $\frac{\text{Gross Profit}}{\text{Sales}} \times 100$

Or $\frac{25}{100} = \frac{4,00,000}{\text{Sales}}$

Sales = $\frac{4,00,000}{25}$ = Rs. 16,00,000

Cost of Goods Sold = Sales – Gross Profit

= Rs. 16,00,000 - Rs. 4,00,000 = Rs. 12,00,000

(ii) Determination of Sundry Debtors:

Debtors velocity is 3 months or Debtors' collection period is 3 months,

So, Debtors' turnover ratio = $\frac{12 \text{ month}}{3\text{month}}$ = 4

Debtors' turnover ratio = $\frac{\text{Credits Sales}}{\text{AverageAccountsReceivable}}$

= $\frac{\text{Rs.16,00,000}}{\text{Bills Receivable+ SundryDebtors}}$ = 4

Or, Sundry Debtors + Bills receivable = Rs. 4,00,000 Sundry Debtors = Rs. 4,00,000 – Rs. 25,000 = Rs. 3,75,000

(iii) Determination of Sundry Creditors:

Creditors velocity of 2 months or credit payment period is 2 months

So, Creditors' turnover ratio = $\frac{12 \text{ month}}{3\text{month}}$ = 6

Creditors turnover ratio = $\frac{\text{Credits Sales}}{\text{AverageAccountsReceivable}}$

= $\frac{\text{Rs.12,10,000}}{\text{Sundry Creditors+ Bills Payables}}$ = 6

So, Sundry Creditors + Bills Payable = Rs. 2,01,667 Or, Sundry Creditors + Rs. 10,000
= Rs. 2,01,667
Or, Sundry Creditors = Rs. 2,01,667 – Rs. 10,000
= Rs. 1,91,667

(iv) Closing Stock

Stock Turnover Ratio

= $\frac{\text{Cost of Goods Sold}}{\text{Average Stock}} = \frac{\text{Rs.12,00,000}}{\text{Average Stock}}$ = 1.5

So, Average Stock = Rs. 8,00,000

Now Average Stock = $\frac{\text{Opening Stock + Closing Stock}}{2}$

= $\frac{\text{Opening Stock + Rs.10,000}}{2}$ = Rs.8,00,000

Or, Opening Stock = Rs. 7,95,000

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So, Closing Stock = Rs. 7,95,000 + Rs. 10,000 = Rs. 8,05,000

(v) Calculation of Fixed Assets

Fixed Assets Turnover Ratio= $\frac{\text{Cost of Good sold}}{\text{Fixed Assets}} = 4$

or = $\frac{\text{Rs.12,00,000}}{\text{Fixed Assets}}$ = 4Or, Fixed Asset = Rs. 3,00,000

Workings:
*Calculation of Credit purchases:
Cost of goods sold = Opening stock + Purchases – Closing stock Rs. 12,00,000 = Rs. 7,95,000 + Purchases – Rs. 8,05,000
Rs. 12,00,000 + Rs. 10,000 = Purchases Rs. 12,10,000 = Purchases (credit).

Assumption:
(i) All sales are credit sales
(ii) All purchases are credit purchase
(iii) Stock Turnover Ratio and Fixed Asset Turnover Ratio may be calculated either on Sales or on Cost of Goods Sold.

Question 23

Following information and ratios are given in respect of AQUA Ltd. for the year ended 31st March, 2023:

Current ratio	**4.0**
Acid test ratio	**2.5**
Inventory turnover ratio (based on sales)	**6**
Average collection period (days)	**70**
Earnings per share	**₹ 3.5**
Current liabilities	**₹ 3,10,000**
Total assets turnover ratio (based on sales)	**0.96**
Cash ratio	**0.43**
Proprietary ratio	**0.48**
Total equity dividend	**₹ 1,75,000**
Equity dividend coverage ratio	**1.60**

Assume 360 days in a year.
You are required to complete Balance Sheet as on 31st March, 2023.

Balance Sheet as on 31st March, 2023.

Liabilities	₹	Assets	₹
Equity share capital (₹10 per share)	XXX	Fixed assets	XXX
Reserves & surplus	XXX	Inventory	XXX
Long-term debt	XXX	Debtors	XXX
Current liabilities	3,10,000	Loans & advances	XXX
		Cash & bank	XXX

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Total	XXX	Total	XXX

(PYP 10 Marks May '23)

Answer 23

(i) Current Ratio = 4

$$\frac{current\ Assets}{Current\ Liabilities} = 4$$

$$\therefore \frac{current\ Assets}{3{,}10{,}000} = 4$$

∴ Current Assets = 12,40,000

(ii) Acid Test Ratio = 2.5

$$\frac{current\ Assets - Inventory}{Current\ Liabilities} = 2.5$$

$$\therefore \frac{12{,}40{,}000 - Inventrory}{3{,}10{,}000} = 2.5$$

∴ 12,40,000 – Inventory = ₹ 7,75,000

Inventory = ₹ 4,65,000

(iii) Inventory Turnover Ratio (on Sales) = 6

$$\frac{Sales}{Inventory} = 6$$

$$\frac{Sales}{4{,}65{,}000} = 6$$

∴ Sales = ₹ 27,90,000

(iv) Debtors Collection Period = 70 days

∴ (Debtors / sales) x 360 = 70

∴ (Debtors / 27,90,000) x 360 = 70

Debtors = ₹ 5,42,500

(v) Total Assets Turnover Ratio (on Sales) = 0.96

$$\therefore \frac{Sales}{Total\ Assets} = 0.96$$

$$\therefore \frac{27{,}90{,}000}{Total\ Assets} = 0.96$$

Total Assets = ₹ 29,06,250

(vi) Fixed Assets (FA) = Total Assets – Current Assets

= 29,06,250 – 12,40,000

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Fixed Assets = ₹ 16,66,250

(vii) Cash Ratio = $\frac{Cash}{Current\ Liabilities}$ = 0.43

∴ $\frac{Cash}{3,10,000}$ = 0.43

∴ Cash = ₹ 1,33,300

(viii) Proprietary Ratio = $\frac{Proprietary\ Fund}{Total\ Assets}$ = 0.48

∴ $\frac{Proprietary\ Fund}{29,06,250}$ = 0.48

∴ Proprietary Fund = ₹ 13,95,000

(ix) Equity Dividend Coverage Ratio = 1.6

Or $\frac{EPS}{DPS} = \frac{3.5}{DPS}$

∴ DPS = 2.1875

DPS = $\frac{Total\ Dividend}{Number\ of\ Equity\ Shares}$

∴ 2.1875 = $\frac{1,75,000}{Number\ of\ Equity\ Shares}$

∴ Number of Equity Shares = 80,000

∴ Equity Share Capital = 80,000 x 10 = ₹ 8,00,000

∴ Reserves &Surplus = 13,95,000 - 8,00,000 = ₹ 5,95,000

(x) Loans and Advances = Current Assets - (Inventory + Receivables + Cash & Bank)

= ₹ 12,40,000 - (₹ 4,65,000 + 5,42,500 + 1,33,300) = ₹ 99,200

Balance Sheet as on 31st March 2023

Liabilities	**₹**	**Assets**	**₹**
Equity Share Capital (₹ 10 per share)	8,00,000	Fixed Assets	16,66,250
Reserves & Surplus	5,95,000	Inventory	4,65,000
Long-term debt *(B/F)	12,01,250	Receivables	5,42,500
Current Liabilities	3,10,000	Loans & Advances	99,200
		Cash & Bank	1,33,300
Total	**29,06,250**	**Total**	**29,06,250**

Question 24

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Following information and ratios are given for W Limited for the year ended 31st March, 2022:

Equity Share Capital of ₹ 10 each	**₹ 10 lakhs**
Reserves & Surplus to Shareholders' Fund	**0.50**
Sales / Shareholders' Fund	**1.50**
Current Ratio	**2.50**
Debtors Turnover Ratio	**6.00**
Stock Velocity	**2 Months**
Gross Profit Ratio	**20%**
Net Working Capital Turnover Ratio	**2.50**

You are required to calculate:

(i) **Shareholders' Fund**

(ii) **Stock**

(iii) **Debtors**

(iv) **Current liabilities**

(v) **Cash Balance. (PYP 5 Marks May'22)**

Answer 24

(i) **Calculation of Shareholders' Fund**:

$$\frac{\text{Reserve \& Surplus}}{\text{Shareholders' Funds}} = 0.5$$

$$\frac{\text{Reserve \& Surplus}}{\text{Equity Share Capital + Reserve \& Surplus}} = 0.5$$

$$\frac{\text{Reserve \& Surplus}}{\text{10,00,000 + Reserve \& Surplus}} = 0.5$$

Reserve & Surplus = 5,00,000 + 0.5 Reserve & Surplus

0.5 Reserve & Surplus = 5,00,000 Reserve & Surplus = 10,00,000

Shareholders' funds = 10,00,000 +10,00,000

Shareholders' funds = ₹ 20,00,000

(ii) **Calculation of Value of Stock**:

$$\frac{\text{Sales}}{\text{Shareholders' Funds}} =$$

Sales = 1.5 × 20,00,000

Sales = 30,00,000

Gross Profit = 30,00,000 × 20% = 6,00,000

Cost of Goods Sold = 30,00,000 – 6,00,000

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= ₹ 24,00,000

Stock velocity = 2 months

$= \frac{\text{Average Stock}}{\text{Cost of Goods Sold}} \times 12 = 2$

$= \frac{\text{Average Stock}}{24,00,000} \times 12 = 2$

Average Stock = $24,00,000 \times \frac{2}{12}$

Average stock = ₹ 4,00,000

(iii) **Calculation of Debtors: Debtors Turnover Ratio** = 6

$\therefore \frac{\text{Sales}}{\text{Average Debtors}} = \mathbf{6}$

$\therefore \frac{\mathbf{30,000}}{\text{Average Debtors}} = 6$

Average Debtors = ₹ 5,00,000

(iv) **Calculation of Current Liabilities:**

Net Working Capital Turnover ratio = 2.5

$\frac{\text{Sales}}{\text{Current Assets} - \textbf{Current}\ \text{Liabilites}} = 2.5$

$\frac{\mathbf{30,000}}{\text{Current Assets} - \text{Current Liabilites}} = 2.5$

Current Assets – Current Liabilities = 12,00,000 ..... (1)

Current Ratio = 2.5

$\frac{\text{Current Assets}}{\text{Current Liabilites}} = 2.5$

Current Assets = 2.5 Current Liabilities ....(2)

From (1) & (2),

2.5 Current Liabilities – Current Liabilities = 12,00,000

1.5 Current Liabilities = 12,00,000

Current Liabilities = ₹ 8,00,000

(v) **Calculation of Cash Balance:**

Current Assets = 2.5 Current Liabilities

Current Assets = 2.5 (8,00,000)	= 20,00,000
(-) Debtors	(5,00,000)

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(-) Stock	(4,00,000)
Cash Balance	₹ 11,00,000

Question 25

XYZ Ltd. has Owner's equity of Rs. 2,00,000 and the ratios of the company are as follows: (MTP 5 Marks March 22, Apr'19)

Current debt to total debt	**0.3**
Total debt to Owner's equity	**0.5**
Fixed assets to Owner's equity	**0.6**
Total assets turnover Inventory	**2 times**
Inventory turnover	**10 times**

COMPLETE the following Balance Sheet from the information given above:

Liabilities	**(Rs.)**	**Assets**	**(Rs.)**
Current Debt	-	**Cash**	-
Long-term Debt	-	**Inventory**	-
Total Debt	-	**Total Current Assets**	-
Owner's Equity	-	**Fixed Assets**	-

Answer 25

Balance Sheet

Liabilities	**(Rs.)**	**Assets**	**(Rs.)**
Current debt	30,000	Cash (balancing figure)	1,20,000
Long term debt	70,000	Inventory	60,000
Total Debt	1,00,000	Total Current Assets	1,80,000
Owner's Equity	2,00,000	Fixed Assets	1,20,000
Total liabilities	3,00,000	Total Assets	3,00,000

Workings:

Total debt = 0.50 x Owner's Equity = 0.50 x Rs. 2,00,000 = Rs. 1,00,000 Further,

Current debt to Total debt = 0.30

So, Current debt = 0.30 × Rs. 1,00,000 = Rs. 30,000 Long term debt = Rs. 1,00,000 - Rs. 30,000 = Rs. 70,000

2.Fixed assets = 0.60 × Owner's Equity = 0.60 × Rs. 2,00,000 = Rs. 1,20,000

3.Total Liabilities = Total Debt + Owner's Equity
= Rs. 1,00,000 + Rs. 2,00,000 = Rs. 3,00,000

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Total Assets = Total Liabilities = Rs. 3,00,000
Total assets to turnover = 2 Times; Inventory turnover = 10 Times

Hence, Inventory /Total assets = 2/10=1/5,

Therefore, Inventory = Rs. 3,00,000/5 = Rs. 60,000

Question 26

Following figures and ratios are related to a company Q Ltd.: **Sales for the year (all credit)**		**Rs.30,00,000**
i.	**Gross Profit ratio**	**25 per cent**
ii.	**Fixed assets turnover (based on cost of goods sold)**	**1.5**
iii.	**Stock turnover (based on cost of goods sold)**	**6**
iv.	**Liquid ratio**	**1 : 1**
v.	**Current ratio**	**1. 5 : 1**
vi.	**Receivables (Debtors) collection period**	**2 months**
vii.	**Reserves and surplus to share capital**	**0.6 : 1**
viii.	**Capital gearing ratio**	**0.5**
ix.	**Fixed assets to net worth**	**1.20 : 1**

You are required to calculate: Closing stock, Fixed Assets, Current Assets, Debtors and Net worth.
(PYP 5 Marks May'19)

Answer 26

(i) **Calculation of Closing Stock:**
Cost of Goods Sold = Sales – Gross Profit (25% of Sales)
= Rs.30,00,000 – Rs.7,50,000
= Rs.22,50,000
Closing Stock = Cost of Goods Sold / Stock Turnover
= Rs.22,50,000/6 = Rs.3,75,000

(ii) **Calculation of Fixed Assets:**
Fixed Assets = Cost of Goods Sold / Fixed Assets Turnover
= Rs.22,50,000/1.5
= Rs.15,00,000

(iii) **Calculation of Current Assets:**
Current Ratio = 1.5 and Liquid Ratio = 1
Stock = 1.5 – 1 = 0.5
Current Assets = Amount of Stock × 1.5/0.5
= Rs.3,75,000 × 1.5/0.5 = Rs.11,25,000

(iv) **Calculation of Debtors:**
Debtors = Sales × Debtors Collection period /12

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= Rs.30,00,000 × 2 / 12
= Rs.5,00,000

(v) **Calculation of Net Worth:**
Net worth = Fixed Assets / 1.2
= Rs.15,00,000/1.2 = Rs.12,50,000

Question 27

Following information relates to RM Co. Ltd.

(Rs.)

Total Assets employed	**10,00,000**
Direct Cost	**5,50,000**
Other Operating Cost	**90,000**

Goods are sold to the customers at 150% of direct costs.

50% of the assets being financed by borrowed capital at an interest cost of 8% per annum. Tax rate is 30%.

You are required to calculate:

Net profit margin

Return on Assets

Asset turnover

Return on owners' equity. (PYP 5 Marks, Nov'20)

Answer27

Computation of net profit:

Particulars	**(₹)**
Sales (150% of Rs.5,50,000)	8,25,000
Direct Costs	5,50,000
Gross profit	2,75,000
Other Operating Costs	90,000
Operating profit (EBIT)	1,85,000
Interest changes (8% of Rs.5,00,000)	40,000
Profit before taxes (EBT)	1,45,000
Taxes (@ 30%)	43,500
Net profit after taxes (EAT)	1,01,500

i. Net profit margin (After tax) $= \frac{\text{Profit after taxes}}{\text{Sales}} = \frac{\text{Rs.1,01,500}}{\text{Rs8,25,000}} = 0.12303 \text{ or} 12.303\%$

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$$\text{Net profit margin (Before tax)} = \frac{\text{Profit before taxes}}{\text{Sales}} = \frac{\text{Rs.1,45,00,00}}{\text{Rs.8,25,000}} = 0.17576 \text{ or} 17.576\%$$

ii. $$\text{Return on assets} = \frac{\text{EBIT}(1-\text{T})}{\text{Total Assets}} = \frac{\text{Rs.1,85,0000}(1-0.3)}{\text{Rs.10,00,0000}} = 0.1295 \text{ or} 12.95\%$$

iii. $$\text{Asset turnover} = \frac{\text{Sales}}{\text{Assets}} = \frac{\text{Rs.8,25,000}}{\text{Rs.10,00,000}} = 0.825 \text{times}$$

iv. $$\text{Return on owner's equity} = \frac{\text{Profit before taxes}}{\text{Owners equity}} = \frac{\text{Rs.1,01,500}}{50\% \times \text{Rs.10,00,000}} = 0.203 \text{or } 20.3\%$$

Question 28

From the following information, find out missing figures and REWRITE the balance sheet of Mukesh Enterprise.

Current Ratio = 2:1

Acid Test ratio = 3:2

Reserves and surplus = 20% of equity share capital

Long term debt = 45% of net worth

Stock turnover velocity = 1.5 months Receivables turnover velocity = 2 months

You may assume closing Receivables as average Receivables. Gross profit ratio = 20%

Sales is ₹ 21,00,000 (25% sales are on cash basis and balance on credit basis) Closing stock is ₹ 40,000 more than opening stock.

Accumulated depreciation is 1/6 of original cost of fixed assets. Balance sheet of the company is as follows:

Liabilities	(₹)	Assets	(₹)
Equity Share Capital	?	Fixed Assets (Cost)	?
Reserves & Surplus	?	Less: Accumulated. Depreciation	?
Long Term Loans	75,000	Fixed Assets (WDV)	?
Bank Overdraft	60,000	Stock	?
Creditors	?	Debtors	?
		Cash	?
Total	?	Total	?

(RTP May 23)

Answer 28

Liabilities	(₹)	Assets	(₹)

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Equity Share Capital	12,50,000	Fixed Assets (cost)	20,58,000
Reserves & Surplus	2,50,000	Less: Acc. Depreciation	(3,43,000)
Long Term Loans	6,75,000	Fixed Assets (WDV)	17,15,000
Bank Overdraft	60,000	Stock	2,30,000
Payables	4,00,000	Receivables	2,62,500
		Cash	4,27,500
Total	26,35,000	Total	26,35,000

Working Notes:

(i) Sales	₹ 21,00,000
Less: Gross Profit (20%)	₹ 4,20,000
Cost of Goods Sold (COGS)	₹ 16,80,000

(ii) Receivables Turnover Velocity = $\frac{Average\ Receivables}{Credit\ Sales}$ X 12

2 = $\frac{Average\ Receivables}{Rs.21,00,000\ X\ 75\%}$ X 12

Average Receivables = $\frac{Rs.21,00,000\ X\ 75\%\ X\ 2}{Credit\ Sales}$

Average Receivables = ₹ 2,62,500 Closing Receivables = ₹ 2,62,500

(iii) Stock Turnover Velocity = $\frac{Average\ Stock}{COGS}$ X 12

Or 1.5 = $\frac{Average\ Stock}{Rs.16,80,000}$ X 12

Or Average Stock = Rs. 2,10,000

$\frac{Opening\ Stock+Closing\ Stock}{2}$ = Rs. 2,10,000

Opening Stock + Closing Stock = ₹ 4,20,000 .... (1)

Also, Closing Stock-Opening Stock = ₹ 40,000 .... (2)

Solving (1) and (2), we get closing stock = ₹ 2,30,000

(iv) Current Ratio = $\frac{Current\ Assets}{Current\ Liabililities} = \frac{Stock+Receivbles+Cash}{Bank\ Overdraft+Creditors}$

Or 2 = $\frac{Rs.2,30,000+Rs.2,62,500+Cash}{Rs.60,000+Creditors}$

Or ₹ 1,20,000 + 2 Payables = ₹ 4,92,500 + Cash Or 2 Payables – Cash. = ₹ 3,72,500

Or Cash = 2 Payables – ₹ 3,72,500 ....(3)

Acid Test Ratio = $\frac{Current\ assets-Stock}{Current\ Liabililities} = \frac{Debtor+Cash}{Current\ Liabililities}$

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Or $\frac{3}{2} = \frac{Rs.2,62,500+Cash}{60,000+Creditors}$

Or ₹ 1,80,000 + 3 Payables = ₹ 5,25,000 + 2 Cash

Or 3 Payables – 2 Cash = ₹ 3,45,000……….(4)

Substitute (3) in (4)

Or 3 Payables – 2(2 Payables – ₹ 3,72,500) = ₹ 3,45,000

Or 3 Payables – 4 Payables + ₹ 7,45,000= ₹ 3,45,000 (Payables) = ₹ 3,45,000 - ₹ 7,45,000

Payables = ₹ 4,00,000

So, Cash = 2 x ₹ 4,00,000 – ₹ 3,72,5000

Cash = ₹ 4,27,500

(ii) Long term Debt = 45% of Net Worth Or

₹ 6,75,000 = 45% of Net Worth Net Worth

= ₹ 15,00,000

(iii) Equity Share Capital (ESC) + Reserves = ₹ 15,00,000

Or ESC + 0.2ESC = ₹ 15,00,000 Or 1.2 ESC = ₹ 15,00,000

Equity Share Capital (ESC) = ₹ 12,50,000

(iv) Reserves = 0.2 x ₹ 12,50,000

Reserves = ₹ 2,50,000

(v) Total of Liabilities=Total of Assets

Or ₹ 12,50,000 + ₹ 2,50,000 + ₹ 6,75,000 +₹ 60,000 + ₹ 4,00,000 + Fixes Assets(FA) (WDV) + ₹ 2,30,000 + ₹ 2,62,000 +₹ 4,27,500

Or ₹ 26,35,000 = ₹ 9,20,000 + FA(WDV)

FA (WDV) =₹ 17,15,000

Now FA(Cost) – Depreciation = FA(WDV) Or FA(Cost) – FA(Cost)/6

= ₹ 17,15,000

Or 5 FA(Cost)/6 = ₹ 17,15,000

Or FA(Cost) = ₹ 17,15,000x 6/5

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So, FA(Cost) = ₹ 20,58,000

Depreciation = ₹ 20,58,000/6 = ₹ 3,43,000

Question 29

Following information has been provided from the books of M/s Laxmi & Co. for the year ending on 31st March, 2020:

Net Working Capital	**₹ 4,80,000**
Bank overdraft	**₹ 80,000**
Fixed Assets to Proprietary ratio	**0.75**
Reserves and Surplus	**₹ 3,20,000**
Current ratio	**2.5**
Liquid ratio (Quick Ratio)	**1.5**

You are required to PREPARE a summarized Balance Sheet as at 31st March, 2020. (MTP 5 Marks Aug'18 & Sep '23)

Answer 29

Working notes:

(i) **Current Assets and Current Liabilities computation:**

$$\frac{Current\ assets}{Current\ Liabilities} = \frac{2.5}{1}$$

Or Current assets = 2.5 Current liabilities

Now, Working capital = Current assets - Current liabilities

Or

₹ 4,80,000 = 2.5 Current liability - Current liability Or

1.5 Current liability = ₹ 4,80,000

∴ Current Liabilities = ₹ 3,20,000

So, Current Assets = ₹ 3,20,000 X 2.5 = ₹ 8,00,000

(ii) Computation of stock

Liquid ratio $= \frac{Liquid\ assets}{Current\ Liabilities}$

Or 1.5 $= \frac{Current\ assets - Inventories}{Rs.3,20,000}$

Or 1.5 X ₹ 3, 20,000 = ₹ 8,00,000 - Inventories

Or Inventories = ₹ 8,00,000 – ₹ 4, 80,000

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Or Stock = ₹ 3,20,000

(iii) Computation of Proprietary fund; Fixed assets; Capital and Sundry creditors

Fixed Asset to Proprietary ratio = $\frac{\text{Fixed assets}}{\text{Proprietary fund}}$ = 0.75

∴ Fixed Assets = 0.75

Proprietary fund (PF)[FA+NWC = PF] or NWC

= PF- FA [(i.e. .75 PF)]

and Net Working Capital (NWC) = 0.25 Proprietary fund

or ₹ 4,80,000/0.25 = Proprietary fund

Or Proprietary fund = ₹ 19,20,000

and Fixed Assets = 0.75 proprietary fund

= 0.75 X ₹ 19,20,000 = ₹ 14,40,000

Capital	=	Proprietary fund - Reserves & Surplus
	=	₹ 19,20,000 - ₹ 3,20,000 = ₹ 16,00,000
Sundry Creditors	= =	(Current liabilities - Bank overdraft) (₹ 3,20,000 - ₹ 80,000) = ₹ 2,40,000

Balance Sheet as at 31st March, 2020

Liabilities	₹	Assets	₹
Capital	16,00,000	Fixed Assets	14,40,000
Reserves & Surplus	3,20,000	Stock	3,20,000
Bank overdraft	80,000	Other Current Assets	4,80,000
Sundry creditors	2,40,000		
	22,40,000		22,40,000

Question 30

The following is the Profit and loss account and Balance sheet of KLM LLP.

Trading and Profit & Loss Account

Particulars	Amount (₹)	Particulars	Amount (₹)
To Opening stock	**12,46,000**	**By Sales**	**1,96,56,000**
To Purchases	**1,56,20,000**	**By Closing stock**	**14,28,000**
To Gross profit c/d	**42,18,000**		
	2,10,84,000		**2,10,84,000**
		By Gross profit b/d	**42,18,000**
To Administrative	**18,40,000**	**By Interest on**	**24,600**

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expenses		investment	
To Selling & distribution expenses	7,56,000	By Dividend received	22,000
To Interest on loan	2,60,000		
To Net profit	14,08,600		
	42,64,600		42,64,600

Balance Sheet as on..........

Capital & Liabilities	Amount (₹)	Assets	Amount (₹)
Capital	20,00,000	Plant & machinery	24,00,000
Retained earnings	42,00,000	Building	42,00,000
General reserve	12,00,000	Furniture	12,00,000
Term loan from bank	26,00,000	Sundry receivables	13,50,000
Sundry Payables	7,20,000	Inventory	14,28,000
Other liabilities	2,80,000	Cash & Bank balance	4,22,000
	1,10,00,000		1,10,00,000

You are required to COMPUTE:

(i)	Gross profit ratio	(ii) Net profit ratio	(iii)	Operating cost ratio
(iv)	Operating profit ratio	(v) Inventory turnover ratio	(vi)	Current ratio

(vii) Quick ratio (viii) Interest coverage ratio (ix) Return on capital employed

(x) Debt to assets ratio. (RTP Nov '19)

Answer 30

i. Gross Profit ratio = $\frac{Gross\ Profit}{Sales} \times 100 = \frac{Rs.42,18,000}{Rs.1,96,56,000} \times 100 = 21.46\%$

ii. Net Profit ratio = $\frac{Net\ Profit}{Sales} \times 100 = \frac{Rs.14,08,600}{Rs.1,96,56,000} \times 100 = 7.17\%$

iii. Operating ratio = $\frac{Operating\ Cost}{Sales} \times 100$

Operating cost = Cost of goods sold + Operating expenses

Cost of goods sold = Sales – Gross profit

= 1,96,56,000 - 42,18,000 = 1,54,38,000

Operating expenses = Administrative expenses + Selling & distribution expenses

= 18,40,000 + 7,56,000 = 25,96,000

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Therefore, Operating ratio $= \frac{1,54,38,000+25,96,000}{1,96,56,000} \times 100$

$= \frac{1,80,34,000}{1,96,56,000} \times 100 = 91.75\%$

iv. Operating profit ratio = 100 – Operating cost ratio

= 100 – 91.75% = 8.25%

v. Inventory turnover ratio $= \frac{Cost\ of\ goods\ Sold}{Average\ Stock}$

$= \frac{1,54,38,000}{(14,28,000+12,46,000)/2} = \frac{1,54,38.000}{13,37,000} = 11.55$ times

vi. Current Ratio $= \frac{Current\ assets}{Current\ Liablities}$

Current assets = Sundry receivables + Inventory + Cash & Bank balance

= 13,50,000 + 14,28,000 + 4,22,000 = 32,00,000

Current liabilities = Sundry Payables + Other liabilities

= 7,20,000 + 2,80,000 = 10,00,000

Current ratio $= \frac{32,00,000}{10,00,000} = 3.2$ times

vii. Quick Ratio $= \frac{Current\ assets - Inventories}{Current\ Liabilities}$

$= \frac{32,00,000-14,28,000}{10,00,000} = 1.77$ times

viii. Interest Coverage ratio $= \frac{EBIDT}{Interest} = \frac{Net\ Profit + Interest}{Interest}$

$= \frac{14,08,600+2,60,000}{2,60,000} = 6.42$ times

ix. Return on Capital employed (ROCE) $= \frac{EBIT}{Capital\ Employed} \times 100$

Capital employed = Capital + Retained earnings + General reserve + Term loan

= 20,00,000 + 42,00,000 + 12,00,000 + 26,00,000

= 1,00,00,000

Therefore, ROCE $= \frac{16,68,600}{1,00,00,000} \times 100 = 16.69\%$

x. Debt to assets ratio $= \frac{Debts}{Total\ assets} \times 100 = \frac{26,00,000}{1,10,00,000} \times 100 = 23.64\%$

Question 31

Assuming the current ratio of a Company is 2, STATE in each of the following cases whether the ratio will improve or decline or will have no change:

(i) **Payment of current liability**

(ii) **Purchase of fixed assets by cash**

(iii) **Cash collected from Customers**

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(iv) **Bills receivable dishonored**

(v) **Issue of new shares (RTP Nov '18)**

Answer 31

Current Ratio = $\frac{Current\ Assets(CA)}{Current\ Liabilities(CL)}$ = 2 i.e. 2:1

S. No.	Situation	Improve/ Decline/ No Change	Reason
(i)	Payment of Current liability	Current Ratio will improve	Let us assume CA is ₹ 2 lakhs & CL is ₹ 1 lakh. If payment of Current Liability = ₹10,000 then, CA = 1, 90,000 CL = 90,000. Current Ratio = 1,90,000 / 90,000 = 2.11: 1. When Current Ratio is 2:1 Payment of Current liability will reduce the same amount in the numerator and denominator. Hence, the ratio will improve.
(ii)	Purchase of Fixed Assets by cash	Current Ratio will decline	Since the cash being a current asset converted into fixed asset, current assets reduced, thus current ratio will fall.
(iii)	Cash collected from Customers	Current Ratio will not change	Cash will increase and Debtors will reduce. Hence No Change in Current Asset.
(iv)	Bills Receivable dishonored	Current Ratio will not change	Bills Receivable will come down and debtors will increase. Hence no change in Current Assets.
(v)	Issue of New Shares	Current Ratio will improve	As Cash will increase, Current Assets will increase and current ratio will increase.

Question 32

From the following information and ratios, PREPARE the Balance sheet as at 31st March 2022 and Income statement for the year ended on that date for M/s Ganguly & Co -

Average Stock	**₹10 lakh**
Current Ratio	**3:1**
Acid Test Ratio	**1:1**
PBIT to PBT	**2.2:1**

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Average Collection period (Assume 360 days in a year)	**30 days**
Stock Turnover Ratio (Use sales as turnover)	**5 times**
Fixed assets turnover ratio	**0.8 times**
Working Capital	**₹10 lakh**
Net profit Ratio	**10%**
Gross profit Ratio	**40%**
Operating expenses (excluding interest)	**₹ 9 lakh**
Long term loan interest	**12%**
Tax	**Nil**

(MTP 10 Marks Oct'22)

Answer 32

1. **Current Ratio = 3:1**

   Current Assets (CA)/Current Liability (CL) = 3:1 CA = 3CL

   WC = 10,00,000

   CA – CL = 10,00,000 3CL – CL = 10,00,000

   2CL = 10,00,000

   CL = $\frac{10,00,000}{2}$

   CL = ₹5,00,000 CA = 3 x 5,00,000 CA = ₹15,00,000

2. **Acid Test Ratio = CA – Stock / CL = 1:1**

   $\frac{= 15,00,000 - \text{Stock}}{5,00,000} = 1$

   15,00,000 – stock = 5,00,000

   Stock = ₹10,00,000

3. **Stock Turnover ratio (on sales) = 5**

   $= \frac{\text{Sales}}{\text{Avg stock}} = 5$

   $\frac{\text{Sales}}{10,00,000} = 5$Sales = ₹50,00,000

4. **Gross Profit** = 50,00,000 x 40% = ₹20,00,000

   Net profit (PBT)

   = 50,00,000 x 10% = ₹5,00,000

5. **PBIT/PBT = 2.2**

   PBIT = 2.2 x 5,00,000

   PBIT= 11,00,000

   Interest = 11,00,000 – 5,00,000 = ₹6,00,000

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Long term loan = $\frac{6,00,000}{0.12} \times \mathbf{50,00,000}$

6. **Average collection period = 30 days**

Receivables = $\frac{30}{360} \times \mathbf{50,00,000}$ = 4,16,667

7. **Fixed Assets Turnover Ratio = 0.8**

50,00,000/ Fixed Assets = 0.8

Fixed Assets = ₹62,50,000

Income Statement

	Amount (₹)
Sales	50,00,000
Less: Cost of Goods Sold	30,00,000
Gross Profit	20,00,000
Less: Operating Expenses	9,00,000
Less: Interest.	6,00,000
Net Profit	5,00,000

Balance sheet

Liabilities	Amount (₹)	Assets		Amount (₹)
Equity share capital	22,50,000	Fixed asset		62,50,000
Long term debt	50,00,000	Current assets:		
Current liability	5,00,000	Stock	10,00,000	
		Receivables	4,16,667	
		Other	83,333	15,00,000
	77,50,000			77,50,000

Question 33

DISCUSS the limitations of financial ratios. (MTP 4 Marks April 22)

Answer 33

The limitations of financial ratios are listed below:

(i) Diversified product lines: Many businesses operate a large number of divisions in quite different industries. In such cases ratios calculated on the basis of aggregate data cannot be used for inter-firm comparisons.

(ii) Financial data are badly distorted by inflation: Historical cost values may be substantially different from true values. Such distortions of financial data are also carried in the financial ratios.

(iii) Seasonal factors may also influence financial data.

(iv) To give a good shape to the popularly used financial ratios (like current ratio, debt- equity ratios, etc.): The business may make some year-end adjustments. Such window dressing can change the character of financial ratios which would

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be different had there been no such change.

(v) Differences in accounting policies and accounting period: It can make the accounting data of two firms non-comparable as also the accounting ratios.

(vi) There is no standard set of ratios against which a firm's ratios can be compared: Sometimes a firm's ratios are compared with the industry average. But if a firm desires to be above the average, then industry average becomes a low standard. On the other hand, for a below average firm, industry averages become too high a standard to achieve.

(vii) Financial ratios are inter-related, not independent: Viewed in isolation one ratio may highlight efficiency. But when considered as a set of ratios they may speak differently. Such interdependence among the ratios can be taken care of through multivariate analysis.

Question 34

Jensen and spencer pharmaceutical is in the business of manufacturing pharmaceutical drugs including the newly invented Coved vaccine. Due to increase in demand of Coved vaccines, the production had increased at all-time high level and the company urgently needs a loan to meet the cash and investment requirements. It had already submitted a detailed loan proposal and project report to Expo-Imp bank, along with the financial statements of previous three years as follows:

Statement of Profit and Loss (In ₹ '000)

	2018–19	2019–20	2020–21
Sales			
Cash	400	960	1,600
Credit	3,600	8,640	14,400
Total sales	4,000	9,600	16,000
Cost of goods sold	2,480	5,664	9,600
Gross profit	1,520	3,936	6,400
Operating expenses:			
General, administration, and selling expenses	160	900	2,000
Depreciation	200	800	1,320
Interest expenses (on borrowings)	120	316	680
Profit before tax (PBT)	1,040	1,920	2,400
Tax @ 30%	312	576	720
Profit after tax (PAT)	728	1,344	1,680

BALANCE SHEET **(In ₹ '000)**

	2018–19	2019–20	2020–21
Assets			

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Non-Current Assets			
Fixed assets (net of depreciation)	**3,800**	**5,000**	**9,400**
Current Assets			
Cash and cash equivalents	**80**	**200**	**212**
Accounts receivable	**600**	**3,000**	**4,200**
Inventories	**640**	**3,000**	**4,500**
Total	**5,120**	**11,200**	**18,312**
Equity & Liabilities			
Equity share capital (shares of ₹10 each)	**2,400**	**3,200**	**4,000**
Other Equity	**728**	**2,072**	**3,752**
Non-Current borrowings	**1,472**	**2,472**	**5,000**
Current liabilities	**520**	**3,456**	**5,560**
Total	**5,120**	**11,200**	**18,312**

INDUSTRY AVERAGE OF KEY RATIOS

Ratio	Sector Average
Current ratio	**2.30:1**
Acid test ratio (quick ratio)	**1.20:1**
Receivable turnover ratio	**7 times**
Inventory turnover ratio	**4.85 times**
Long-term debt to total debt	**24%**
Debt-to-equity ratio	**35%**
Net profit ratio	**18%**
Return on total assets	**10%**
Interest coverage ratio (times interest earned)	**10**

As a loan officer of Expo-Imp Bank, you are REQUIRED to apprise the loan proposal on the basis of comparison with industry average of key ratios considering closing balance for accounts receivable of ₹ 6,00,000 and inventories of ₹ 6,40,000 respectively as on 31set March, 2018. [MTP 10 Marks, Nov'21]

Answer 34

(In ₹ '000)

Ratio	Formula	2018–19	2019–20	2020–21	Industry Average
Current ratio	$\frac{\text{Current Assets}}{\text{Current Liabilities}}$	$\frac{1,320}{520}$	$\frac{6,200}{3,456}$	$\frac{8,912}{5,560}$	2.30:1

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		= 2.54	= 1.80	= 1.60	
Acid test ratio (quick ratio)	$\frac{\text{Quick Assets}}{\text{CurrentLiabilities}}$	$\frac{680}{520}$ = 1.31	$\frac{3,200}{3,456}$ = 0.93	$\frac{4,412}{5,560}$ = 0.79	1.20:1
Receivable turnover ratio	$\frac{\text{Credit Sales}}{\text{AverageAccountsReceivable}}$	$\frac{3,600}{(600+600)}$ = 6	$\frac{8,640}{(600+3000)}$ = 4.80	$\frac{14,400}{(3000+4,200)/2}$ = 4	7 times
Inventory turnover ratio	$\frac{\text{COGS}}{\text{AverageInventory}}$	$\frac{2,480}{(640+640)/2}$ = 3.88	$\frac{5,664}{(640+3000)/2}$ 3.11	$\frac{9,600}{(3,000+4,500)/2}$ 2.56	4.85 times
Long-term debt to total debt	$\frac{\text{Long term Debt}}{\text{Total Debt}} \times 100$	$\frac{1472}{1992} \times 100$ 73.90%	$\frac{2472}{5,948} \times 100$ =41.70%	$\frac{5,000}{10,560} \times 100 =$ 47.35%	24%
Debt-to-equity ratio	$\frac{\text{Long term Debt}}{\text{Shareholders'Equuity}} \times 100$	$\frac{1472}{3,128} \times 100$ 73.90% = 47.07%	$\frac{2472}{5272} \times 100$ 4689%	$\frac{5,000}{7,752} \times 100$ 64.50%	35%
Net profit ratio	$\frac{\text{Net Profit}}{\text{Sales}} \times 100$	$\frac{728}{5,120} \times 100$ 14.22%	$\frac{1344}{9,600} \times 100$ 14%	$\frac{1680}{16,000} \times 100$ 10.5%	18%
Return on total assets	$\frac{\text{Net Profit after taxes}}{\text{Total asset}} \times 100$	$\frac{728}{5,120} \times 100$ 14.22%	$\frac{1344}{11,200} \times 100$ 12%	$\frac{1680}{18,312} \times 100$ 9.17%	10%
Interest coverage ratio (times interest earned)	$\frac{\text{EBIT}}{\text{Interest}}$	$\frac{1160}{120} \times 100$ 9.67%	$\frac{2236}{316}$ = 7.08	$\frac{3080}{680}$ = 4.53	10

Conclusion:

In the last two years, the current ratio and quick ratio are less than the ideal ratio (2:1 and 1:1 respectively) indicating that the company is not having enough resources to meet its current obligations. Receivables are growing slower. Inventory turnover is slowing down as well, indicating a relative build-up in inventories or increased investment in stock. High Long-term debt to total debt ratio and Debt to equity ratio compared to that of industry average indicates high dependency on

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long term debt by the company. The net profit ratio is declining substantially and is much lower than the industry norm. Additionally, though the Return on Total Asset(ROTA) is near to industry average, it is declining as well. The interest coverage ratio measures how many times a company can cover its current interest payment with its available earnings. A high interest coverage ratio means that an enterprise can easily meet its interest obligations, however, it is declining in the case of Jensen & Spencer and is also below the industry average indicating excessive use of debt or inefficient operations.

On overall comparison of the industry average of key ratios than that of Jensen & Spencer, the company is in deterioration position. The company's profitability has declined steadily over the period. However, before jumping to the conclusion relying only on the key ratios, it is pertinent to keep in mind the industry, the company dealing in with i.e. manufacturing of pharmaceutical drugs. The pharmaceutical industry is one of the major contributors to the economy and is expected to grow further. After the coved situation, people are more cautious towards their health and are going to spend relatively more on health medicines. Thus, while analyzing the loan proposal, both the factors, financial and non-financial, needs to be kept in mind.

Question 35

SN Ltd. has furnished the following ratios and information relating to the year ended 31 st March 2021:

Share Capital	**Rs. 6,25,000**
Working Capital	**Rs. 2,00,000**
Gross Margin	**25%**
Inventory Turnover	**5 times**
Average Collection Period	**1.5 months**
Current Ratio	**1.5:1**
Quick Ratio	**0.7:1**
Reserves & Surplus to Bank & Cash	**3 times**

Further, the assets of the company consist of fixed assets and current assets, while its current liabilities comprise bank credit and others in the ratio of 3:1. Assume 360 days in a year.

You are required to PREPARE the Balance Sheet as on 31st March 2021.

(Note- Balance sheet may be prepared in traditional T Format.) (MTP 5 Marks, March 21)

Answer 35

Workings:

1. Current Ratio= $= \frac{\text{Current Assets(CA)}}{\text{Current Liabilities(CL)}} = \frac{1.5}{1}$

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∴ CA = 1.5 CL

Also, CA - CL = Rs. 2,00,000 1.5 CL- CL = Rs. 2,00,000

$CL = \frac{2,00,000}{0.5}$

CA = 1.5 × Rs. 4,00,000 = Rs. 6,00,000

2. Bank Credit (BC) to Other Current Liabilities (OCL) ratio = 3:1

$= \frac{\text{Bank Credit (BC)}}{\text{Other Current Liabilities(OCL)}} = \frac{3}{1}$

BC = 3 OCL

Also, BC + OCL = CL

3 OCL + OCL = Rs. 4,00,000

$OCL = \frac{Rs.4,00,000}{4}$ = Rs. 1,00,000

Bank Credit = 3 × Rs. 1,00,000 = Rs. 3,00,000

3. Quick Ratio $= \frac{\text{Current Assets} - \text{Invetores}}{\text{Current Liabilities}}$

$0.7 = \frac{Rs.6,00,000 - \text{Inventories}}{Rs.4,00,000}$

Inventories = Rs. 6,00,000 – Rs. 2,80,000 = Rs. 3,20,000

4. Inventory Turnover = 5 times

Inventory Turnover $= \frac{\text{Cost of Goods Sold (COGS)}}{\text{Everage Invetory}}$

Average Inventory $= \frac{\text{Cost of Goods Sold (COGS)}}{\text{Invetory Turnover}}$

COGS = Rs. 3,20,000 × 5 = Rs. 16,00,000

5. Gross Margin $= \frac{\text{Sales} - \text{COGE}}{\text{Sales}} \times 100 = 25\%$

Sales = $\frac{16,00,000}{0.75}$ = Rs. 21,33,333.33

6. Average Collection Period (ACP) = 1.5 months = 45 days

Debtors Turnover $= \frac{360}{ACP} = \frac{360}{45}$ = 8 times

= Also, Debtors Turnover

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$= \frac{\text{Sales}}{\text{Average debtors}}$

Hence, Debtors = $\frac{\text{Rs.21,33,333.33}}{8}$ = Rs.2,66,667

7. Bank & Cash = CA - (Debtors + Inventory)

   = Rs. 6,00,000 – (Rs. 2,66,667 + 3,20,000) = Rs. 13,333

8. $\frac{\text{Reserves \& Surplus}}{\text{Bank \& Cash}} = 3$

   Reserves & Surplus = 3 × Rs. 13,333 = Rs. 40,000

Balance Sheet of SN Ltd. as on 31st March 2021

Liabilities	(Rs.)	Assets	(Rs.)
Share Capital	6,25,000	Fixed Assets	4,65,000
Reserves & Surplus	40,000	(Balancing Figure)	
Current Liabilities:		Current Assets:	
Bank Credit	3,00,000	Inventories	3,20,000
Other Current Liabilities	1,00,000	Debtors	2,66,667
		Bank & Cash	13,333
	10,65,000		10,65,000

Question 36

Using the information given below, PREPARE the Balance Sheet of SKY Private Limited:

(I)	**Current ratio**	**1.6 :1**
(ii)	**Cash and Bank balance**	**15% of total current assets**
(iii)	**Debtors turnover ratio**	**12 times**
(iv)	**Stock turnover (cost of goods sold) ratio**	**16 times**
(v)	**Creditors turnover (cost of goods sold) ratio**	**10 times**
(vi)	**Gross profit ratio**	**20%**
(vii)	**Capital gearing ratio**	**0.6**
(viii)	**Depreciation rate**	**15% on W.D.V.**
(ix)	**Net fixed Assets**	**20% of total assets**

(Assume all purchase and sales are on credit)

Balance Sheet of SKY Private Limited as at 31.03.2020

Liabilities	**Amount in ₹**	**Assets**	**Amount in ₹**
Share Capital	**25,00,000**	**Fixed assets**	

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Reserve & surplus			?	Opening WDV	?	
12% Long term debt			?	Less: Depreciation	?	?
Current liabilities						
Creditors		?		Current Assets		
Provisions expenses		outstanding ?	68,50,000	Stock	?	
				Debtors	?	
				Cash and bank balance ?		?
Total			?	Total		?

(Detailed working notes are not required to be shown) [MTP 5 Marks, Oct'20]

Answer 36

Working Notes

1. **Computation of Current Assets and Cash & Bank Balance**

Current Ratio =

$= \frac{\text{Current Assets(CA)}}{\text{Current Liabilities (CL)}}$

Current Assets = 1.6 Current Liabilities = 1.6 × ₹ 68,50,000 = RS.1,09,60,000/-

So, Cash and Bank Balance = 15% of Current Assets = RS.16,44,000

2. **Computation of Total Assets, Fixed assets and Depreciation**

Total Assets = Net Fixed assets+ Current Asset

Or, Total Assets = 20% of Total Asset + RS.1,09,60,000 Or, Total Assets = RS.1,37,00,000

So, Net Fixed assets = 20% of Total Asset = RS.27,40,000

Depreciation = $\frac{27,40,000}{58\%}$ = 15% = Rs4,83,

Fixed Assets = RS.27,40,000 + Rs 4,83,529 = RS.32,23,529

3. **Calculation of stock, Debtors and Creditors**

Stock + Debtors = Current Assets – Cash & Bank
= RS.1,09,60,000 – RS.16,44,000
= ₹ 93,16,000

Now, let Sales be x

So, Debtors (Credit Sales) = $\frac{\text{Cresdit Sales}}{\text{Debit turnover ratio}} = \frac{X}{12}$

= Further, Stock (on Cost of Goods Sold) =

$= \frac{\text{Sales} - 20\% \text{ of Sales}}{16}$

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$= \frac{X - 20\% \text{ of } X}{16}$

$= \frac{X - \frac{X}{5}}{16} = \frac{\frac{4X}{5}}{16} = \frac{X}{20}$

So $= \frac{X}{12} + \frac{X}{20}$

OR = $\frac{10X+6X}{120}$ = Rs. 93,16,000

OR = $\frac{16X}{120}$ =Rs. 93,16,000

Or, x = ₹ 6,98,70,000 So, Sales = ₹ 6,98,70,000

Cash of Goods Sold (COGS) = ₹ 5,58,96,000 Stock (COGS/16) = RS.34,93,500

Debtors (Sales/12) = ₹ 58,22,500
Creditors (COGS/10) = ₹ 55,89,600

4. **Calculation of Provision of outstanding Expenses**
= ₹ 68,50,000 – ₹ 55,89,600
= RS.12,60,400

5. **Share Capital + Reserve of surplus + long term debt = Total Asset or total liability – Current liability**
Or, Reserve & surplus + long term debt = RS.1,37,00,000 – 68,50,000 – 25,00,000
= ₹ 43,50,000
Calculation of long term Debt and Reserve & Surplus Now, Capital Earning ratio

= 0.6

So, $= \frac{\text{12\% long term Debt}}{\text{Equity Share Capital + Reserve \& Surplu}} = 0.6$

Or = $\frac{\text{43,50,000 − Reserve \& Surplus}}{\text{25,00,000 + Reserve \& Surplus}} = 8$

Or, Reserve & Surplus = RS.17,81,250
So, 12% long term debt = RS.25,68,750

Balance Sheet of SKY Private Limited as at 31.03.2020

Liabilities		₹	**Assets**		₹
Share Capital		25,00,000	Fixed assets		
Reserve & Surplus		17,81,250	Opening WDV	32,23,529	
12% Long term debt		25,68,750	Less: Depreciation	4,83,529	27,40,000
Current Liabilities					
Creditors	55,89,600		Current Assets		

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Provisions & outstanding expenses	12,60,400	68,50,000	Stock	34,93,500	
			Debtors	58,22,500	
			Cash and bank balance	16,44,000	1,09,60,000
Total		1,37,00,000			1,37,00,000

Question 37

MNP Limited has made plans for the year 2019 -20. It is estimated that the company will employ total assets of Rs.50,00,000; 30% of assets being financed by debt at an interest cost of 9% p.a. The direct costs for the year are estimated at Rs. 30,00,000 and all other operating expenses are estimated at Rs. 4,80,000. The sales revenue is estimated at Rs. 45,00,000. Tax rate is assumed to be 40%. CALCULATE:

(i) **Net profit margin (After tax);**

(ii) **Return on Assets (After tax);**

(iii) **Asset turnover; and**

(iv) **Return on Equity. [MTP 5 Marks, Oct'19]**

Answer 37

The net profit is calculated as follows:

	Rs.
Sales Revenue	45,00,000
Less: Direct Costs	30,00,000
Gross Profits	15,00,000
Less: Operating Expense	4,80,000
Earnings before Interest and tax (EBIT)	10,20,000
Less: Interest on debt (9% × 15,00,000)	1,35,000
Earnings before Tax) (EBT)	8,85,000
Less: Taxes (@ 40%)	3,54,000
Profit after Tax (PAT)	5,31,000

(i) Net Profit Margin (After Tax)

Net Profit Margin

$\frac{\text{EBIT}(1-t)}{\text{Sales}} \times 100 = \frac{\text{Rs.}10,20,000 \times (1-0.4)}{\text{Rs.}45,00,000}) = 13.6\%$

(ii) Return on Assets (ROA) (After tax)

$\text{ROA} = \frac{\textbf{EBIT (1-t)}}{\textbf{Total Assets}} = \frac{\textbf{Rs.10,20,000 (1-0.4)}}{\textbf{Rs.50,00,000}} = \frac{\textbf{Rs.6,12,000}}{\textbf{Rs.50,00,000}}$

$= 0.1224 = 12.24\ \%$

(iii) Asset Turnover $\frac{\textbf{Sales}}{\textbf{Assets}} = \frac{\textbf{Rs.45,00,000}}{\textbf{Rs.50,00,000}} = 0.9$

Asset Turnover = 0.9 times

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(iv) Return on Equity (ROE)

ROE =
$\frac{\text{RAT}}{\text{Equity}} = \frac{\text{Rs.5,31,000}}{\text{Rs.35,00,000}} = 15.17\%$

ROE= 15.17%

Question 38

Following information relate to a concern:

Debtors Velocity	**3 months**
Credits Velocity	**2 months**
Stock Turnover Ratio	**1.5**
Gross Profit Ratio	**25%**
Bills Receivables	**Rs. 25,000**
Bills Payables	**Rs. 10,000**
Gross Profit	**Rs. 4,00,000**
Fixed Assets to turnover Ratio	**4**

Closing stock of the period is Rs. 10,000 above the opening stock. CALCULATE

(i) **Sales and cost of goods sold**
(ii) **Sundry Debtors**
(iii) **Sundry Creditors**
(iv) **Closing Stock**
(v) **Fixed Assets (RTP May 22)**

Answer 38

I. Determination of Sales and Cost of goods sold:

Gross Profit Ratio = $\frac{\text{Gross Profit}}{\text{Sales}} \times 100$

Or $\frac{25}{100} = \frac{4,00,000}{\text{Sales}}$

Sales = $\frac{4,00,000}{25}$ = Rs. 16,00,000

Cost of Goods Sold = Sales – Gross Profit
= Rs. 16,00,000 - Rs. 4,00,000 = Rs. 12,00,000

(vi) Determination of Sundry Debtors:

Debtors velocity is 3 months or Debtors' collection period is 3 months,
So, Debtors' turnover ratio = $\frac{\text{12 month}}{\text{3month}} = 4$

Debtors' turnover ratio = $\frac{\text{Credits Sales}}{\text{AverageAccountsReceivable}}$

$= \frac{\text{Rs.16,00,000}}{\text{Bills Receivable+ SundryDebtors}} = 4$

Or, Sundry Debtors + Bills receivable = Rs. 4,00,000 Sundry Debtors = Rs. 4,00,000 – Rs. 25,000 = Rs. 3,75,000

(vii) Determination of Sundry Creditors:

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Creditors velocity of 2 months or credit payment period is 2 months

So, Creditors' turnover ratio = $\frac{12 \text{ month}}{3\text{month}}$ = 6

Creditors turnover ratio = $\frac{\text{Credits Sales}}{\text{AverageAccountsReceivable}}$

= $\frac{\textbf{Rs.12,10,000}}{\text{Sundry Creditors+ Bills Payables}}$ = 6

So, Sundry Creditors + Bills Payable = Rs. 2,01,667 Or, Sundry Creditors + Rs. 10,000
= Rs. 2,01,667
Or, Sundry Creditors = Rs. 2,01,667 – Rs. 10,000
= Rs. 1,91,667

(viii) Closing Stock

Stock Turnover Ratio

= $\frac{\text{Cost of Goods Sold}}{\text{Average Stock}}$ = $\frac{\textbf{Rs.12,00,000}}{\text{Average Stock}}$ = 1.5

So, Average Stock = Rs. 8,00,000

Now Average Stock = $\frac{\text{Opening Stock + Closing Stock}}{2}$

= $\frac{\text{Opening Stock + Rs.10,000}}{2}$ = Rs.8,00,000

Or, Opening Stock = Rs. 7,95,000
So, Closing Stock = Rs. 7,95,000 + Rs. 10,000 = Rs. 8,05,000

(ix) Calculation of Fixed Assets

Fixed Assets Turnover Ratio= $\frac{\text{Cost of Good sold}}{\text{Fixed Assets}}$ = 4

or = $\frac{\text{Rs.12,00,000}}{\text{Fixed Assets}}$ = 4Or, Fixed Asset = Rs. 3,00,000

Workings:

*Calculation of Credit purchases:
Cost of goods sold = Opening stock + Purchases – Closing stock Rs. 12,00,000 = Rs. 7,95,000 + Purchases – Rs. 8,05,000
Rs. 12,00,000 + Rs. 10,000 = Purchases Rs. 12,10,000 = Purchases (credit).

Assumption:

(i) All sales are credit sales
(ii) All purchases are credit purchase
(iii) Stock Turnover Ratio and Fixed Asset Turnover Ratio may be calculated either on Sales or on Cost of Goods Sold.

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Question 39

The following accounting information and financial ratios of PQR Ltd. relates to the year ended 31st March, 2021:

I	Accounting Information:	
	Gross Profit	15% of Sales
	Net profit	8% of sales
	Raw materials consumed	20% of works cost
	Direct wages	10% of works cost
	Stock of raw materials	3 months' usage
	Stock of finished goods	6% of works cost
	Debt collection period	60 days
	(All sales are on credit)	
II	Financial Ratios:	
	Fixed assets to sales	1 : 3
	Fixed assets to Current assets	13 : 11
	Current ratio	2 : 1
	Long-term loans to Current liabilities	2 : 1
	Share Capital to Reserves and Surplus	1 : 4

If value of Fixed Assets as on 31st March, 2020 amounted to ₹ 26 lakhs, PREPARE a summarised Profit and Loss Account of the company for the year ended 31st March, 2021 and also the Balance Sheet as on 31st March, 2021. (RTP Nov'22)

Answer 39

a) **Working Notes:**

i. Calculation of Sales = $\frac{\text{Fixed Assets}}{\text{Sales}} = \frac{1}{3}$

$\therefore \frac{26,000}{\text{sales}} = \frac{1}{3}$ ⇒Sales =₹ 78,00,000

ii. Calculation of Current Assets = $\frac{\text{Fixed Assets}}{\text{Current Assets}} = \frac{13}{11}$

$\therefore \frac{26,000}{\text{Current Assets}} = \frac{13}{11}$ ⇒Sales = ₹ 22,00,000

iii. Calculation of Raw Material Consumption and Direct Wages

	₹
Sales	78,00,000
Less: Gross Profit @ 15%	11,70,000
Works Cost	66,30,000

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Raw Material Consumption (20% of Works Cost) = ₹ 13,26,000Direct Wages (10% of Works Cost) = ₹ 6,63,000

iv. Calculation of Stock of Raw Materials (= 3 months usage)

$= 13,26,000 \times \frac{13}{12} = ₹\ 3,31,500$

v. Calculation of Stock of Finished Goods (= 6% of Works Cost)

$= 66,30,000 \times \frac{6}{100} = ₹\ 3,97,800$

vi. Calculation of Current Liabilities

$= \frac{\text{Current Assets}}{\text{Current Liabilities}} = 2$

$\therefore \frac{22,000}{\text{Current Liabilities}} = 2 \Rightarrow \text{Sales} = ₹11,00,000$

vii. Calculation of Receivables

Average collection period $= \frac{\text{receivables}}{\text{credit sales}} \times 365$

$$\frac{\text{receivables}}{78,00,000} \times 365 = 60$$

$\Rightarrow$Receivables = ₹ 12,82,191.78 or ₹ 12,82,192

viii. Calculation of Long-term Loan

$\frac{\text{Long term Loan}}{\text{Current Liabilities}} = \frac{2}{1} = \frac{\text{Long term Loan}}{11,00,000}\ \frac{2}{1} \Rightarrow$Long term loan = ₹22,00,000.

ix. Calculation of Cash Balance

		₹
Current assets		22,00,000
Less: Receivables 12,82,192		
Raw materials stock	3,31,500	
Finished goods stock	3,97,800	20,11,492
Cash balance		1,88,508

x. Calculation of Net worth

Fixed Assets		26,00,000
Current Assets		22,00,000
Total Assets		48,00,000
Less: Long term Loan	22,00,000	
Current Liabilities	11,00,000	33,00,000
Net worth		15,00,000

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Net worth = Share capital + Reserves = 15,00,000

Also, $= \frac{1}{4} = \frac{\text{share capital}}{\text{Reserves and Surplus}}$

So, Share capital = $15,00,000 \times \frac{1}{4}$ = ₹ 12,00,000

Profit and Loss Account of PQR Ltd.for the year ended 31st March, 2021

Particulars	₹	Particulars	₹
To Direct Materials	13,26,000	By Sales	78,00,000
To Direct Wages	6,63,000		
To Works (Overhead) (Balancing figure)	46,41,000		
To Gross Profit c/d	11,70,000		
	78,00,000		78,00,000
To Selling and Distribution Expenses (Balancing figure)	5,46,000	By Gross Profit b/d	11,70,000
To Net Profit (8% ofSales)	6,24,000		
	11,70,000		11,70,000

Balance Sheet of PQR Ltd. as at 31st March, 2021

Liabilities	₹	Assets	₹
Share Capital	3,00,000	Fixed Assets	26,00,000
Reserves and Surplus	12,00,000	Current Assets:	
Long term loans	22,00,000	Stock of Raw Material	3,31,500
Current liabilities	11,00,000	Stock of Finished Goods	3,97,800
		Receivables	12,82,192
		Cash	1,88,508
	48,00,000		48,00,000

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Section B

1. **Ratio of Net sales to Net working capital is a:**
   (a) Profitability ratio
   (b) Liquidity ratio
   (c) Current ratio
   (d) Working capital turnover ratio

Ans: (d)

2. **Long-term solvency is indicated by:**
   (a) Debt/equity ratio
   (b) Current Ratio
   (c) Operating ratio
   (d) Net profit ratio

Ans: (a)

3. **Ratio of net profit before interest and tax to sales is:**
   (a) Gross profit ratio
   (b) Net profit ratio
   (c) Operating profit ratio
   (d) Interest coverage ratio.

Ans: (c)

4. **Observing changes in the financial variables across the years is:**
   (a) Vertical analysis
   (b) Horizontal Analysis
   (c) Peer-firm Analysis
   (d) Industry Analysis.

Ans: (b)

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5. The Receivable-Turnover ratio helps management to:

(a) Managing resources

(b) Managing inventory

(c) Managing customer relationship

(d) Managing working capital

Ans: (d)

6. Which of the following is a liquidity ratio?

(a) Equity ratio

(b) Proprietary ratio

(c) Net Working Capital

(d) Capital Gearing ratio

Ans: (c)

7. Which of the following is not a part of Quick Assets?

(a) Disposable investments

(b) Receivables

(c) Cash and Cash equivalents

(d) Prepaid expenses

Ans: (d)

8. Capital Gearing ratio is the fraction of:

(a) Preference Share Capital and Debentures to Equity Share Capital and Reserve & Surplus.

(b) Equity Share Capital and Reserve & Surplus to Preference Share Capital and Debentures.

(c) Equity Share Capital to Total Assets.

(d) Total Assets to Equity Share Capital.

Ans: (a)

9. From the following information, calculate P/E ratio: Equity share capital of ₹ 10 each ₹ 8,00,000 9% Preference share capital of ₹ 10 each ₹ 3,00,000 Profit (after 35% tax) ₹ 2,67,000
Depreciation ₹ 67,000
Market price of equity share ₹ 48

(a) 15 times

(b) 16 times

(c) 17 times

(d) 18 times

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Ans: (b)

10. **Equity multiplier allows the investor to see:**

    (a) What portion of interest on debt can be covered from earnings availableto equity shareholders?

    (b) How many times preference share interest be paid from earningsavailable to equity shareholders?

    (c) What portion of return on equity is the result of debt?

    (d) How many times equity is multiplied to get the value of debt?

Ans: (c)

11. **A company has average accounts receivable of ₹ 10,00,000 and annual credit sales of ₹ 60,00,000. Its average collection period would be:**

    (a) 60.83 days

    (b) 6.00 days

    (c) 1.67 days

    (d) 0.67 days

Ans: (a)

12. **A company has net profit margin of 5%, total assets of ₹ 90,00,000 and return on assets of 9%. Its total asset turnover ratio would be:**

    (a) 1.6

    (b) 1.7

    (c) 1.8

    (d) 1.9

Ans:(c)

13. **What does Q ratio measures?**

    (a) Relationship between market value and book value per equity share.

    (b) Proportion of profit available per equity share.

    (c) Overall earnings on average total assets.

    (d) Market value of equity as well as debt in comparison to all assets attheir replacement cost.

Ans: (d)

14. **Calculate operating expenses from the information given below:**

Sales	**₹ 75,00,000**
Rate of income tax	**50%**

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Net profit to sales	5%
Cost of goods sold	**₹ 32,90,000**
Interest on debentures	**₹ 60,000**

(a)₹ 41,00,000

(b)₹ 8,10,000

(c)₹ 34,00,000

(d)₹ 33,90,000

Ans: (c)

15. **Which of the following is not a profitability ratio?**

(a) P/E ratio

(b) Return on capital employed (ROCE)

(c) Q Ratio

(d) Preference Dividend Coverage Ratio

Ans: (d)

Theoretical Questions Answers

Question 1

DISCUSS any three ratios computed for investment analysis.

Answer 1

Return on Investment (ROI): ROI is the most important ratio of all. It is the **percentage of return on funds invested in the business by its owners**. In short, this ratio tells the owner whether or not all the effort put into the business has been worthwhile. It compares earnings/ returns/ profit with the investment in the company.

a) **Return on Assets (ROA):** The profitability ratio is measured in terms of relationship between **net profits and assets employed** to earn that profit. This ratio measures the profitability of the firm in terms of assets employed in the firm. Based on various concepts of net profit (return) and assets, the ROA may be measured as follows

$$ROA = \frac{Net\ Profit\ After\ Taxes}{Average\ Total\ Assets} \text{ or } = \frac{Net\ Profit\ After\ Taxes}{Average\ Tangible\ Assets} \text{ or } = \frac{Net\ Profit\ After\ Taxes}{Average\ Fixed\ Assets}$$

Here, net profit is exclusive of interest. As Assets are also financed by lenders, hence ROA can be calculated as:

$$\frac{Net\ Profit\ After\ Taxes + Interest}{Average Total\ or\ Tangible\ or\ Intangible\ Assets}$$

b) **Return on Capital Employed (ROCE):** It is another variation of ROI. The ROCE is calculated as follows:

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$$ROCE\ (Pre\text{-}Tax) = \frac{Earnings\ before\ Interest\ \&\ Tax\ (EBIT)}{Capital\ Employed} X\ 100$$

$$ROCE\ (Post\text{-}Tax) = \frac{EBIT\ (1-t)}{Capital\ Employed} X\ 100$$

Sometimes, it is also calculated as:

$$= \frac{Net\ Profit\ After\ Taxes\ (PAT\ or\ EAT) + Interest}{Capital\ Employed} X\ 100$$

Where,

Capital Employed = Total Assets – Current Liabilities

Or

= Fixed Assets + Working Capital

Or

= Equity + Long Term Debt

c) **Return on Equity (ROE):** Return on Equity measures the **profitability ofequity funds invested in the firm**. This ratio reveals how profitably of the owners' funds have been utilised by the firm. It also measures the percentage return generated to equity shareholders. This ratio is computed as:

$$ROE = \frac{Net\ Profit\ After\ Taxes - Preference\ Dividend\ if\ any}{Net\ Worth\ or\ Equity\ Shareholders\ Funds} X\ 100$$

Return on equity is one of the most important indicators of a firm's profitability and potential growth. Companies that boast a high return on equity with little or no debt are able to grow without large capital expenditures, allowing the owners of the business to withdraw cash and reinvest it elsewhere. Many investors fail to realize, however, that two companies can have the same return on equity, yet one can be a much better business. If return on total shareholders (i.e. equity and preference shareholder) is calculated, then Net Profit after taxes (before preference dividend) shall be divided by total shareholders' fund including preference share capital.

Question 2

DISCUSS the financial ratios for evaluating company performance on operating efficiency and liquidity position aspects.

Answer 2

These ratios are employed to **evaluate the efficiency with which the firm manages and utilises its assets.** For this reason, they are often called as 'Asset management ratios'. These ratios usually indicate the frequency of sales with respect to its assets. These assets may be capital assets or working capital or average inventory.

Activity Ratios/ Efficiency Ratios/ Performance Ratios/ Turnover Ratios:

a. **Total Assets Turnover Ratio**
b. **Fixed Assets Turnover Ratio**
c. **Capital Turnover Ratio/ Net Assets Turnover Ratio**
d. **Current Assets Turnover Ratio**

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e. Working Capital Turnover Ratio

i) Inventory/ Stock Turnover Ratio

ii) Receivables (Debtors) Turnover Ratio

iii) Payables (Creditors) Turnover Ratio

These ratios are usually calculated with reference to **sales/cost of goods sold** and are expressed in terms of rate or times.

(a) Total Asset Turnover Ratio: This ratio measures the efficiency with which the firm uses its total assets. Higher the ratio, better it is. This ratio is computed as:

Total Assets Turnover Ratio= $\frac{Sales\ or\ COGS}{Total\ Assets}$

Interpretation

A high total assets turnover ratio indicates the efficient utilisation of total assets in generation of sales. Similarly, a low asset turnover ratio indicates total assets are not efficiently used to generate sales.

(b) Fixed Assets Turnover Ratio: It measures the efficiency with which the firm uses its fixed assets.

Fixed Assets Turnover Ratio= $\frac{Sales\ or\ COGS}{Fixed\ Assets}$

Interpretation

A high fixed assets turnover ratio indicates efficient utilisation of fixed assets in generating sales. A firm whose plant and machinery are old may show a higher fixed assets turnover ratio than the firm which has purchased them recently.

(c) Capital Turnover Ratio/ Net Asset Turnover Ratio:

Capital Turnover Ratio= $\frac{Sales\ or\ COGS}{Net\ Assets}$

Interpretation

Since Net Assets equals to capital employed it is also known as Capital Turnover Ratio. This ratio indicates the firm's ability of generating sales/ Cost of Goods Soldper rupee of long-term investment. The higher the ratio, the more efficient is the utilisation of owner's and long-term creditors' funds.

(d) Current Assets Turnover Ratio: It measures the efficiency of using the current assets by the firm.

Current Assets Turnover Ratio= $\frac{Sales\ or\ COGS}{Current\ Assets}$

Interpretation

Higher the ratio, the more efficient is the utilisation of working capital in generating sales. However, a very high working capital turnover ratio indicates that the company needs to raise additional working capital for future needs.

Working Capital Turnover is further segregated into Inventory Turnover, Debtors Turnover, and Creditors Turnover.

Note: Average of Total Assets/ Fixed Assets/ Current Assets/ Net Assets/ Working

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Capita also can be taken in the denominator for the above ratios.

(e) Inventory/ Stock Turnover Ratio: This ratio also known as **stock turnover ratio establishes the relationship between the cost of goods sold during theyear** and average inventory held during the year. It measures the efficiency with which a firm utilizes or manages its inventory**.** It is calculated as follows:

Inventory Turnover Ratio= $\frac{Cost\ of\ Goods\ Sold/\ Sales}{Average\ Inventory}$

Average Inventory = $\frac{Opening\ Stock+Closing\ Stock}{2}$

In the case of inventory of raw material, the inventory turnover ratio is calculated using the following formula :

Raw Material Inventory Turnover Ratio= $\frac{Raw\ Material\ Consumed}{Average\ Raw\ Material\ Stock}$

Interpretation

This ratio indicates that how fast inventory is used or sold. A high ratio is good from the view point of liquidity and vice versa. A low ratio would indicate that inventory is not used/ sold/ lost and stays in a shelf or in the warehouse for a long time.

(i) Receivables (Debtors) Turnover Ratio: In case firm sells goods on credit,the realization of sales revenue is delayed and the receivables are created. The cashis realised from these receivables later on.

The **speed with which these receivables are collected affects** the liquidity position of the firm. The debtor's turnover ratio throws light on the collection and credit policies of the firm. **It measures the efficiency with which management is managing its accounts receivables.** It is calculated as follows:

Debtors Turnover Ratio: $\frac{Credit\ Sales}{Average\ Accounts\ receivables}$

A low debtors' turnover ratio reflects liberal credit terms granted to customers, while a high ratio shows that collections are made rapidly.

Receivables (Debtors) Velocity/Average Collection Period: Debtor's turnover ratio indicates the average collection period. However, the average collection period can be directly calculated as follows:

$=\frac{Average\ Accounts\ receivables}{Average\ Daily\ Credit\ Sales}$

Average Daily Credit Sales= $\frac{Credit\ Sales}{No.of\ days\ in\ the\ year\ (360)}$

Interpretation

The average collection period measures the average number of days it takes to collect an account receivable. This ratio is also referred to as the number of days of receivable and the number of day's sales in receivables. In determining the credit policy, debtor's turnover and average collection period provide a unique guidance.

(ii) Payables Turnover Ratio: This ratio is calculated on the same lines as receivable

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turnover ratio is calculated. It measures how fast a company makes payment to its creditors. It shows the velocity of payables payment by the firm. Itis calculated as follows:

$$\text{Payables Turnover Ratio} = \frac{\textit{Annual Net Credit Purchases}}{\textit{Average Accounts Payable}}$$

A low creditor's turnover ratio reflects liberal credit terms granted by suppliers,while a high ratio shows that accounts are settled rapidly.

Payable Velocity/ Average payment period can be calculated using:

$$= \frac{\textit{Average Accounts Payable}}{\textit{Average Daily Credit Purchases}}$$

Interpretation

The firm can compare what credit period it receives from the suppliers and what it offers to the customers. Also, it can compare the average credit period offered to the customers in the industry to which it belongs.

Question 3

DISCUSS Stock Turnover ratio and Gearing ratio?

Answer 3

Capital Gearing Ratio: In addition to debt-equity ratio, sometimes capital gearing ratio is also calculated to show the proportion of fixed interest (dividend) bearing capital to funds belonging to equity shareholders i.e. equity funds or net worth. Again, higher ratio may indicate more risk.

$$\text{Capital Gearing ratio} = \frac{\text{Preference Share Capital+Debentures+Other Borrowed funds}}{\text{Equity Share Capital+Reserves \& Surplus - Losses}}$$

Inventory/ Stock Turnover Ratio: This ratio also known as **stock turnover ratio establishes the relationship between the cost of goods sold during theyear** and average inventory held during the year. It measures the efficiency with which a firm utilizes or manages its inventory. It is calculated as follows:

$$\text{Inventory Turnover Ratio} = \frac{\textit{Cost of Goods Sold/ Sales}}{\textit{Average Inventory}}$$

$$\text{Average Inventory} = \frac{\textit{Opening Stock+Closing Stock}}{2}$$

In the case of inventory of raw material, the inventory turnover ratio is calculated using the following formula:

$$\text{Raw Material Inventory Turnover Ratio} = \frac{\textit{Raw Material Consumed}}{\textit{Average Raw Material Stock}}$$

Question 4

DISCUSS the composition of Return on Equity (ROE) using the DuPont model.

Answer 4

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Return on Equity using the Du Pont Model:

A finance executive at E.I. Du Pont de Nemours and Co., of Wilmington, Delaware, created the DuPont system of financial analysis in 1919. That system is used around the world today and serves as the basis of components that make up return on equity.

There are various components in the calculation of return on equity using the traditional DuPont model- the net profit margin, asset turnover, and the equity multiplier. By examining each input individually, the sources of a company's returnon equity can be discovered and compared to its competitors. The components areas follows:

(i) Profitability/Net Profit Margin: The net profit margin is simply the after- tax profit a company generates for each rupee of revenue. Net profit margin varies across industries, making it important to compare a potential investment against its competitors. Although the general rule-of-thumb is that a higher netprofit margin is preferable, it is not uncommon for management to purposely lower the net profit margin in a bid to attract higher sales.

Profitability/ Net Profit margin = $\frac{Profit\ or\ Net\ Income}{Sales\ or\ Revenue}$

Net profit margin is a safety cushion; the lower the margin, the less room for an error. A business with 1% margin has no room for flawed execution. Small miscalculations on management's part could lead to tremendous losses with littleor no warning.

(ii) Investment Turnover/ Asset Turnover/ Capital Turnover: The asset turnover ratio is a measure of **how effectively a company converts its assets into sales.** It is calculated as follows

Investment Turnover/ Asset Turnover/ Capital Turnover: $\frac{Sales\ or\ Revenue}{Investment\ or\ Asset\ or\ Capital}$

The asset turnover ratio tends to be inversely related to the net profit margin i.e. higher the net profit margin, lower the asset turnover and vice versa. The result isthat the investor can compare companies using different models (low-profit, high- volume vs. high-profit, low-volume) and determine which one is the more attractive business.

(iii) *Equity Multiplier*: It is possible for a company with terrible sales and margins to take on excessive debt and artificially increase its return on equity. The equity multiplier, a measure of financial leverage, allows the investor to see what portionof the return on equity is the result of debt. The equity multiplier is calculated as follows:

Equity Multiplier= $\frac{Investment\ or\ Asset\ or\ Capital}{Shareholders\ Equity}$

Calculation of Return on Equity

To calculate the return on equity using the DuPont model, simply multiply the three components (net profit margin, asset turnover, and equity multiplier.)
Return on Equity = (Profitability/ Net profit margin) x (Investment Turnover/Asset Turnover / Capital Turnover) x Equity Multiplier

To calculate the return on equity using the DuPont model, simply multiply the three components (net profit margin, asset turnover, and equity multiplier.)

Question 5

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EXPLAIN briefly the limitations of Financial ratios.

Answer 5

The limitations of financial ratios are listed below:

(i) **Diversified product lines:** Many businesses operate a large number of divisions in quite different industries. In such cases ratios calculated on the basis of aggregate data cannot be used for inter-firm comparisons.

(ii) **Financial data are badly distorted by inflation**: Historical cost values may be substantially different from true values. Such distortions of financial data are also carried in the financial ratios.

(iii) **Seasonal factors**: It may also influence financial data.

Example: A company deals in cotton garments. It keeps a high inventory during October - January every year. For the rest of the year its inventory level becomes just 1/4th of the seasonal inventory level.

So, the liquidity ratios and inventory ratios will produce biased picture. Year end picture may not be the average picture of the business. Sometimes it is suggested to take monthly average inventory data instead of year end data to eliminate seasonal factors. But for external users it is difficult to get monthly inventory figures. (Even in some cases monthly inventory figures may not be available).

(iv) **To give a good shape to the popularly used financial ratios (like current ratio, debt- equity ratios, etc.)**: The business may make some year-end adjustments. Such window dressing can change the character of financial ratios which would be different had there been no such change.

(v) **Differences in accounting policies and accounting period:** It can make the accounting data of two firms non-comparable as also the accounting ratios.

(vi) **No standard set of ratios against which a firm's ratios can be compared:** Sometimes a firm's ratios are compared with the industry average. But if a firm desires to be above the average, then industry average becomes a low standard. On the other hand, for a below average firm, industry averages become too high a standard to achieve.

(vii) **Difficulty to generalise whether a particular ratio is good or bad:** For example, a low current ratio may be said 'bad' from the point of view of low liquidity, but a high current ratio may not be 'good' as this may result from inefficient working capital management.

(viii) **Financial ratios are inter-related, not independent:** Viewed in isolation one ratio may highlight efficiency. But when considered as a set of ratios they may speak differently. Such interdependence among the ratios can be taken careof through multivariate analysis (analyzing the relationship between several variables simultaneously).

Financial ratios provide clues but not conclusions. These are tools only in the hands of experts because there is no standard ready-made interpretation of financial ratios.

Question 6

DISCUSS DuPont Model.

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Answer 6

Same as Answer 4

Question 7

The total sales (all credit) of a firm are ₹ 6,40,000. It has a gross profit margin of 15 per cent and a current ratio of 2.5. The firm's current liabilities are₹ 96,000; inventories ₹ 48,000 and cash ₹ 16,000.

DETERMINE the average inventory to be carried by the firm, if an inventory turnover of 5 times is expected? (Assume 360 days a year).

DETERMINE the average collection period if the opening balance of debtors is intended to be of ₹ 80,000? (Assume 360 days a year).

Answer 7

a) Inventory turnover= $\frac{\text{cost of goods}}{\text{Average invetroy}}$

Since gross profit margin is 15 per cent, the cost of goods sold should be85 per cent of the sales.

Cost of goods sold = 0.85 × ₹ 6,40,000 = ₹ 5,44,000

Thus, =

$\frac{₹\ 5,44,000}{\text{Average inventory}}$=**5**

Average inventory

= $\frac{₹\ 5,44,000}{5}$ =₹ 1,08,800

b) Average collection period= $\frac{\text{Average Receivables}}{\text{Credit Sales}} \times \times$ 360 days

Average Receivables=

$$\frac{\text{Opening Receivables + ClosingReceivables}}{2}$$

Closing balance of receivables is found as follows

	₹	₹
Current assets (2.5 of current liabilities)		2,40,000
Less: Inventories	48,000	
Cash	16,000	64,000
∴Receivables		1,76,000

Average Receivables=

$\frac{(₹1,76,000 + ₹\ 80,000)}{2}$ = ₹ 1,28,000

So, Average collection period= $\frac{\text{Rs.1,28,000}}{\text{Rs.6,40,000}} \times 360$ = 72 days

Question 8

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The capital structure of Beta Limited is as follows:

Equity share capital of ₹ 10 each	**8,00,000**
9% preference share capital of ₹ 10 each	**3,00,000**
	11,00,000

Additional information: Profit (after tax at 35 per cent) ₹ 2,70,000; Depreciation ₹ 60,000; Equity dividend paid 20 per cent; Market price of equity shares ₹ 40.

You are required to COMPUTE the following, showing the necessary workings:

(a) **Dividend yield on the equity shares**

(b) **Cover for the preference and equity dividends**

(c) **Earnings per shares**

(d) **Price-earnings ratio**

Answer 8

a) Dividend yield on the equity shares=

$$\frac{\text{Dividend per share}}{\text{Market price per share}} \times 100 = \frac{₹\ 2\ (\text{i.e.}0.20 \times ₹\ 10)}{\text{Rs.}40} \times 100$$

b) Dividend coverage ratio

i. Preference=

$$\frac{\text{Profit after taxes}}{\text{Dividend payable to preference shareholders}} = \frac{₹\ 2{,}70{,}000}{₹\ 27{,}000\ (\text{i.e.}0.09\times ₹\ 3{,}00{,}000)} = 10 \text{ times}$$

ii. Equity=

$$\frac{\text{Profit after taxes} - \text{Preference share dividend}}{\text{Dividend payable to equity shareholders at current rate of ₹ 2 per share}} = \frac{₹\ 2{,}70{,}000 - ₹27{,}000}{₹\ 1{,}60{,}000\ (\text{i.e.}80{,}000 \text{ shares} \times ₹\ 2)} =$$

1.52 times

c) Earnings per equity share=

$$= \frac{\text{Earnings available to equity shareholders}}{\text{Number of equity shares outstandind}} = \frac{₹\ 2'43'000}{80{,}000}$$

=₹ 3.04 per share

(b) Price-earning (P/E) ratio$= \frac{\text{market price per share}}{\text{Earnings per share}} = \frac{\text{Rs.}40}{\text{Rs.}3.04} = 13.2$ times

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Question 9

The following accounting information and financial ratios of PQR Ltd. relatesto the year ended 31st March, 2021:

I	Accounting Information:	
	Gross Profit	15% of Sales
	Net profit	8% of sales
	Raw materials consumed	20% of works cost
	Direct wages	10% of works cost
	Stock of raw materials	3 months' usage
	Stock of finished goods	6% of works cost
	Debt collection period	60 days
	(All sales are on credit)	
II	Financial Ratios:	
	Fixed assets to sales	1 : 3
	Fixed assets to Current assets	13 : 11
	Current ratio	2 : 1
	Long-term loans to Current liabilities	2 : 1
	Share Capital to Reserves and Surplus	1 : 4

If value of Fixed Assets as on 31st March, 2020 amounted to ₹ 26 lakhs, PREPARE a summarised Profit and Loss Account of the company for the year ended 31st March, 2021 and also the Balance Sheet as on 31st March, 2021.

Answer 9

b) Working Notes:

xi. Calculation of Sales $= \frac{\text{Fixed Assets}}{\text{Sales}} = \frac{1}{3}$

$\therefore \frac{26{,}000}{\text{sales}} = \frac{1}{3} \Rightarrow$ Sales = ₹ 78,00,000

xii. Calculation of Current Assets $= \frac{\text{Fixed Assets}}{\text{Current Assets}} = \frac{13}{11}$

$\therefore \frac{26{,}000}{\text{Current Assets}} = \frac{13}{11} \Rightarrow$ Sales = ₹ 22,00,000

xiii. Calculation of Raw Material Consumption and Direct Wages

	₹
Sales	78,00,000
Less: Gross Profit @ 15%	11,70,000
Works Cost	66,30,000

Raw Material Consumption (20% of Works Cost)= ₹ 13,26,000 Direct Wages (10% of Works Cost)= ₹ 6,63,000

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xiv. Calculation of Stock of Raw Materials (= 3 months usage)

$= 13{,}26{,}000 \times \frac{13}{12} = ₹\ 3{,}31{,}500$

xv. Calculation of Stock of Finished Goods (= 6% of Works Cost)

$= 66{,}30{,}000 \times \frac{6}{100} = ₹\ 3{,}97{,}800$

xvi. Calculation of Current Liabilities

$= \frac{\text{Current Assets}}{\text{Current Liabilities}} = 2$

$\therefore \frac{22{,}000}{\text{Current Liabilities}} = 2 \Rightarrow \text{Sales} = ₹₹11{,}00{,}000$

xvii. Calculation of Receivables

$\text{Average collection period} = \frac{\text{receivables}}{\text{credit sales}} \times 365$

$\frac{\text{receivables}}{78{,}00{,}000} \times 365 = 60$

$\Rightarrow \text{Receivables} = ₹\ 12{,}82{,}191.78 \text{ or } ₹\ 12{,}82{,}192$

xviii. Calculation of Long term Loan

$\frac{\text{Long term Loan}}{\text{Current Liabilities}} = \frac{2}{1} = \frac{\text{Long term Loan}}{11{,}00{,}000}\ \frac{2}{1} \Rightarrow \text{Long term loan}$

$= ₹\ 22{,}00{,}000.$

xix. Calculation of Cash Balance

		₹
Current assets		22,00,000
Less: Receivables	12,82,192	
Raw materials stock	3,31,500	
Finished goods stock	3,97,800	20,11,492
Cash balance		1,88,508

xx. Calculation of Net worth

Fixed Assets		26,00,000
Current Assets		22,00,000
Total Assets		48,00,000
Less: Long term Loan	22,00,000	
Current Liabilities	11,00,000	33,00,000
Net worth		15,00,000

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Net worth = Share capital + Reserves = 15,00,000

Also, $= \frac{1}{4} = \frac{\text{share capital}}{\text{Reserves and Surplus}}$

So, Share capital $= = 15,00,000 \times \frac{1}{4} =$ ₹ 12,00,000

Profit and Loss Account of PQR Ltd.for the year ended 31st March, 2021

	Particulars	₹	Particulars	₹
To	Direct Materials	13,26,000	By Sales	78,00,000
To	Direct Wages	6,63,000		
To	Works (Overhead) (Balancing figure)	46,41,000		
To	Gross Profit c/d	11,70,000		
		78,00,000		78,00,000
To	Selling and Distribution Expenses (Balancing figure)	5,46,000	By Gross Profit b/d	11,70,000
To	Net Profit (8% of Sales)	6,24,000		
		11,70,000		11,70,000

Balance Sheet of PQR Ltd. as at 31st March, 2021

Liabilities	₹	Assets	₹
Share Capital	3,00,000	Fixed Assets	26,00,000
Reserves and Surplus	12,00,000	Current Assets:	
Long term loans	22,00,000	Stock of Raw Material	3,31,500
Current liabilities	11,00,000	Stock of Finished Goods	3,97,800
		Receivables	12,82,192
		Cash	1,88,508
	48,00,000		48,00,000

Question 10

Ganpati Limited has furnished the following ratios and information relating to the year ended 31st March, 2021:

Sales	**₹ 60,00,000**
Return on net worth	**25%**
Rate of income tax	**50%**
Share capital to reserves	**7:3**

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Current ratio	**2**
Net profit to sales	**6.25%**
Inventory turnover (based on cost of goods sold)	**12**
Cost of goods sold	**₹ 18,00,000**
Interest on debentures	**₹ 60,000**
Receivables	**₹ 2,00,000**
Payables	**₹ 2,00,000**

You are required to:

(a) **CALCULATE the operating expenses for the year ended 31st March, 2021.**

(b) **PREPARE a Balance Sheet as on 31st March in the following format:**

Balance Sheet as on 31st March, 2021

Liabilities	**₹**	**Assets**	**₹**
Share Capital		**Fixed Assets**	
Reserve and Surplus		**Current Assets**	
15% Debentures		**Stock**	
Payables		**Receivables**	
		Cash	

Answer 10

a) Calculation of Operating Expenses for the year ended 31st March, 2021

		(₹)
Net Profit [@ 6.25% of Sales]		3,75,000
Add: Income Tax (@ 50%)		3,75,000
Profit Before Tax (PBT)		7,50,000
Add: Debenture Interest		60,000
Profit before interest and tax (PBIT)		8,10,000
Sales		60,00,000
Less: Cost of goods sold	18,00,000	
PBIT	8,10,000	26,10,000
Operating Expenses		33,90,000

b) Balance Sheet as on 31st March, 2021

Liabilities	**₹**	**Assets**	**₹**
Share Capital	10,50,000	Fixed Assets	17,00,000
Reserve and Surplus	4,50,000	Current Assets:	

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15% Debentures	4,00,000	Stock	1,50,000
Payables	2,00,000	Receivables	2,00,000
		Cash	50,000
	21,00,000		21,00,000

Working Notes:

(i) Share Capital and Reserves and Surplus

The return on net worth is 25%. Therefore, the profit after tax of₹ 3,75,000 should be equivalent to 25% of the net worth.

Net worth$\times \frac{25}{100}$= ₹ 3,75,000

∴ Net worth =

$= \frac{₹\,3,75,000 \times 100}{25}$= ₹ 15,00,000

The ratio of share capital to reserves is 7:3

Share Capital = 15,00,000$\times \frac{7}{10}$ =₹ 10,50,000

Reserves and Surplus= 15,00,000$\times \frac{3}{10}$₹ 4,50,000

(ii) Debentures

Interest on Debentures @ 15% = ₹ 60,000

∴ Debentures =$\frac{60,000 \times 100}{15}$= ₹ 4,00,000

(iii) Current Assets

Current Ratio = 2

Payables = ₹ 2,00,000

∴ Current Assets = 2 Current Liabilities = 2 □ 2,00,000 = ₹ 4,00,000

(iv) Fixed Assets

	₹
Share capital	10,50,000
Reserves and Surplus	4,50,000
Debentures	4,00,000
Payables	2,00,000
	21,00,000
Less: Current Assets	4,00,000
Fixed Assets	17,00,000

(i) Composition of Current Assets

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Inventory Turnover = 12

$= \frac{\text{Cost of goods sold}}{\text{Closing stock}} = 12$

Closing stock $= \frac{₹\ 18,00,000}{12} = ₹\ 1,50,000$

Composition	₹
Stock	1,50,000
Receivables	2,00,000
Cash (balancing figure)	50,000
Total Current Assets	4,00,000

Question 11

Using the following information, PREPARE the balance sheet:

Long-term debt to net worth	**0.5**
Total asset turnover	**2.5**
Average collection period*	**18 days**
Inventory turnover	**9**
Gross profit margin	**10%**
Acid-test ratio	**1**

Assume a 360-day year and all sales on credit.

	₹		₹
Cash	**?**	**Notes and payables**	**1,00,000**
Accounts receivable	**?**	**Long-term debt**	**?**
Inventory	**?**	**Common stock**	**1,00,000**
Plant and equipment	**?**	**Retained earnings**	**1,00,000**
Total assets	**?**	**Total liabilities and equity**	**?**

Answer 11

Working Notes:

(i) Long term Debt

$0.5 = \frac{\text{Long-term debt}}{\text{Net worth}} = \frac{\text{Long-term debt}}{₹1,00,000 + 1,00,000}$ = Long term debt = ₹ 1,00,000

(ii) Total assets

Total liabilities and Equity = Notes and payables + Long-term debt +Common stock + Retained earnings

= ₹ 1,00,000 + ₹ 1,00,000 + ₹ 1,00,000 + ₹ 1,00,000 = ₹ 4,00,000

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∴Total assets = Total liabilities and Equity = ₹ 4,00,000

(iii) Sales and Cost of Goods sold

Total asset turnover = 2.5

$\frac{sales}{total\ assets} = \frac{sales}{40,0000}$

∴ Sales = ₹ 10,00,000

Cost of goods sold = (100% - Gross Profit margin) ☐ Sales

= (100% - 10%) × ₹ 10,00,000 = ₹ 9,00,000.

(iv) Current Assets

Inventory turnover=9= $\frac{\text{cost of good sold}}{\text{inventory}} = \frac{9,00,000}{\text{inventory}}$

∴Inventory = ₹ 1,00,000

Average collection period = 18

$= \frac{\text{Receivables} \times 360}{\text{Sales}} = \frac{\text{Receivables} \times 360}{10,00,000}$

∴Accounts receivables = ₹ 50,000

Acid-test ratio = 1= $\frac{\text{Cash+ Accounts Receivable bles}}{\text{Notes and Payables}} = \frac{\text{Cash+ } 50,000}{1,00,000}$

∴Cash = ₹ 50,000

(v) Plant and equipment

= Total Assets - Current Assets

= ₹ 4,00,000 - (₹ 1,00,000 + ₹ 50,000 + ₹ 50,000) = ₹ 2,00,000

Balance Sheet

	₹		₹
Cash	50,000	Notes and payables	1,00,000
Accounts receivable	50,000	Long-term debt	1,00,000
Inventory	1,00,000	Common stock	1,00,000
Plant and equipment	2,00,000	Retained earnings	1,00,000
Total assets	4,00,000	Total liabilities and equity	4,00,000

Question 12

Following information has been provided from the books of Laxmi Pvt. Ltd. for the year ending on 31st March, 2021:

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Net Working Capital	**₹ 4,80,000**
Bank overdraft	**₹ 80,000**
Fixed Assets to Proprietary ratio	**0.75**
Reserves and Surplus	**₹ 3,20,000**
Current ratio	**2.5**
Liquid ratio (Quick Ratio)	**1.5**

You are required to PREPARE a summarized Balance Sheet as at 31st March, 2021 assuming that there is no long term debt.

Answer 12

Working notes:

(i) Computation of Current Assets and Current Liabilities]

$\frac{\text{Current assets}}{\text{Current liabilities}} = 2.5$

Current assets = 2.5 Current liabilities

Now, Working capital = Current assets Current liabilities

₹ 4,80,000 = 2.5 Current liability Current liability

Or, 1.5 Current liability = ₹ 4,80,000

∴ Current Liabilities = ₹ 3,20,000

So, Current Assets = ₹ 3,20,000 2.5 = ₹ 8,00,000

(ii) Computation of Inventories

Liquid ratio $= \frac{\text{Liquid assets}}{\text{Current liabilities}}$

$1.5 = \frac{\text{carrent assets} - \text{inventories}}{\text{Rs.3,20,000}}$

=1.5 × ₹ 3, 20,000₹ 8,00,000 - Inventories

Inventories = ₹ 8,00,000 – ₹ 4, 80,000 = ₹ 3,20,000

(iii) Computation of Proprietary fund; Fixed assets; Capital and Sundry creditors

Fixed Asset to Proprietary ratio $= \frac{\text{fixed assets}}{\text{Proprietaryfund}} = 0.75$

∴Fixed Assets = 0.75 Proprietary fund

Proprietary fund = Fixed Assets + Net Working Capital - Long Term Debt

= 0.75 Proprietary fund + ₹ 4,80,000 - 0

∴ Proprietary fund = ₹ 19,20,000

and Fixed Assets = 0.75 proprietary fund

= 0.75 ₹ 19,20,000 = ₹ 14,40,000

Capital = Proprietary fund - Reserves & Surplus

= ₹ 19,20,000 × ₹ 3,20,000 = ₹ 16,00,000

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Sundry Creditors = Current liabilities - Bank overdraft

= ₹ 3,20,000 – ₹ 80,000 = ₹ 2,40,000

Balance Sheet as at 31st March, 2021

Liabilities	₹	Assets	₹
Capital	16,00,000	Fixed Assets	14,40,000
Reserves & Surplus	3,20,000	Inventories	3,20,000
Bank overdraft	80,000	Other Current Assets	4,80,000
Sundry creditors	2,40,000	(Balancing figure)	
	22,40,000		22,40,000

Question 13

Manan Pvt. Ltd. gives you the following information relating to the year ending 31st March, 2021:

(1) **Current Ratio 2.5 : 1**

(2) **Debt-Equity Ratio 1 : 1.5**

(3) **Return on Total Assets (After Tax)**	**15%**
(4) **Total Assets Turnover Ratio**	**2**
(5) **Gross Profit Ratio**	**20%**
(6) **Stock Turnover Ratio**	**7**
(7) **Net Working Capital**	**₹ 13,50,000**
(8) **Fixed Assets**	**₹ 30,00,000**
(9) **1,80,000 Equity Shares of**	**₹ 10 each**
(10) **60,000, 9% Preference Shares of**	**₹ 10 each**
(11) **Opening Stock**	**₹ 11,40,000**

You are required to CALCULATE:

(a) **Quick Ratio**

(b) **Fixed Assets Turnover Ratio**

(c) **Proprietary Ratio**

(d) **Earnings per Share**

Answer 13

Workings Notes:

i. **Computation of Current Assets & Current Liabilities & Total Assets**

Net Working Capital= Current Assets – Current Liabilities

= 2.5 – 1 = 1.5

Thus, Current Assets= $\frac{\text{Net Working Capital} \times 2.5}{1.5} = \frac{₹13,50,000 \times 2.5}{1.5} =$ ₹ 22,50,000

Current Liabilities (CL)= ₹ 22,50,000 – ₹ 13,50,000 = ₹ 9,00,000

Total Assets= Current Assets + Fixed Assets

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= ₹ 22,50,000 + ₹ 30,00,000 = ₹ 52,50,000

ii. Computation of Sales & Cost of Goods Sold

Sales = Total Assets Turnover × Total Assets

= 2 x (Fixed Assets + Current Assets)

= 2 × (₹ 30,00,000 + ₹ 22,50,000)

= ₹ 1,05,00,000

Cost of Goods Sold = (100% – 20%) of Sales = 80% of Sales

= 80% × ₹ 1,05,00,000 = ₹ 84,00,000

iii. Computation of Stock & Quick Assets

$= \frac{\text{Cost of Good Sold}}{\text{Stock Turnover Ratio}} = \frac{₹84,00,000}{7} =$

= ₹ 12,00,000

Closing Stock= (Average Stock × 2) – Opening Stock

= (₹ 12,00,000 × 2) – ₹ 11,40,000

= ₹ 12,60,000

Quick Assets= Current Assets – Closing Stock

= ₹ 22,50,000 – ₹ 12,60,000 = ₹ 9,90,000

iv. Computation of Proprietary Fund

Debt-Equity Ratio $\frac{\text{debts}}{\text{Equity}} = \frac{1}{1.5}$

Or, Equity= 1.5 Debt

Total Assets= Equity + Preference capital + Debt + CL

₹ 52,50,000= 1.5 Debt+ ₹ 6,00,000 + Debt + ₹ 9,00,000

Thus, Debt= $\frac{\text{Rs.}37,50,000}{2.5}$ = ₹ 15,00,000

Equity= ₹ 15,00,000 × 1.5 = ₹ 22,50,000

So, Proprietary Fund = Equity + Preference Capital

= ₹ 22,50,000 + ₹ 6,00,000 = ₹ 28,50,000

Computation of Profit after tax (PAT)

= Total Assets × Return on Total Assets

= ₹ 52,50,000 × 15% = ₹ 7,87,500

a) Quick Ratio

Quick Ratio= $\frac{\text{Quick Assets}}{\text{Current Liabilities}} = \frac{\text{Rs.}9,90,000}{\text{Rs.}9,00,000} = 1.1$

b) Fixed Assets Turnover Ratio

Fixed Assets Turnover Ratio= $\frac{\text{sales}}{\text{Fixed assets}} = \frac{\text{Rs.}1,05,00,000}{\text{Rs.}30,00,00,000} = 0.54$

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c) Earnings per Equity Share (EPS)

$$\text{Earnings per Equity Share} = \frac{\text{PAT} - \text{Preference Share Dividend}}{\text{Number of Equity Share}}$$

$$\frac{₹\,7{,}87{,}500 \; - \; ₹\,54{,}000\;(9\%\text{ of }₹\,6{,}00{,}000)}{1{,}80{,}000}$$

= ₹ 4.075 per share

Question 14

Gig Ltd. has furnished the following information relating to the year ended 31st March, 2020 and 31st March, 2021: (₹)

	31st March, 2020	31st March, 2021
Share Capital	40,00,000	40,00,000
Reserve and Surplus	20,00,000	25,00,000
Long term loan	30,00,000	30,00,000

- **Net profit ratio: 8%**
- **Gross profit ratio: 20%**
- **Long-term loan has been used to finance 40% of the fixed assets.**
- **Stock turnover with respect to cost of goods sold is 4.**
- **Debtors represent 90 days sales.**
- **The company holds cash equivalent to 1½ months cost of goods sold.**
- **Ignore taxation and assume 360 days in a year.**
- **You are required to PREPARE Balance Sheet as on 31st March, 2021 in the following format:**

Liabilities	(₹)	Assets	(₹)
Share Capital	-	Fixed Assets	-
Reserve and Surplus	-	Sundry Debtors	-
Long-term loan	-	Closing Stock	-
Sundry Creditors	-	Cash in hand	-

Answer 14

i. Change in Reserve & Surplus = ₹ 25,00,000 – ₹ 20,00,000 = ₹ 5,00,000 So,

Net profit = ₹ 5,00,000

Net Profit Ratio = 8%

$$\therefore \text{ Sales} \frac{5{,}00{,}000}{8\%} = ₹\,62{,}50{,}000$$

ii. Cost of Goods sold

= Sales – Gross profit Margin

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= ₹ 62,50,000 – 20% of ₹ 62,50,000

= ₹ 50,00,000

iii. Fixed Assets= $\frac{₹\ 30,00,000}{40\%}$=₹ 75,00,000

iv. Stock=

$\frac{\text{Cost of Goods Sold}}{\text{Stock Turnover ratio}}\ \frac{50,00,000}{4}$ **=Rs.12,50,000**

Debtors= $\frac{62,50,000}{360} \times 90$ == ₹ 15,62,500

v. Cash Equivalent $\frac{50,00,000}{12} \times 1.5$ =₹ 6,25,000

Balance Sheet as on 31st March 2021

Liabilities	(₹)	Assets	(₹)
Share Capital	40,00,000	Fixed Assets	75,00,000
Reserve and Surplus	25,00,000	Sundry Debtors	15,62,500
Long-term loan	30,00,000	Closing Stock	12,50,000
Sundry Creditors (Balancing Figure)	14,37,500	Cash in hand	6,25,000
	1,09,37,500		1,09,37,500

From the following information and ratios, PREPARE the Balance sheet as at 31st March, 2023 and Income Statement for the year ended on that date for M/s Ganguly & Co -

Average Stock	₹10 lakh
Current Ratio	3:1
Acid Test Ratio	1:1
PBIT to PBT	2.2:1
Average Collection period (Assume 360 days in a year)	30 days
Stock Turnover Ratio (Use sales as turnover)	5 times
Fixed assets turnover ratio	0.8 times
Working Capital	₹10 lakh
Net profit Ratio	10%
Gross profit Ratio	40%
Operating expenses (excluding interest)	₹ 9 lakh
Long term loan interest	12%
Tax	Nil

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1. Current Ratio = 3:1

Current Assets (CA)/Current Liability (CL) = 3:1CA = 3CL

WC = 10,00,000

CA – CL = 10,00,000 3CL – CL = 10,00,000

2CL = 10,00,000

CL = $\frac{10,00,000}{2}$

CL = ₹5,00,000

CA = 3 x5,00,000

CA = ₹15,00,000

2. Acid Test Ratio = CA – Stock / CL = 1:1

   = $\frac{15,00,000 - Stock}{5,00,000}$ = 1

   15,00,000 – stock = 5,00,000

   Stock = ₹10,00,000

3. Stock Turnover ratio (on sales) = 5

   $\frac{Sales}{Avg\ Stock}$ = 5

   $\frac{Sales}{10,00,000}$ = 5

   Sales = ₹50,00,000

4. Gross Profit = 50,00,000 x 40% = ₹20,00,000 Net profit (PBT) = 50,00,000 x 10% =₹5,00,000

5. PBIT/PBT = 2.2

   PBIT = 2.2 x 5,00,000

   PBIT= 11,00,000

   Interest = 11,00,000 – 5,00,000 = ₹6,00,000

   Long term loan =$\frac{6,00,000}{0.12}$ ₹50,00,000

6. Average collection period = 30 days

   Receivables = $\frac{30}{360} \times 50,00,000$ = 4,16,667

7. Fixed Assets Turnover Ratio =

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0.850,00,000/ Fixed
Assets = 0.8 Fixed
Assets = ₹62,50,000

Income Statement

	(₹)
Sales	50,00,000
Less: Cost of Goods Sold	30,00,000
Gross Profit	20,00,000
Less: Operating Expenses	9,00,000
Less: Interest.	6,00,000
Net Profit	5,00,000

Balance sheet

Liabilities	(₹)	Assets		(₹)
Equity share capital	22,50,000	Fixed asset		62,50,000
Long term debt	50,00,000	Current assets:		
Current liability	5,00,000	Stock	10,00,000	
		Receivables	4,16,667	
		Other	83,333	15,00,000
	77,50,000			77,50,000

Question 15

From the following information, you are required to PREPARE a summarised Balance Sheet for Rudra Ltd. for the year ended 31st March, 2023:

Debt Equity Ratio	1:1
Current Ratio	3:1
Acid Test Ratio	8:3

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Fixed Asset Turnover (on the basis of sales)	**4**
Stock Turnover (on the basis of sales)	**6**
Cash in hand	**₹ 5,00,000**
Stock to Debtor	**1:1**
Sales to Net Worth	**4**
Capital to Reserve	**1:2**
Gross Profit	**20% of Cost**
COGS to Creditor	**10:1**

Interest for entire year is yet to be paid on Long Term loan @ 10%.

Answer 15

Balance Sheet of Rudra Ltd.

Liabilities	**(₹)**	**Assets**	**(₹)**
Capital	10,00,000	Fixed Assets	30,00,000
Reserves	20,00,000	Current Assets:	
Long Term Loan @ 10%	30,00,000	Stock in Trade	20,00,000
Current Liabilities:		Debtors	20,00,000
Creditors	10,00,000	Cash	5,00,000
Other Short-term	2,00,000		
Current Liability (Other			
STCL)			
Outstanding Interest	3,00,000		
	75,00,000		75,00,000

Working Notes:

Let sales be ₹ x

Balance Sheet of Rudra Ltd.

Liabilities	**(₹)**	**Assets**	**(₹)**

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Capital Reserves Net Worth Long Term Loan @ 10% Current liabilities: Creditors Other Short-term CurrentLiability Outstanding Interest Total Current Liabilities Total	x/4 x/4	Fixed Assets Current Assets: Stock in Trade Debtors Cash	x/4 x/6 x/6 5,00,000
	x/12		
	x/9+5,00,000/3		
		Total	

1. Fixed Asset Turnover = 4 $= \frac{X}{Fixed\ Assets}$

   Fixed Assets = $\frac{X}{4}$

2. Stock Turnover = 6 $= \frac{X}{Stock}$

   Stock = $\frac{X}{6}$

3. Sales to net worth = 4 = $\frac{X}{net\ worth}$

   Net worth = $\frac{X}{4}$

4. Debt : Equity = 1:1

   $\frac{Long\ Term\ Loan}{Net\ worth} = \frac{1}{1}$

   Long term loan = Net worth = $\frac{X}{4}$

5. Gross Profit to cost = 20%

   $\frac{GP}{Sales-GP}$ = 20%

   $\frac{GP}{X-GP}$ = 20%

   GP = 0.2 X -0.2 GP

   1.2 GP = 0.2X

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$GP = \frac{0.2X}{1.2}$

GP = x/6

6. $Cost$ of Goods Sold = X- X/6 = 5/6 X

COGS to Creditors = 10:1

$\frac{COGS}{Creditors} = \frac{10}{1}$

$\frac{\frac{5}{6}X}{Creditors} = \frac{10}{1}$

$Creditors = \frac{5X}{60} = \frac{X}{12}$

7. $\frac{Stock}{Debtor} = 1$

$Debtor$ = Stock $= \frac{X}{6}$

8. $Current$ Ratio = 3:1

$\frac{Stock+Debtors+cash}{Current\ Liabilities} = \frac{3}{1}$

$\frac{\frac{X}{6}+\frac{X}{6}+5,00,000}{Current\ Liabilities} = 3$

$\frac{\frac{X}{3}+5,00,000}{3} = CL$

$CL = \frac{X}{9} + \frac{5,00,000}{3}$

9. $CA = 3CL = 3\left(\frac{X}{9} + \frac{₹\,5,00,000}{3}\right)$

$CA = \frac{X}{3} + 5,00,000$

10. Net worth + Long Term Loan + Current Liability = Fixed Asset + Current Assets

$\frac{X}{4} + \frac{X}{4} + \frac{X}{9} + \frac{₹\,5,00,000}{3} = \frac{X}{4} + \frac{X}{3} + ₹\ 5,00,000$

$\frac{X}{4} + \frac{X}{9} - \frac{X}{3} = ₹5,00,000 - \frac{₹\,5,00,000}{3}$

$\frac{9x+4X-12X}{36} = \frac{₹15,00,000-₹5,00,000}{3}$

$\frac{X}{36} = \frac{₹\,10,00,000}{3}$

X = ₹ 1,20,00,000

11. Now, from above calculations, we get,

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Fixed Asset = $\frac{X}{4} = \frac{₹\ 1,20,00,000}{4}$ = ₹ 30,00,000

Stock = $\frac{X}{6} = \frac{₹\ 1,20,00,000}{6}$ = ₹ 20,00,000

Debtor = $\frac{X}{6} = \frac{₹\ 1,20,00,000}{6}$ = ₹ 20,00,000

Net worth = x/4 = ₹ 30,00,000

Now , Capital to Reserve is 1:2

Capital = ₹ 10,00,000

And, Reserve = ₹ 20,00,000

Long term Loan = $\frac{X}{4}$ = 30,00,000

Outstanding Interest = 30,00,000 X 10% = 3,00,000

Creditors = $\frac{X}{12} = \frac{₹\ 1,20,00,000}{12}$ = ₹ 10,00,000

Current Liabilities = Creditors + Other STCL + Outstanding Interest

$\frac{X}{9} + \frac{₹5,00,000}{3}$ = ₹ 10,00,000 + Other STCL + ₹ 3,00,000

$\frac{₹\ 1,20,00,000}{9} + \frac{₹\ 5,00,000}{3}$ = ₹ 13,00,000 + Other STCL

₹ 15,00,000 = Other STCL + ₹ 13,00,000

Other STCL = ₹ 2,00,000

Question 16

Following information relates to Temer Ltd.:

Debtors Velocity	**3 months**
Creditors Velocity	**2 months**
Stock Turnover Ratio	**1.5**
Gross Profit Ratio	**25%**
Bills Receivables	**₹ 25,000**
Bills Payables	**₹ 10,000**
Gross Profit	**₹ 4,00,000**
Fixed Assets turnover Ratio	**4**

Closing stock of the period is ₹ 10,000 above the opening stock.

DETERMINE:

(i) **Sales and cost of goods sold**

(ii) **Sundry Debtors**

(iii) **Sundry Creditors**

(iv) **Closing Stock**

(v) **Fixed Assets**

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Answer 16

(i) Determination of Sales and Cost of goods sold:

Gross Profit Ratio= $\frac{\textbf{Gross profit}}{\textbf{sales}} \times \textbf{100}$

Or, $\frac{25}{100} = \frac{4,00,00,000}{\text{sales}}$

Or, Sales= $\frac{4,00,00,000}{25}$ == ₹ 16,00,000

Cost of Goods Sold = Sales – Gross Profit

= ₹ 16,00,000 - ₹ 4,00,000 = ₹ 12,00,000

(ii) Determination of Sundry Debtors:

Debtors' velocity is 3 months or Debtors' collection period is 3 months

So, Debtors' turnover ratio= $\frac{12 \text{ month}}{3 \text{ month}} = 4$

Debtors' turnover ratio = $\frac{\text{credit sales}}{\text{Average Accounts receivable}}$

= $\frac{₹\ 16,00,000}{\text{Bills Receivable + Sundry Debtors}} = 4$

Or, Sundry Debtors + Bills receivable= ₹ 4,00,000

Sundry Debtors = ₹ 4,00,000 – ₹ 25,000 = ₹ 3,75,000

(iii) Determination of Sundry Creditors:

Creditors' velocity of 2 months or credit payment period is 2 months.

So, Creditors' turnover ratio= $\frac{12 \text{ month}}{2 \text{ month}} = 6$

Creditors turnover ratio= $\frac{\text{credit purchases}}{\text{Average Accounts payble}}$

= $\frac{₹\ 1210,000}{\text{Sundry Debtors+bills paybale}} = 6$

So, Sundry Creditors + Bills Payable= ₹ 2,01,667Or,

Sundry Creditors + ₹ 10,000= ₹ 2,01,667

Or, Sundry Creditors = ₹ 2,01,667 – ₹ 10,000 = ₹ 1,91,667

(iv) Determination of Closing Stock

Stock Turnover Ratio= $\frac{\text{coast of goods sold}}{\text{average stock}} = \frac{₹12,00,000}{\text{average stock}} = 1.5$

So, Average Stock = ₹ 8,00,000

Now Average Stock

= $\frac{\text{Opening Stock + Closing Stock}}{2}$ or $\frac{\text{Opening Stock + (Opening Stock + ₹10,000)}}{2}$ = ₹ 8,00,000

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Or, Opening Stock = ₹ 7,95,000

So, Closing Stock = ₹ 7,95,000 + ₹ 10,000 = ₹ 8,05,000

(v) Determination of Fixed Assets

Fixed Assets Turnover Ratio =

$$= \frac{\text{cost of goods sold}}{\text{fixed assets}} = 4$$

Or, $\frac{₹12,00,000}{\text{fixed assets}} = 4$

Or, Fixed Asset = ₹ 3,00,000

Workings:

***Calculation of Credit purchases:**

Cost of goods sold = Opening stock + Purchases – Closing stock

₹ 12,00,000 = ₹ 7,95,000 + Purchases – ₹ 8,05,000

₹ 12,00,000 + ₹ 10,000 = Purchases

₹ 12,10,000 = Purchases (credit)

Assumption:

(i) All sales are credit sales

(ii) All purchases are credit purchase

(iii) Stock Turnover Ratio and Fixed Asset Turnover Ratio may be calculated either on Sales or on Cost of Goods Sold.

Question 17: Illustration

In a meeting held at Solan towards the end of 2019-20, the Directors of HPCL Ltd. have taken a decision to diversify. At present HPCL Ltd. sells all finished goods fromits own warehouse. The company issued debentures on 01.04.2020 and purchasedfixed assets on the same day. The purchase prices have remained stable during the concerned period. Following information is provided to you:

INCOME STATEMENT

Particulars	2019-20 (₹)		2020-21 (₹)	
Cash Sales	30,000		32,000	
Credit Sales	2,70,000	3,00,000	3,42,000	3,74,000
Less: Cost of goods sold		2,36,000		2,98,000
Gross profit		64,000		76,000
Less: Operating Expenses:				
Warehousing	13,000		14,000	
Transport	6,000		10,000	

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Administrative	19,000		19,000	
Selling	11,000	49,000	14,000	57,000
Net Profit		15,000		19,000

BALANCE SHEET

Assets & Liabilities	2019-20 (₹)		2020-21 (₹)	
Fixed Assets (Net Block)	-	30,000	-	40,000
Receivables	50,000		82,000	
Cash at Bank	10,000		7,000	
Stock	60,000		94,000	
Total Current Assets (CA)	1,20,000		1,83,000	
Payables	50,000		76,000	
Total Current Liabilities (CL)	50,000		76,000	
Working Capital (CA - CL)		70,000		1,07,000
Net Assets		1,00,000		1,47,000
Represented by:		75,000		75,000
Share Capital				
Reserve and Surplus		25,000		42,000
Debentures		-		30,000
		1,00,000		1,47,000

You are required to CALCULATE the following ratios for the years 2019-20 and 2020-21:

(i) **Gross Profit Ratio**

(ii) **Operating Expenses to Sales Ratio**

(iii) **Operating Profit Ratio**

(iv) **Capital Turnover Ratio**

(v) **Stock Turnover Ratio**

(vi) **Net Profit to Net Worth Ratio**

(vii) **Receivables Collection Period**

Ratio relating to capital employed should be based on the capital at the end of theyear. Give the reasons for change in the ratios for

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2 years. Assume opening stock of₹ 40,000 for the year 2019-20. Ignore Taxation.

Answer 17

Computation of Ratios		
Ratio	**2019-20 (₹)**	**2020-21 (₹)**
1. Gross profit ratio (Gross profit/sales	$\frac{64,000 \times 100}{3,00,000}$=21.3%	$\frac{76,000 \times 100}{3,74,000}$=20.3%
2. Operating expense to sales ratio (Operating exp/ Total sales)	$\frac{49,000 \times 100}{3,00,000}$=16.3 %	$\frac{57,000 \times 100}{3,74,000}$= 15.2%
3. Operating profit ratio(Operating profit / Total sales)	$\frac{15,000 \times 100}{3,00,000}$=5%	$\frac{19,000 \times 100}{3,74,000}$= 5.08%
4. Capital turnover ratio (Sales /capital employed)	$\frac{3,000 \times 100}{1,00,000}$=3%	$\frac{3,74,000 \times 100}{1,47,000}$=2.54
5. Stock turnover ratio (COGS/Average stock) (Refer to W.N. 1)	$\frac{2,36,000 \times 100}{50,000}$=4.72	$\frac{2,98,000 \times 100}{77,000}$=3.87
6. Net Profit to Net worth ratio (Net profit / Net worth)	$\frac{15,000 \times 100}{1,00,000}$=15%	$\frac{19,000 \times 100}{1,17,000}$=16.24%
7. Receivables collection period (Average receivables / Average daily credit sales) (Refer to W.N. 2)	$\frac{50,000 \times 100}{739.77}$=67.60 days	$\frac{82,000}{936.99}$=87.5 days
Working notes (W.N.):		
1. Average Stock = (opening stock + closing stock)/2	$\frac{40,000+60,000}{2}$=50,000	$\frac{60,000 + 94,000}{2}$ =77,000
2. Average daily sales = Credit sales	$\frac{2,70,000 \times 100}{365}$=739.73	$\frac{3,42,000 \times 100}{365}$=936.99

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/ 365		

Analysis: The decline in the Gross profit ratio could be either due to a reduction in the selling price or increase in the direct expenses (since the purchase price has remained the same). In this case, cost of goods sold have increased more than proportion of increment in sales & hence impacting gross profit ratio.

Similarly, there is a decline in the ratio of operating expenses to sales. Furtheranalysis reveals that in comparison to increase in sales, there has a lesser proportionate increase in operating expenses. As a result, even the operating profit ratio has remained the same approximately in spite of a decline in the Gross profit ratio.

The company has not been able to deploy its capital efficiently. This is indicated by a decline in the Capital turnover ratio from 3 to 2.54 times.

The decline in stock turnover ratio implies that the company has increased its investment in stock. Net Profit to Net worth ratio has increased indicating that the company's Net worth or Shareholders' capital is efficient in generating profits.The increase in the Receivables collection period indicates that the company has become liberal in extending credit on sales. There is a corresponding increase in the receivables also due to such credit policy.

Question 18: Illustration

Following is the abridged Balance Sheet of Alpha Ltd.:

Liabilities	₹	Assets	₹	₹
Share Capital	**1,00,000**	**Land and Buildings**		**80,000**
Profit and Loss Account	**17,000**	**Plant and Machineries**	**50,000**	
Current Liabilities	**40,000**	**Less: Depreciation**	**15,000**	**35,000**
				1,15,000
		Stock	**21,000**	
		Receivables	**20,000**	
		Bank	**1,000**	**42,000**
Total	**1,57,000**	**Total**		**1,57,000**

With the help of the additional information furnished below, you are required to PREPARE Trading and Profit & Loss Account and Balance Sheet as at 31st March, 2021:

(i) **The company went in for re-organisation of capital structure, with share capitalremaining the same as follows:**

Share capital	**50%**

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Other Shareholders' funds	15%
5% Debentures	10%
Current Liabilities	25%

Debentures were issued on 1st April, interest being paid annually on 31st March.

(i) **Land and Buildings remained unchanged. Additional plant and machinery has been bought and a further ₹ 5,000 depreciation was written off.(The total fixed assets then constituted 60% of total fixed and current assets.)**

(ii) **Working capital ratio was 8 : 5.**

(iii) **Quick assets ratio was 1 : 1.**

(iv) **The receivables (four-fifth of the quick assets) to sales ratio revealed a credit period of 2 months. There were no cash sales.**

(v) **Return on net worth was 10%.**

(vi) **Gross profit was at the rate of 15% of selling price.**

(vii) **Stock turnover was eight times for the year. Ignore Taxation.**

Answer 18

Particulars	**%**	**(₹)**
Share capital (given to be same)	50%	1,00,000
Other shareholders funds	15%	30,000
5% Debentures	10%	20,000
Current Liabilities	25%	50,000
Total (1,00,000 / 50%)	100%	2,00,000

Calculation of Assets = Total Assets

Total liabilities

₹ 2,00,000 = Total Assets

Fixed Assets = 60% of total fixed assets and current assets

= ₹ 2,00,000 □ 60/100 = ₹ 1,20,000

Current Assets = Total Assets – Fixed Assets

= ₹ 2,00,000 – ₹ 1,20,000 = ₹ 80,000

Calculation of additions to Plant & Machinery

	₹
Total fixed assets	1,20,000
Less: Land & Buildings	80,000
Plant and Machinery (after providing depreciation)	40,000

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Less: Existing Plant & Machinery (after extra depreciation of ₹ 5,000) i.e. 50,000 – 20,000	30,000
Addition to the Plant & Machinery	10,000

Calculation of stock

Quick ratio: $= \frac{Current\ assets - stock}{Current\ liabilities} = \mathbf{1}$

$= \frac{₹\,80,000 - stock}{₹\,50,000} = = 1$

₹ 50,000 Stock **Receivables**	= = = =	₹ 80,000 – Stock ₹ 80,000 - ₹ 50,000 ₹ 30,000 4/5th of quick assets
	=	(₹ 80,000 – ₹ 30,000) ×4/5
	=	₹ 40,000
Receivables turnover = $\frac{Receivables}{credit\ sales} \times 12\ Months$=2 month		

$= \frac{\mathbf{40,000 \times 12}}{\mathbf{credit\ sales}} = \mathbf{2month}$

2×credit sales=4,80,000

Credit sales=4,80,000/2

=₹ 2,40,000= Total Sales (As there were no cash sales

Gross profit =15% of sales=₹ 2,40,000 ×15/100 = ₹ 36,000

Return on net worth (net profit)

Net worth	=	₹ 1,00,000 + ₹ 30,000	=	₹ 1,30,000
Net profit	=	₹ 1,30,000 × 10/100	=	₹ 13,000
Debenture interest	=	₹ 20,000 × 5/100	=	₹ 1,000

Projected profit and loss account for the year ended 31st March, 2021

Particulars	**₹**	**Particulars**	**₹**
To cost of goods sold	2,04,000	By sales	2,40,000
To gross profit	36,000		
	2,40,000		2,40,000
To debenture interest	1,000	By gross profit	36,000
To administration and otherexpenses (bal. fig.)	22,000		
To net profit	13,000		

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	36,000		36,000

Projected Balance Sheet as at 31st March, 2021

Liabilities	₹	Assets		₹
Share capital	1,00,000	Fixed assets:		
Profit and loss A/c	30,000	Land & buildings		80,000
(17,000+13,000)		Plant & machinery	60,000	
5% Debentures	20,000	Less: Depreciation	20,000	40,000
Current liabilities	50,000	Current assets		
		Stock	30,000	
		Receivables	40,000	
		Bank	10,000	80,000
	2,00,000			2,00,000

Question 19: illustration

X Co. has made plans for the next year. It is estimated that the company will employ total assets of ₹ 8,00,000; 50 per cent of the assets being financed by borrowed capital at an interest cost of 8 per cent per year. The direct costs for the year are estimated at ₹ 4,80,000 and all other operating expenses are estimated at ₹ 80,000. The goods will be sold to customers at 150 per cent of the direct costs. Tax rate is assumed to be 50 per cent. You are required to CALCULATE: (i) Operating profit margin (before tax); (ii) net profit margin (after tax); (iii) return on assets (on operating profit after tax); (iv) asset turnover and (v) return on owners' equity.

Answer 19

The net profit is calculated as follows:

Particulars	₹
Sales (150% of ₹ 4,80,000)	7,20,000
Direct costs	(4,80,000)
Gross profit	2,40,000
Operating expenses	(80,000)
Profit before Interest and Tax (EBIT)	1,60,000
Interest changes (8% of ₹ 4,00,000)	(32,000)
Profit before taxes	1,28,000
Taxes (@ 50%)	(64,000)

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Net profit after taxes	64,000

i. Operating profit margin=$\frac{EBIT}{Sales}$ =$\frac{Rs.1,60,000}{Rs.7,20,000}$= 0.2222 or 22.22%

ii. Net profit margin=$\frac{Net\ profit\ after\ taxes}{sales}$=$\frac{₹\ 64,000}{7,20,000}$=0.89 or 8.9%

iii. Return on assets=$\frac{EBIT(1-T)}{sales}$ = $\frac{Rs.1,60,000(1-0.5)}{Rs.8,00,000}$== 0.1 or 10%

iv. Asset turnover=$\frac{sales}{Assets}$ = $\frac{₹\ 7,20,000}{₹\ 8,00,000}$ =0.9 times

v. Return on equity=$\frac{NetProfitafter\ taxes}{Owners'equity}$ = $\frac{₹\ 64,000}{50\%\ of ₹\ 8,00,000}$

=$\frac{₹\ 64,000}{₹\ 4,00,000}$== 0.16 or 16%

Question 20: illustration 4

From the following ratios and information given below, PREPARE Trading Account, Profit and Loss Account and Balance Sheet of Aebece Company:

Fixed Assets	**₹ 40,00,000**
Closing Stock	**₹ 4,00,000**
Stock turnover ratio	**10**
Gross profit ratio	**25 percent**
Net profit ratio	**20 percent**
Net profit to capital	**1/5**
Capital to total liabilities	**1/2**
Fixed assets to capital	**5/4**
Fixed assets/Total current assets	**5/7**

Answer 20

Workings:

i. $\frac{Fixed\ Assets}{Total\ Current\ Assets} = \frac{5}{7}$

Or, Total Current Assets=$\frac{₹40,00,000\times 7}{5}$ = ₹ 56,00,000

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ii. $\frac{Fixed\ Assets}{capital} = \frac{5}{4}$

Or, Capital= $\frac{₹40,00,000 \times 4}{5}$ = ₹ 32,00,000

iii. $\frac{capital}{Total\ libilites*} = \frac{1}{2}$

Or, Total liabilities = ₹ 32,00,000 × 2 = ₹ 64,00,000

*It is assumed that total liabilities do not include capital.

iv. $\frac{Net\ Profit}{capital} = \frac{1}{5}$

Or, Net Profit = ₹ 32,00,000 × 1/5 = ₹ 6,40,000

v. $\frac{Net\ Profit}{sales} = \frac{1}{5}$

Or, Sales = ₹ 6,40,000 × 5 = ₹ 32,00,000

vi. Gross Profit = 25% of ₹ 32,00,000 = ₹ 8,00,000

vii. Stock Turnover= $\frac{cost\ of\ goods\ sold(i.e\ sales - gross\ profit)}{AverageStock}$ = **10**

$\frac{₹\ 32,00,000 - ₹\ 8,00,000}{AverageStock} = 10$

Or, Average Stock = ₹ 2,40,000

Or, $\frac{Opening\ Stock + ₹\ 4,00,000}{2} = 10$

Or, Opening Stock= ₹ 80,000

Trading Account

Particulars	(₹)	Particulars	(₹)
To Opening Stock	80,000	By Sales	32,00,000
To Manufacturing exp./Purchase (Balancing figure)	27,20,000		
To Gross Profit b/d	8,00,000	By Closing Stock	4,00,000
	36,00,000		36,00,000

Profit and Loss Account

Particulars	(₹)	Particulars	(₹)

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To Operating Expenses (Balancing figure)	1,60,000	By Gross Profit c/d	8,00,000
To Net Profit	6,40,000		
	8,00,000		8,00,000

Balance Sheet

Capital and Liabilities	(₹)	Assets	(₹)
Capital	32,00,000	Fixed Assets	40,00,000
Liabilities	64,00,000	Current Assets:	
		Closing Stock	4,00,000
		Other Current Assets (Bal. figure)	52,00,000
	96,00,000		96,00,000

Question 21: Illustration

ABC Company sells plumbing fixtures on terms of 2/10, net 30. Its financial statements over the last 3 years are as follows:

Particulars	2018-19	2019-20	2020-21
	₹	₹	₹
Cash	**30,000**	**20,000**	**5,000**
Accounts receivable	**2,00,000**	**2,60,000**	**2,90,000**
Inventory	**4,00,000**	**4,80,000**	**6,00,000**
	6,30,000	**7,60,000**	**8,95,000**
Net fixed assets	**8,00,000**	**8,00,000**	**8,00,000**
	14,30,000	**15,60,000**	**16,95,000**
	₹	₹	₹
Accounts payable	**2,30,000**	**3,00,000**	**3,80,000**
Accruals	**2,00,000**	**2,10,000**	**2,25,000**
Bank loan (short-term)	**1,00,000**	**1,00,000**	**1,40,000**
	5,30,000	**6,10,000**	**7,45,000**
Long-term debt	**3,00,000**	**3,00,000**	**3,00,000**
Common stock	**1,00,000**	**1,00,000**	**1,00,000**
Retained earnings	**5,00,000**	**5,50,000**	**5,50,000**
	14,30,000	**15,60,000**	**16,95,000**
	₹	₹	₹
Sales	**40,00,000**	**43,00,000**	**38,00,000**
Cost of goods sold	**32,00,000**	**36,00,000**	**33,00,000**

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Net profit	**3,00,000**	**2,00,000**	**1,00,000**

Considering opening balance of Accounts Receivable and Inventory as 2,00,000 and 4,00,000 respectively as on 01.04.2018, ANALYSE the company's financial condition and performance over the last 3 years. Are there any problems?

Answer 21

Ratios	2018-19	2019-20	2020-21
Assets Current ratio (Current Liabilities Assets/ Current Liabilities	1.19 $\left[\frac{6,30,000}{5,30,000}\right]$	1.25 $\left[\frac{7,60,000}{6,10,000}\right]$	1.20 $\left[\frac{8,95,000}{7,45,000}\right]$
Acid-test ratio (Quick Assets / Current Liabilities)	0.43 $\left[\frac{2,30,000}{5.30,000}\right]$	0.46 $\left[\frac{2,800,000}{6,10,000}\right]$	0.40 $\left[\frac{7,95,000}{7,45,000}\right]$
Receivables turnover ratio (Sales/ Average Receivables) (Refer Working Notes)	20 $\left[\frac{40,00,000}{2,00,000}\right]$	18.70 $\left[\frac{43,00,000}{2,30,000}\right]$	13.82 $\left[\frac{38,00,000}{2,75,000}\right]$
Average collection period (365 / Receivables turnover ratio)	18.25 (365/20)	19.52 (365/18.70)	26.41 (365/13.82)
Inventory turnover ratio (COGS / Average Inventory) (Refer Working Notes)	8 $\left[\frac{32,00,000}{4,00,000}\right]$	8.18 $\left[\frac{36,00,000}{4,40,000}\right]$	6.11 $\left[\frac{33,00,000}{5,40,000}\right]$
Total debt to net worth (Short term + Long term Debt) / (Common stock + Retained earnings)	1.38 $\left[\frac{8,30,000}{6,00,000}\right]$	1.40 $\left[\frac{9,10,000}{6,50,000}\right]$	1.61 $\left[\frac{10,45,000}{6,50,000}\right]$
Long-term debt to total capitalization	0.33 $\left[\frac{3,00,000}{9,00,000}\right]$	0.32 $\left[\frac{3,00,000}{9,50,000}\right]$	0.32 $\left[\frac{3,00,000}{9,50,000}\right]$
Gross profit margin (Gross Profit / Sales) {Gross profit = Sales – Cost of Goods sold}	0.20 $\left[\frac{8,00,000}{40,00,000}\right]$	0.16 $\left[\frac{7,00,000}{43,00,000}\right]$	0.13 $\left[\frac{5,00,000}{38,00,000}\right]$
Net profit margin (Net Profit / Sales)	0.075 $\left[\frac{3,00,000}{40,00,000}\right]$	0.047 $\left[\frac{2,00,000}{43,0,000}\right]$	0.026 $\left[\frac{1,00,000}{38,00,000}\right]$
Total Asset turnover (Sales / Total Assets)	2.80 $\left[\frac{40,00,000}{14,30,000}\right]$	2.76 $\left[\frac{43,00,000}{15,60,000}\right]$	2.24 $\left[\frac{3,00,000}{16,95,000}\right]$
Return on assets (Net profit	0.21	0.13	0.06

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/ Total Assets)	$\left[\frac{3,00,000}{14,30,000}\right]$	$\left[\frac{2,00,000}{15,60,000}\right]$	$\left[\frac{1,00,000}{16,95,000}\right]$

Working Notes			
Average receivables {(Opening + closing)/2}	(2,00,000+2,00,000)/2 = 2,00,000	(2,00,000+2,60,000)/2 = 2,30,000	(2,60,000+2,90,000)/2 = 2,75,000
Average Inventory {(Opening + closing)/2}	(4,00,000+4,00,000)/2 = 4,00,000	(4,00,000+4,80,000)/2 = 4,40,000	(4,80,000+6,00,000)/2 = 5,40,000

Analysis: The current ratio and quick ratio are less than the ideal ratio (2:1 and 1:1 respectively) indicating that the company is not having enough resources to meet its current obligations.

Receivables are growing slower, although the average collection period is still very reasonable relative to the terms given. Inventory turnover is slowing as well, indicating a relative build-up in inventories. The increase in receivables and inventories, coupled with the fact that net worth has increased very little, has resulted in the total debt-to-net worth ratio increasing to what would have to be regarded on an absolute basis as a high level.

Long-term debt to total capitalization has not changed relatively coupled with the fact that retained earnings of only ₹ 50,000 is made in year 2019-20, and there is no issuance of new long-term debt in year 2019-20 and 2020-21.

Both the gross profit and net profit margins have declined substantially. The relationship between the two suggests that the company has incurred more relative expenses. The build-up in inventories and receivables has resulted in a decline inthe asset turnover ratio, and this, coupled with the decline in profitability, has resulted in a sharp decrease in the return on assets ratio.

Question 22: illustration

Following information are available for Navya Ltd. along with various ratios relevantto the particular industry it belongs to. APPRAISE your comments on strength and weakness of Navya Ltd. comparing its ratios with the given industry norms.

Navya Ltd.Balance Sheet as at 31.3.2021

Liabilities	Amount (₹)	Assets	Amount (₹)
Equity Share Capital	**48,00,000**	**Fixed Assets**	**24,20,000**
10% Debentures	**9,20,000**	**Cash**	**8,80,000**
Sundry Creditors	**6,60,000**	**Sundry debtors**	**11,00,000**
Bills Payable	**8,80,000**	**Stock**	**33,00,000**
Other current Liabilities	**4,40,000**		-

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Total	77,00,000	Total	77,00,000

Statement of Profitability For the year ending 31.3.2021

Particulars	Amount (₹)	Amount (₹)
Sales		1,10,00,000
Less: Cost of goods sold:		
Material	41,80,000	
Wages	26,40,000	
Factory Overhead	12,98,000	81,18,000
Gross Profit		28,82,000
Less: Selling and Distribution Cost	11,00,000	
Administrative Cost	12,28,000	23,28,000
Earnings before Interest and Taxes		5,54,000
Less: Interest Charges		92,000
Earning before Tax		4,62,000
Less: Taxes @ 50%		2,31,000
Net Profit (PAT)		2,31,000

Industry Norms

Ratios	Norm
Current Ratio	2.5
Receivables Turnover Ratio	8.0
Inventory Turnover Ratio (based on Sales)	9.0
Total Assets Turnover Ratio	2.0
Net Profit Ratio	3.5%
Return on Total Assets (on EBIT)	7.0%
Return on Net worth (Based on Net profit)	10.5%
Total Debt/Total Assets	60.0%

Answer 22

Ratios	Navya Ltd.	Industry Norms
1. Current Ratio = $\frac{\text{Current Assets}}{\text{Current Liabilities}}$	$\frac{52,80,000}{19,80,000} = 2.67$	2.50
2 Receivable Turnover Ratio = $\frac{\text{sales}}{\text{debtors}}$	$\frac{1,10,00,000}{10,00,000} = 100.$	8.00

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3. Inventory turnover ratio $= \frac{\text{sales}}{\text{stock}}$	$\frac{1,10,00,000}{33,00,000} = 3.33$	9.00
4 Total Asset Turnover ratio $= \frac{\text{sales}}{\text{total assets}}$	$\frac{1,10,00,000}{77,00,000} = 1.43$	2.00
5 Net Profit Ratio $= \frac{\text{Net profit}}{\text{sales}}$	$\frac{2,31,000}{1,10,00,000} = 2.10\%$	3.50%
6. Return on Total Asset $= \frac{\text{EBIT}}{\text{total assets}}$	$\frac{5,54,000}{77,00,000} = 7.19\%$	7%
7. Return on Net worth $= \frac{\text{Net profit}}{\text{Net worth}}$	$\frac{2,31,000}{48,00,000}$ = 4.81%	10.5%
8. $\frac{\text{Total debit}}{\text{Total assets}}$	$\frac{29,00,000}{77,00,000}$ = 37.66%	60%

Comments:

1. The position of Navya Ltd. is better than the industry norm with respect to Current Ratio and Receivables Turnover Ratio.
2. However, the Inventory turnover ratio and Total Asset Turnover ratio is poor comparing to industry norm indicating that company is inefficient to utilize its inventory and assets.
3. The firm also has its net profit ratio and return on net worth ratio much lower than the industry norm.
4. Total debt to total assets ratio is lower that the industry standard which suggeststhat the firm is less levered by debt and more by equity resulting in less risky company.

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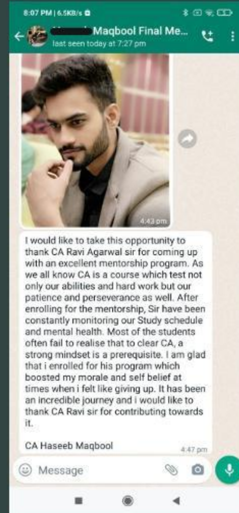

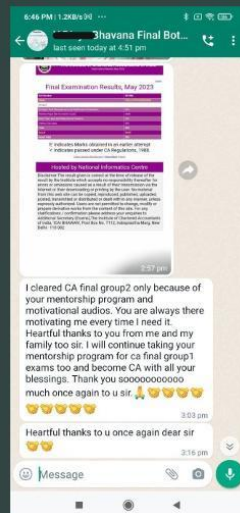

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Chapter 4
Cost of Capital
Attempt wise Distribution

Q & A													
Attempts	May '18	Nov '18	May' 19	Nov' 19	May '20	Nov' 20	Jan' 21	Jul' 21	Dec' 21	May '22	Nov' 22	May '23	Nov '23
MTP	Q19		Q11, Q17, Q21			Q15, Q22		Q14	Q13, Q24	Q25	Q12, Q26		
PYP	Q34		Q4	Q5, Q33		Q32	Q6	Q31	Q3	Q35	Q2	Q1	
RTP	Q27	Q10	Q28	Q18		Q20, Q23		Q16	Q9	Q29	Q8, Q36	Q30	Q7

Section A

Question 1

Capital structure of D Ltd. as on 31stMarch, 2023 is given below:

Particulars	₹
Equity share capital (₹ 10 each)	30,00,000
8% Preference share capital (₹ 100 each)	10,00,000
12% Debentures (₹ 100 each)	10,00,000

- **Current market price of equity share is ₹ 80 per share. The company has paid dividend of ₹ 14.07 per share. Seven years ago, it paid dividend of ₹ 10 per share. Expected dividend is ₹ 16 per share.**
- **8% Preference shares are redeemable at 6% premium after five years. Current market price per preference share is ₹ 104.**
- **12% debentures are redeemable at 20% premium after 10 years. Flotation cost is ₹ 5 per debenture.**
- **The company is in 40% tax bracket.**
- **In order to finance an expansion plan, the company intends to borrow 15% Long-term loan of ₹ 30,00,000 from bank. This financial decision is expected to increase dividend on equity share from ₹ 16 per share to ₹ 18 per share. However, the market price of equity share is expected to decline from ₹ 80 to ₹ 72 per share, because investors' required rate of return is based on current market conditions.**

Required:

(i) **Determine the existing Weighted Average Cost of Capital (WACC) taking book value weights.**

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(ii) **Compute Weighted Average Cost of Capital (WACC) after the expansion plan taking book value weights. (PYP 10 Marks May '23)**

Interest Rate	1%	2%	3%	4%	5%	6%	7%
FVIFi,5	1.051	1.104	1.159	1.217	1.276	1.338	1.403
FVIFi,6	1.062	1.126	1.194	1.265	1.340	1.419	1.501
FVIFi,7	1.072	1.149	1.230	1.316	1.407	1.504	1.606

Answer 1

a) Growth rate in Dividends

14.07 = 10 x FVIF (i,7 years)

VIF (i,7 years) = 1.407

FVIF (5%, 7 years) = 1.407

i = 5%

Growth rate in dividend= 5%

b) Cost of Equity

$$K_e = \frac{D_1}{P_0} + g$$

$$K_e = \frac{16}{80} + 0.05$$

$$K_e = 25\ \%$$

c) Cost of Debt

$$K_d = \frac{I(1-t)+\frac{(RV-NP)}{n}}{\frac{(RV-NP)}{2}}$$

$$K_p = \frac{12(1-0.4)+\frac{(120-95)}{10}}{\frac{(120+95)}{2}}$$

Kd = (7.2+2.5)/107.5 = 9.02%

Kd = 9.02%

Calculation of existing Weighted Average Cost of Capital (WACC)

Capital	Amount (₹)	Weights	Cost	WACC
Equity Share Capital	30,00,000	0.6	25%	15.00%

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Preference Share Capital	10,00,000	0.2	8%	1.60%
Debenture	10,00,000	0.2	9.02%	1.80%
	50,00,000	1		18.40%

Alternative presentation

i) Computation of existing WACC on book value weights

Source (1)	Book value (₹) (2)	Weight (3)	Cost of capital (%) (4)	Product (2) x (4)
Equity share capital	30,00,000	0.60	25	7,50,000
Preference share capital	10,00,000	0.20	8	80,000
Debentures	10,00,000	0.20	9.02	90,200
Total	50,00,000	1.00		9,20,200

WACC = (Product / Total book value) x 100 = (9,20,200 /50,00,000) x 100 = 18.4%

ii) Cost of Long Term Debt = 15% (1-0.4) = 9%

Revised Ke = $\frac{18}{72}$+0.05 = 30%

Calculation of WACC after expansion taking book value weights

Capital	**Amount**	**Weights**	**Cost**	**W.C**
Equity Share Capital	30,00,000	0.3750	30%	11.25%
Preference Share Capital	10,00,000	0.1250	8%	1.00%
Debenture	10,00,000	0.1250	9.02%	1.13%
Long Term Debt	30,00,000	0.3750	9.00%	3.38%
	80,00,000	1.0000		16.76%

Alternative presentation

Computation of WACC on book value weights after expansion

Source (1)	**Book value (₹) (2)**	**Weight (3)**	**Cost of capital (%) (4)**	**Product (2) x (4)**
Equity share capital	30,00,000	0.375	30	9,00,000

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Preference share capital	10,00,000	0.125	8	80,000
Debentures	10,00,000	0.125	9.02	90,200
Long term loan	30,00,000	0.375	9	2,70,000
Total	**80,00,000**	**1.00**		**13,40,200**

WACC = (Product / Total book value) x 100 = (13,40,200 / 80,00,000) x 100 = 16.76%

Question 2

The following is the extract of the Balance Sheet of M/s KD Ltd.:

Particulars	**Amount (₹)**
Ordinary shares (Face Value ₹ 10/- per share)	**5,00,000**
Share Premium	**1,00,000**
Retained Profits	**6,00,000**
8% Preference Shares (Face Value ₹ 25/- per share)	**4,00,000**
12% Debentures (Face value ₹ 100/- each)	**6,00,000**
	22,00,000

The ordinary shares are currently priced at ₹ 39 ex-dividend and preference share is priced at ₹ 18 cum-dividend. The debentures are selling at 120 percent ex-interest. The applicable tax rate to KD Ltd. is 30 percent. KD Ltd.'s cost of equity has been estimated at 19 percent. Calculate the WACC (weighted average cost of capital) of KD Ltd. on the basis of market value. (PYP 5 Marks Nov '22)

Answer 2

Computation of WACC on the basis of market value

W.N. 1

Cum-dividend price of Preference shares = ₹ 18

Less: Dividend (8/100) x 25 = ₹ 2

∴Market Price of Preference shares = ₹ 16

$K_p = \frac{2}{16} = 0.125(\text{or})\ 12.5\%$

$No.$ Of preference shares $= \left(\frac{4,00,000}{25}\right) = 16,000$

W.N. 2

Market price of Debentures = $\left(\frac{120}{100}\right)$ X 100 = Rs. 120

$K_d = \left[\frac{12(1-0.3)}{120}\right] = 0.07\ (\text{or}) 7\%$

$No. of$ Debentures $= \left(\frac{6,00,000}{100}\right) = 6,000$

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W.N. 3

Market price of Equity Shares = Rs. 39

k_e(given) = 19% or 0.19

$No. of$ Equity Shares = $\frac{5,00,000}{10}$ = 50,000

Sources	Market Value (₹)	Nos.	Total Market value (₹)	Weight	Cost of Capital	Product
Equity Shares	39	50,000	19,50,000	0.6664	0.19	0.1266
Preference Shares	16	16,000	2,56,000	0.0875	0.125	0.0109
Debentures	120	6,000	7,20,000	0.2461	0.07	0.0172
					WACC =	0.1547

WACC = 0.1547 or 15.47%

Question 3

Book value of capital structure of B Ltd. is as follows:

Sources	Amount
12%, 6,000 Debentures @ ₹ 100 each	**₹ 6,00,000**
Retained earnings	**₹ 4,50,000**
4,500 Equity shares @ ₹ 100 each	**₹ 4,50,000**
	₹ 15,00,000

Currently, the market value of debenture is ₹ 110 per debenture and equity share is ₹ 180 per share. The expected rate of return to equity shareholder is 24% p.a. Company is paying tax @ 30%. Calculate WACC on the basis of market value weights. (PYP 5 Marks Dec '21)

Answer 3

Calculation of Cost of Capital of debentures ignoring market value:

Cost of Debentures (k_d)= 12 (1 - .30) = 8.40%

Computation of Weighted Average Cost of Capital based on Market Value Weights

Source of Capital	Market Value (₹)	Weights to Total Capital	After tax Cost of capital (%)	WACC (%)

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Debentures (6,000 nos. × ₹ 110)	6,60,000	0.45(approx.)	8.40	3.78
Equity Shares (4,500 nos. × ₹180)	8,10,000	0.55(approx.)	24.00	13.20
	14,70,000	1.00		16.98

Note: Cost of Debenture and Cost of equity considered as given without considering market value. Cost of sources of capital can be computed based on the Market price and accordingly Weighted Average Cost of Capital can be calculated as below:

Calculation of Cost of Capital for each source of capital considering market value of capital:

(1) Cost of Equity share capital:

$$K_e = \frac{Earnings}{MArket\ Price\ per\ Share} = \frac{24\%\ X\ Rs.100}{Rs.180} = 13.333\%$$

(2) Cost of Debentures (K_d) $= \frac{I(1-t)}{NP} = \frac{Rs.12\ (1-0.3)}{Rs.110} = 7.636\%$

Computation of Weighted Average Cost of Capital based on Market Value Weights

Source of Capital	**Market Value (₹)**	**Weights to Total Capital**	**After tax Cost of capital (%)**	**WACC (%)**
Debentures (6,000 nos. × ₹ 110)	6,60,000	0.45(approx.)	7.636	3.44 (approx.)
Equity Shares (4,500 nos. × ₹ 180)	8,10,000	0.55(approx.)	13.333	7.33 (approx.)
	14,70,000	1.00		10.77 (approx.)

Question 4

Alpha Ltd. has furnished the following information:

- Earning Per Share (EPS)	**Rs.4**
- Dividend payout ratio	**25%**
- Market price per share	**₹ 50**
- Rate of tax	**30%**

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- Growth rate of dividend	10%

The company wants to raise additional capital of Rs.10 lakhs including debt of Rs.4 lakhs. The cost of debt (before tax) is 10% up to Rs.2 lakhs and 15% beyond that. Compute the after tax cost of equity and debt and also weighted average cost of capital. (PYP 5 Marks, May'19)

Answer 4

i. (k_e)

$$k_e = \frac{D0\ (1+g)}{P0} + g = \frac{25\%\ of\ Rs.4(1+0.10)}{Rs.50} + 0.10 = \frac{Rs.1.10}{Rs.50} + 0.10 = 0.122\ or\ 12.2\%$$

ii. Cost of Debt (k_d)

$$k_d = \frac{Intrest}{Net\ Proceeds} \times 100 \times (1 - t)$$

Interest on first Rs.2,00,000 @ 10%= Rs. 20,000

Interest on next Rs.2,00,000 @ 15%= Rs. 30,000

$$k_d = \frac{50,000}{5,00,000} \times (1 - 0.3) = 0.0875\ or\ 8.75\ \%$$

iii. Weighted Average Cost of Capital (WACC)

Source of capital	Amount (₹)	Weights	Cost of Capital (%)	WACC (%)
Equity shares	6,00,000	0.60	12.20	7.32
Debt	4,00,000	0.40	8.75	3.50
Total	10,00,000	1.00		10.82

Alternatively Cost of Equity Share Capital (k_e) can be calculated as

$$k_e = \frac{D}{P0} + g\ \frac{25\%\ of\ Rs.4}{Rs.50} + 0.10 = \frac{Rs.1.00}{Rs.50} + 0.10 = 0.120 or\ 12.00\%$$

Accordingly

Weighted Average Cost of Capital (WACC)

Source of capital	Amount (₹)	Weights	Cost of Capital (%)	WACC (%)
Equity shares	6,00,000	0.60	12.00	7.20
Debt	4,00,000	0.40	8.75	3.50

Question 5

A Company wants to raise additional finance of ₹ 5 crore in the next year. The company expects to retain Rs.1 crore earning next year. Further details are as follows:

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(i) **The amount will be raised by equity and debt in the ratio of 3: 1.**

(ii) **The additional issue of equity shares will result in price per share being fixed at Rs.25.**

(iii) **The debt capital raised by way of term loan will cost 10% for the first ₹ 75 lakh and 12% for the next ₹ 50 lakh.**

(iv) **The net expected dividend on equity shares is Rs.2.00 per share. The dividend is expected to grow at the rate of 5%.**

(v) **Income tax rate is 25%.**

You are required:

(a) **To determine the amount of equity and debt for raising additional finance.**

(b) **To determine the post-tax average cost of additional debt.**

(c) **To determine the cost of retained earnings and cost of equity.**

(d) **To compute the overall weighted average cost of additional finance after tax. (PYP 10 Marks,Nov'19)**

Answer 5

Determination of the amount of equity and debt for raising additional finance:

Pattern of raising additional finance

Equity	3/4 of ₹ 5 Crore	= Rs.3.75 Crore
Debt	1/4 of ₹ 5 Crore	= Rs.1.25 Crore

The capital structure after raising additional finance:

Particulars		**(₹ In crore)**
Shareholders' Funds		
Equity Capital	(3.75 – 1.00)	2.75
Retained earnings		1.00
Debt (Interest at 10% p.a.)		0.75
(Interest at 12% p.a.)	(1.25-0.75)	0.50
Total Funds		5.00

a. Determination of post-tax average cost of additional debt

K_d = I (1 – t)

Where,

I = Interest Rate

t = Corporate tax-rate

On ₹ 75,00,000	=	10% (1 – 0.25) =	7.5% or 0.075

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On ₹ 50,00,000	=	12% (1 – 0.25) =	9% or 0.09

Average Cost of Debt

$$= \frac{(₹\ 75,00,000 \times 0.075) + (₹\ 50,00,000 \times 0.09)}{1,25,00,000} \times 100$$

$$= \frac{₹\ 5,62,500 + ₹\ 4,50,000}{1,25,00,000} \text{ x } 100 = 8.10\%$$

b. Determination of cost of retained earnings and cost of equity (Applying Dividend growth model):

$k_e = \frac{D_1}{p_0} + g$

Where,

k_e = Cost of equity $D_1 = D_0 (1+ g)$

D_0 = Dividend paid (i.e = Rs.2) g = Growth rate

p_0 = Current market price per share

Then, $k_e = \frac{Rs.2(1.05)}{Rs.25} + 0.05 = \frac{Rs.2.1}{Rs.25} + 0.05 = 0.084 + 0.05 = 0.134 = 13.4\%$

Cost of retained earnings equals to cost of Equity i.e. 13.4%

c. Computation of overall weighted average after tax cost of additional finance

Particular	(₹)	Weights	Cost of funds	Weighted Cost (%)
Equity (including retained earnings)	3,75,00,000	3/4	13.4%	10.05
Debt	1,25,00,000	1/4	8.1%	2.025
WACC	5,00,00,000			12.075

Question 6

The Capital structure of PQR Ltd. is as follows:

	₹
10% Debenture	**3,00,000**
12% Preference Shares	**2,50,000**
Equity Share (face value Rs.10 per share)	**5,00,000**

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	10,50,000

Additional Information:

(i) **Rs.100 per debenture redeemable at par has 2% floatation cost & 10 years of maturity. The market price per debenture is Rs.110.**

(ii) **Rs.100 per preference share redeemable at par has 3% floatation cost & 10 years of maturity. The market price per preference share is Rs.108.**

(iii) **Equity share has Rs.4 floatation cost and market price per share of Rs.25. The next year expected dividend is Rs.2 per share with annual growth of 5%. The firm has a practice of paying all earnings in the form of dividends.**

(iv) **Corporate Income Tax rate is 30%. Required:**

Calculate Weighted Average Cost of Capital (WACC) using market value weights.

(PYP 10 Marks, Jan'21)

Answer 6

Workings:

1. Cost of Equity (K_e) $= k_e = \frac{D_1}{P_{0-F}} + g = \frac{Rs.2}{Rs.25 - Rs.4} + 0.050 = 0.145$ (approx.)

2. Cost of Debt (K_d) $= \frac{I(1-t) + \frac{(RV-NP)}{n}}{\frac{(RV-NP)}{n}}$

$$= \frac{10(1-0.03) + \frac{(100-98)}{10}}{\frac{(100-98)}{10}} = \frac{7+0.2}{99} = 0.073\text{(approx.)}$$

3. Cost of Preference Shares (K_p) $= \frac{PD + \frac{(RV-NP)}{n}}{\frac{(RV+NP)}{2}}$

$$\frac{12 + \frac{(100-97)}{10}}{\frac{(100-97)}{10}} = \frac{12+0.3}{98.5} = 0.125\text{(approx.)}$$

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Calculation of WACC using market value weights

Source of capital	Market Value	Weights	After tax cost of capital	WACC (Ko)
	(₹)	(a)	(b)	(c) = (a) × (b)
10% Debentures (Rs.110 × 3,000)	3,30,000	0.178	0.073	0.013
12% Preference shares (Rs.108 × 2,500)	2,70,000	0.146	0.125	0.018
Equity shares (Rs.25 × 50,000)	12,50,000	0.676	0.145	0.098
	18,50,000	1.00		0.129

WACC (K_o) = 0.129 or 12.9% (approx.)

Question 7

Jason Limited is planning to raise additional finance of ₹ 20 lakhs for meeting its new project plans. It has ₹ 4,20,000 in the form of retained earnings available for investment purposes. Further details are as following:

Debt / Equity Mix	30 / 70
Cost of Debt	
Upto ₹ 3,60,000	8 % (before tax)
Beyond ₹ 3,60,000	12 % (before tax)
Earnings per share	₹ 4
Dividend pay-out	50% of earnings
Current Market Price per share	₹ 44
Expected Growth rate in Dividend	10 %
Tax	40%

You are required:

(a) **To determine the cost of retained earnings and cost of equity.**

(b) **To determine the post-tax average cost of additional debt.**

(c) **To determine the pattern for raising the additional finance, and**

(d) **Compute the overall weighted average after tax cost of additional finance. (RTP Nov '23)**

Answer 7

(a) Cost of Equity / Retained Earnings (using dividend growth model)

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Ke = $\frac{D_1}{P_0}$

where D1 = Do (1 + g) = 2 (1 + .10) = 2.2

Ke = $\frac{2.2}{44}$ + 0.10 = 0.15 or 15%

(b) Cost of Debt (Post Tax)

Kd = I (1-t)

Upto 3,60,000 Kd = .08 (1-0.4) = 0.048
Beyond 3,60,000 = .12 (1-0.4) = 0.072

Thus, post-tax cost of additional debt = 0.048 x 3,60,000 / 6,00,000 + 0.072 x 2,40,000/ 6,00,000 = 0.0288 + 0.0288 = 0.0576 or 5.76%

(c) Pattern for Raising Additional Finance

Debt = 20,00,000 x 30% = 6,00,000

Equity = 20,00,000 x 70 % = 14,00,000

Out of this total equity amount of ₹ 14,00,000 - Equity Shares = 14,00,000 – 4,20,000
= 9,80,000

And Retained Earnings = 4,20,000

(d) Overall Weighted Average after tax cost of additional finance

WACC = Kd x Debt Mix + Ke x Equity Mix = 0.0576 x 30% + 0.15 x 70% = 0.01728 + 0.105 = 0.1223 or 12.23% (approx.)

Question 8

Bounce Ltd. evaluates all its capital projects using discounting rate of 15%. Its capital structure consists of equity share capital, retained earnings, bank term loan and debentures redeemable at par. Rate of interest on bank term loan is 1.5 times that of debenture. Remaining tenure of debenture and bank loan is 3 years and 5 years respectively. Book value of equity share capital, retained earnings and bank loan is ₹ 10,00,000, ₹ 15,00,000 and ₹ 10,00,000 respectively. Debentures which are having book value of ₹ 15,00,000 are currently trading at ₹ 97 per debenture. The ongoing P/E multiple for the shares of the company stands at 5. You are required to CALCULATE the rate of interest on bank loan and debentures if tax rate applicable is 25%. (RTP Nov'22)

Answer 8

Let the rate of Interest on debenture be x

∴ Rate of Interest on loan = 1.5x

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$\therefore$ K_d on debentures= $\dfrac{Int(1-t)\frac{RV-NP}{n}}{\frac{RV+NP}{n}}$

$= \dfrac{100(1-1.25)\frac{100-97}{3}}{\frac{100+97}{2}}$

$= \dfrac{75x+1}{98.5}$

$\therefore$ Kd on bank loan = 1.5x (1 – 0.25) = 1.125x

$k_e = \frac{EPS}{MPS} = \frac{1}{MPS/EPS} = \frac{1}{P/E} = \frac{1}{5} = 0.2$

Computation of WACC

Capital	Amount (₹)	Weights	Cost	Product
Equity	10,00,000	0.2	0.2	0.04
Reserves	15,00,000	0.3	0.2	0.06
Debentures	15,00,000	0.3	(75x+1)/98.5	(22.5x + 0.3)/98.5
Bank Loan	10,00,000	0.2	1.125x	0.225x
	50,00,000	1		0.1 + 0.225x + $\frac{25\times3+1}{98.5}$s

WACC = 15%

$\therefore$ 0.1 + 0.225x $\frac{22.5x}{98.5} + \frac{0.3}{98.5}$= 0.15

$\therefore$ 9.85+22.1625x+22.5x+0.3 = (0.15) (98.5)

$\therefore$ 44.6625x = 14.775 – 9.85 – 0.3

$\therefore$ 44.6625x = 4.625

$\therefore$ x = $\frac{4.625}{44.6625}$

$\therefore$ x = 10.36 %.5x

$\therefore$ Rate of interest on debenture = x= 10.36%

Rate of interest on Bank loan = 1.5x = (1.5) (10.36%) = 15.54%.

Question 9

Kalyanam Ltd. has an operating profit of ₹ 34,50,000 and has employed Debt which gives total Interest Charge of ₹ 7,50,000. The firm has an existing Cost of Equity and Cost of Debt as 16% and 8% respectively. The firm has a new proposal before it, which requires funds of ₹ 75 Lakhs and is expected to bring an additional profit of ₹ 14,25,000. To finance the proposal, the firm is expecting to issue an additional debt at 8% and will not be issuing any new

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equity shares in the market. Assume no tax culture.
You are required to CALCULATE the Weighted Average Cost of Capital (WACC) of Kalyanam Ltd.:

(i) **Before the new Proposal**

(ii) **After the new Proposal (RTP Nov '21)**

Answer 9

Workings:

(a) **Value of Debt** = $\frac{\text{Interest}}{\text{Cost of debt}(K_d)}$

$= \frac{Rs.7,50,000}{0.08} = \text{Rs. } 93,75,000$

(b) Value of equity capital $= \frac{Operating\ Profit - Interest}{Cost\ of\ equity\ (K_e)}$

$= \frac{Rs.34,50,000 - Rs.7,50,000}{0.16} = \text{Rs. } 1,68,75,000$

(c) New Cost of equity (K_e) after proposal

$= \frac{Increased\ Operating\ Profit - Interest\ on\ increased\ debt}{Equity\ Capital}$

$= \frac{(Rs.34,50,000 + Rs.14,25,000) - (Rs.7,50,000 + Rs.6,00,000)}{Rs.1,68,75,000}$

$= \frac{Rs.48,75,000 - Rs.13,50,000}{Rs.1,68,75,000} = \frac{Rs.35,25,000}{Rs.1,68,75,000} = 0.209 \text{ or } 20.9\%$

(i)Calculation of Weighted Average Cost of Capital (WACC) before the new proposal

Sources	Amount (₹)	Weight	Cost of Capital	WACC
Equity	1,68,75,000	0.6429	0.160	0.1029
Debt	93,75,000	0.3571	0.080	0.0286
Total	**2,62,50,000**	**1**		**0.1315 or 13.15 %**

(ii) Calculation of Weighted Average Cost of Capital (WACC) after the new proposal

Sources	Amount (₹)	Weight	Cost of Capital	WACC
Equity	1,68,75,000	0.5000	0.209	0.1045
Debt	1,68,75,000	0.5000	0.080	0.0400
Total	**3,37,50,000**	**1**		**0.1445 14.45 %**

Question 10

M/s. Navya Corporation has a capital structure of 40% debt and 60% equity. The company is presently considering several alternative investment proposals

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costing less than ₹ 20 lakhs. The corporation always raises the required funds without disturbing its present debt equity ratio. The cost of raising the debt and equity are as under:

Project cost	Cost of debt	Cost of equity
Upto ₹ 2 lakhs	10%	12%
Above ₹ 2 lakhs & upto to ₹ 5 lakhs	11%	13%
Above ₹ 5 lakhs & upto ₹10 lakhs	12%	14%
Above ₹10 lakhs & upto ₹ 20 lakhs	13%	14.5%

Assuming the tax rate at 50%, CALCULATE:

(i) **Cost of capital of two projects X and Y whose fund requirements are ₹ 6.5 lakhs and ₹ 14 lakhs respectively.**

(ii) **If a project is expected to give after tax return of 10%, DETERMINE under what conditions it would be acceptable? (RTP Nov '18)**

Answer 10

(i) **Statement of Weighted Average Cost of Capital**

Project cost	Financing	Proportion of capital Structure	After tax cost (1–Tax 50%)	Weighted average cost (%)
Upto ₹ 2 Lakhs	Debt	0.4	10% (1 – 0.5)	0.4 × 5 = 2.0
			= 5%	
	Equity	0.6	12%	0.6 × 12 = 7.2
				9.2%
Above ₹ 2 lakhs	Debt	0.4	11% (1 – 0.5)	0.4 × 5.5 = 2.2
& upto to ₹ 5 Lakhs			= 5.5%	
	Equity	0.6	13%	0.6 × 13 = 7.8
				10.0%
Above ₹ 5 lakhs	Debt	0.4	12% (1 – 0.5)	0.4 × 6 = 2.4
& upto ₹ 10 lakhs			= 6%	
	Equity	0.6	14%	0.6 × 14 = 8.4
				10.8%
Above ₹ 10 lakhs	Debt	0.4	13% (1 – 0.5)	0.4 × 6.5 = 2.6
& upto ₹ 20 lakhs			= 6.5%	
	Equity	0.6	14.5%	0.6 × 14.5 = 8.7
				11.3%

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Project	Fund requirement	Cost of capital
X	₹ 6.5 lakhs	10.8% (from the above table)
Y	₹ 14 lakhs	11.3% (from the above table)

(ii) If a Project is expected to give after tax return of 10%, it would be acceptable provided its project cost does not exceed ₹ 5 lakhs or, after tax return should be more than or at least equal to the weighted average cost of capital.

Question 11

The proportion and required return of debt and equity was recorded for a company with its increased financial leverage as below. (MTP 5 Marks, April '19)

Debt (%)	Required return (Kid) (%)	Equity (%)	Required Return (Key) (%)	Weighted Average Cost of Capital (WACC) (Ko)(%)
0	5	100	15	15
20	6	80	16	?
40	7	60	18	?
60	10	40	23	?
80	15	20	35	?

You are required to complete the table and IDENTIFY which capital structure is most beneficial for this company. (Based on traditional theory, i.e., capital structure is relevant).

Answer 11

Computation of Weighted Average Cost of Capital (WACC) for each level of Debt-equity mix.

Debt (%)	Required return (Kd)(%)	Equity (%)	Required return (Ke) (%)	Kd× Proportion of debt + Ke Proportion and equity	Weighted Average Cost of Capital (WACC)(Ko)(%)
0	5	100	15	0%(5%)+100%(15%)	15
20	6	80	16	20%(6%)+80%(16%)	14
40	7	60	18	40%(7%)+60%(18%)	13.6
60	10	40	23	60%(10%)+40%(23%)	15.2
80	15	20	35	80%(15%)+20%(35%)	19

The optimum mix is 40% debt and 60% equity, as this will lead to lowest WACC value i.e., 13.6%.

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Question 12

Answer the following:

The capital structure of a Company is given below:

Source of capital	Book Value (₹)
Equity shares @ ₹ 100 each	24,00,000
9% Cumulative preference shares @ ₹ 100 each	4,00,000
11% Debentures	12,00,000
	40,00,000

The company had paid equity dividend @ 25% for the last year which is likely to grow @ 5% every year. The current market price of the company's equity share is ₹ 200.

Considering corporate tax @ 30%, you are required to CALCULATE:

(i) **Cost of capital for each source of capital.**

(ii) **Weighted average cost of capital. (MTP 5 Marks Sep'22)**

Answer 12

i. Calculation of Cost of Capital for each source of capital:

(a) Cost of Equity share capital:

$$K_e = \frac{D0\ (1+g)}{\text{Market Pr iceper share(P0)}} + g = \frac{25\% \times ₹100(1+0.05)}{₹200} + 0.05$$

(b) Cost of Preference share capital (K_p) = 9%

(c) Cost of Debentures (K_d) = r (1 – t)

= 11% (1 – 0.3) = 7.7%

ii. Weighted Average Cost of Capital

Source	Amount (₹)	Weights (a)	After tax Cost of Capital (%) (b)	WACC (%) (c) = (a) × (b)
Equity share	24,00,000	0.60	18.125	10.875
9% Preference share	4,00,000	0.10	9.000	0.900
11% Debentures	12,00,000	0.30	7.700	2.310
	40,00,000	1.00		14.085

Question 13

XYZ Company's equity share is quoted in the market at ₹ 25 per share currently. The company pays a dividend of ₹ 5 per share and the investor's market expects a growth rate of 5% per year.

You are required to:

(i) **CALCULATE the company's cost of equity capital.**

(ii) **If the company issues 12% debentures of face value of Rs.100 each and realizes Rs.95 per debenture while the debentures are redeemable after 10 years at a premium of 12%, CALCULATE cost of debenture using YTM?**

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Assume tax rate to be 30%. [MTP 5 Marks, Nov'21 , March 22 & Sep '23]

Answer 13

(i) Cost of Equity Capital (Ke)

$$\frac{\text{Expected dividend per share (D1)}}{\text{Market price per share (P0)}} = \text{Growth rate(g)}$$

$$= \frac{Rs.5 \times 1.05}{Rs.25} + 0.05 = 26\%$$

(ii) Cost of Debenture (Kd):

Using Present Value method (or YTM)

Identification of relevant cash flows

Year	Cash flows
0	Current market price (P0) = Rs.95
1 to 10	Interest net of tax [I(1-t)] = 12% of Rs.100 (1 – 0.30) = Rs.8.40
10	Redemption value (RV) = Rs.100 (1.12) = Rs.112

Calculation of Net Present Values (NPV) at two discount rates

Year	Cash flows	Discount factor @ 9% (L)	Present Value	Discount factor @ 10% (H)	Present Value
0	(95)	1.0000	(95.00)	1.0000	(95.00)
1 to 10	8.40	6.4176	53.91	6.1445	51.61
10	112	0.4224	47.31	0.3855	43.18
NPV			+6.22		-0.21

Calculation of IRR=

$$IRR = L + \frac{NPV_L}{NPV_L NPV_H}(H-L)$$

$$= 9\% + \frac{6.22}{6.22-(-0.21)}(10\%-9\%) = 9\% + \frac{6.22}{6.43}$$

= Therefore, Kd = 9.97%

Question 14

Development Finance Corporation issued zero interest deep discount bonds of face value of Rs. 1,50,000 each issued at Rs. 3,750 & repayable after 25 years. COMPUTE the cost of debt if there is no corporate tax. (MTP 3 Marks April'21)

Answer 14

Here,

Redemption Value (RV)= Rs.1,50,000 Net Proceeds (NP) = Rs. 3,750 Interest = 0

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Life of bond = 25 years
There is huge difference between RV and NP therefore in place of approximation method we should use trial & error method.
FV = PV x (1 + r) n
1,50,000 = 3,750 x (1 + r)25
40 = (1 + r)25
Trial 1: r = 15%, (1.15)25 = 32.919
Trial 2: r = 16%, (1.16)25 = 40.874
Here:
L = 15%; H = 16%
NPVL = 32.919 - 40 = - 7.081
NPVH = 40.874 - 40 = + 0.874

$$IRR = L + \frac{NPV_L}{NPV_L - NPV_H}(H - L)$$

$$= 15\% + \frac{-7.081}{-7.081 - (0.874)} \times (16\% - 15\%) = 15.89\%$$

Question 15

"Financing a business through borrowing is cheaper than using equity." Briefly EXPLAIN [MTP 2 Marks, May'20 & Sep '23].

Answer 15

Financing a business through borrowing is cheaper than using equity"

(i) Debt capital is cheaper than equity capital from the point of its cost and interest being deductible for income tax purpose, whereas no such deduction is allowed for dividends.

(ii) Issue of new equity dilutes existing control pattern while borrowing does not result in dilution of control.

(iii) In a period of rising prices, borrowing is advantageous. The fixed monetary outgo decreases in real terms as the price level increases.

Question 16

ABC Ltd. has the following capital structure which is considered to be optimum as on 31st March, 2019

	(Rs.)
14% Debentures	**30,00,000**
11% Preference shares	**10,00,000**
Equity Shares (10,000 shares)	**1,60,00,000**
	2,00,00,000

The company share has a market price of Rs. 236. Next year dividend per share is 50% of year 2019 EPS. The following is the trend of EPS for the preceding 10 years which is expected to continue in future.

Year	**EPS (Rs.)**	**Year**	**EPS Rs.)**
2010	**10.00**	**2015**	**16.10**
2011	**11.00**	**2016**	**17.70**
2012	**12.10**	**2017**	**19.50**

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2013	13.30	2018	21.50
2014	14.60	2019	23.60

The company issued new debentures carrying 16% rate of interest and the current market price of debenture is Rs. 96.

Preference share Rs. 9.20 (with annual dividend of Rs. 1.1 per share) were also issued. The company is in 50% tax bracket.

(A) **CALCULATE after tax:**

(i) **Cost of new debt**

(ii) **Cost of new preference shares**

(iii) **New equity share (consuming new equity from retained earnings)**

(B) **CALCULATE marginal cost of capital when no new shares are issued.**

(C) **COMPUTE the amount that can be spent for capital investment before new ordinary shares must be sold. Assuming that retained earnings for next year's investment are 50 percent of 2019.**

(D) **COMPUTE marginal cost of capital when the funds exceeds the amount calculated in (C), assuming new equity is issued at Rs. 200 per share? [MTP 10 Marks, Oct'19, Old & New SM, RTP May '21)**

Answer 16

(A) (I) Cost of new debt

$$Kd = \frac{I(1-t)}{P0}$$

$$= \frac{16(1-0.5)}{96}$$

$$= 0.0833$$

(ii) Cost of new preference shares

$$Kp = \frac{PD}{P0} = \frac{1.1}{9.2} = 0.12$$

(iii) Cost of new equity shares

$$Ke = \frac{D1}{P0} + g = \frac{11.80}{236} + 0.10 = 0.05 + 0.10 = 0.15$$

Calculation of D1

D1 = 50% of 2019 EPS = 50% of 23.60 = Rs. 11.80

(B) Calculation of marginal cost of capital

Type of Capital	Proportion	Specific Cost	Product
(1)	**(2)**	**(3)**	**(2) × (3) = (4)**
Debenture	0.15	0.0833	0.0125
Preference Share	0.05	0.12	0.0060
Equity Share	0.80	0.15	0.1200
	Marginal cost of capital		0.1385

(C) The company can spend the following amount without increasing marginal cost of capital and without selling the new shares:

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Retained earnings = (0.50) (236 × 10,000) = Rs. 11,80,000
The ordinary equity (Retained earnings in this case) is 80% of total capital
11,80,000 = 80% of Total Capital

Capital investment before issuing equity

$\frac{Rs.11,80,000}{0.80}$ = Rs.14,75,000

(D) If the company spends in excess of Rs.14,75,000 it will have to issue new shares.

The cost of new issue will be $\frac{Rs.11.80}{200}$ + 0.10 = 0.159

The marginal cost of capital will be:

Type of Capital	Proportion	Specific Cost	Product
(1)	**(2)**	**(3)**	**(2) × (3) = (4)**
Debentures	0.15	0.0833	0.0125
Preference Shares	0.05	0.1200	0.0060
Equity Shares (New)	0.80	0.1590	0.1272
			0.1457

Question 17

DISCUSS the dividend-price approach to estimate cost of equity capital (MTP 2 Marks, March'19 & Oct '23)

Answer 17

In dividend price approach, cost of equity capital is computed by dividing the expected dividend by market price per share. This ratio expresses the cost of equity capital in relation to what yield the company should pay to attract investors. It is computed as:

$K_e = \frac{D_1}{P_0}$

Where,
D1 = Dividend per share in period P0 = Market price per share today.

Question 18

PQR Ltd. has the following capital structure on October 31, 20X8:

Sources of capital	(Rs.)
Equity Share Capital (2,00,000 Shares of Rs. 10 each)	**20,00,000**
Reserves & Surplus	**20,00,000**

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12% Preference Shares	**10,00,000**
9% Debentures	**30,00,000**
	80,00,000

The market price of equity share is Rs. 30. It is expected that the company will pay next year a dividend of Rs. 3 per share, which will grow at 7% forever. Assume 40% income tax rate.

You are required to COMPUTE weighted average cost of capital using market value weights. (MTP 5 Marks, Aug'18, MTP 5 Marks Oct'18, RTP Nov '19)

Answer 18

Workings:

(i) Cost of Equity

$= k_e = e = \frac{D_1}{P_o} + g = \frac{Rs.3}{Rs.30} + 0.07 = 0.17\%$

(ii) Cost of Debentures (Kd) = I (1 - t) = 0.09 (1 - 0.4) = 0.054 or 5.4%

Computation of Weighted Average Cost of Capital (WACC using market value weights)

Source of capital	**Market Value of capital (Rs.)**	**Weight**	**Cost of capital (%)**	**WACC (%)**
9% Debentures	30,00,000	0.30	5.40	1.62
12% Preference Shares	10,00,000	0.10	12.00	1.20
Equity Share Capital (Rs.30 × 2,00,000 shares)	60,00,000	0.60	17.00	10.20
Total	1,00,00,000	1.00		13.02

Question 19

G Limited has the following capital structure, which it considers to be optimal:

Capital Structure	**Weightage (in %)**
Debt	**25**
Preference Shares	**15**
Equity Shares	**60**
	100

G Limited's expected net income this year is ₹ 34,285.72, its established dividend payout ratio is 30 per cent, its tax rate is 40 per cent, and investors expect earnings and dividends to grow at a constant rate of 9 per cent in the future. It paid a dividend of ₹ 3.60 per share last year, and its shares currently sells at a price of ₹ 54 per share.

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G Limited requires additional funds which it can obtain in the following ways:
Preference Shares: New preference shares with a dividend of Rs.11 can be sold to the public at a price of Rs.95 per share.
Debt: Debt can be sold at an interest rate of 12 per cent. You are required to:
DETERMINE the cost of each capital structure component; and
COMPUTE the weighted average cost of capital (WACC) of G Limited. (MTP 10 Marks, March'18)

Answer 19

(i) Computation of Costs of Different Components of Capital:

(a) **Equity Shares:**

$$k_e = \frac{D_1}{P_0} + g = \frac{D_{0(1+g)}}{P_0} + g$$

$$= \frac{₹\,3.60\,(1.09)}{Rs.54} + 0.09 = 0.0727 + 0.09 = 16.27\%.$$

(b) Preference Shares:

$$K_p = \frac{\text{Preference Share Dividen}}{F_0}$$

$$= \frac{Rs.11}{Rs.95} = 11.58\%$$

(c) Debt at 12%

k_d (1 – t) = 12% (1 – 0.4) = 12% × 0.6 = 7.20%.

(ii) Weighted Average Cost of Capital (WACC)

WACC = $W_d K_d + W_p K_p + W_e K_e$

WACC = 0.25 (7.2%) + 0.15 (11.58%) + 0.60 (16.27%)

= 1.8 + 1.737 + 9.762 = 13.30%.

Question 20

JKL Ltd. has the following book-value capital structure as on March 31, 20X8.

	(Rs.)
Equity share capital (2,00,000 shares)	**40,00,000**
11.5% Preference shares	**10,00,000**
10% Debentures	**30,00,000**
	80,00,000

The equity shares of the company are sold at Rs. 20. It is expected that the company will pay next year a dividend of Rs. 2 per equity share, which is expected to grow by 5% p.a. forever. Assume a 35% corporate tax rate.

Required:

(i) COMPUTE weighted average cost of capital (WACC) of the company based on the existing capital structure.

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(ii) **COMPUTE the new WACC, if the company raises an additional Rs. 20 lakhs debt by issuing 12% debentures. This would result in increasing the expected equity dividend to Rs. 2.40 and leave the growth rate unchanged, but the price of equity share will fall to Rs.16 per share. (MTP 10 Marks, Oct 18, Oct '23 , RTP May 20) (Same concept different figures MTP 10 Marks Oct'20)**

Answer 20

(i) Computation of Weighted Average Cost of Capital based on existing capital structure

Source of Capital	Existing Capital structure (Rs.)	Weights (a)	After tax cost of capital (%) (b)	WACC (%) (a)×(b)
Equity share capital (W.N.1)	40,00,000	0.500	15.00	7.500
11.5% Preference share capital (W.N.2)	10,00,000	0.125	11.50	1.437
10% Debentures (W.N.3)	30,00,000	0.375	6.50	2.438
	80,00,000	1.000		11.375

Working Notes (W.N.)

1. Cost of equity capital:

$$K_e = \frac{\text{Expected Dividend (D1)}}{\text{Current Market Price per Share (P0)}} + \textbf{Growth (g)}$$

$$= \frac{\text{Rs 2}}{\text{Rs 20}} + 0.05 = 0.15 \text{ or } 15\%$$

2. **Cost of preference share capital: =**

$$= \frac{\text{Annual preference share dividend(PD)}}{\text{Net proceedsin the issue of preferenceshare (NP)}}$$

$$= \frac{= \text{ Rs. } 1,15,000}{\text{Rs. } 1,00,000}$$

3. **Cost of 10% Debentures:**

$$\frac{I(1-t)}{NP} = \frac{\text{Rs.3,00,000 } (1-0.35)}{\text{Rs.30,00,000}} = 0.065 \text{ or } 6.5\%$$

(ii) Computation of Weighted Average Cost of Capital based on new capital structure

Source of Capital	New Capital structure (Rs.)	Weights (b)	After tax cost of capital (%) (a)	WACC (%) (a) ×(b)
Equity share capital (W.N. 4)	40,00,000	0.40	20.00	8.00
Preference share (W.N. 2)	10,00,000	0.10	11.50	1.15
10% Debentures (W.N. 3)	30,00,000	0.30	6.50	1.95

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12% Debentures (W.N.5)	20,00,000	0.20	7.80	1.56
	1,00,00,000	1.00		12.66

Working Notes (W.N.):

4. **Cost of equity capital:**

$$Ke = \frac{\text{ExpectedDividend(D1)}}{\text{Current Market Pr iceper share(P0)}} + \text{Growth(g)}$$

$$\frac{\textbf{Rs. 2.40}}{\textbf{Rs. 16}} + 5\% = 20\%$$

5. **Cost of 12% Debentures**

$$\textbf{Kd} = \frac{2{,}40{,}000(1-0.35)}{₹20{,}00{,}000} - 0.078 \text{ or } 7.8\%$$

Question 21

Annona Ltd is considering raising of funds of about Rs.250 lakhs by any of two alternative methods, viz., 14% institutional term loan and 13% non-convertible debentures. The term loan option would attract no major incidental cost and can be ignored. The debentures would have to be issued at a discount of 2.5% and would involve cost of issue of 2% on face value.

ADVISE the company as to the better option based on the effective cost of capital in each case. Assume a tax rate of 50%. (MTP 5 Marks, April '19)

Answer 21

Calculation of Effective Cost of Capital

Particulars	Option 1 14% institutional Term loan (Rs. in Lakhs)	Option 2 13% Non-convertible Debentures (Rs. in lakhs)
(A)Effective capital to be raised Face value	250.00	250.00
Less: Discount	Nil	(6.25)
	250.00	243.75
Less: Cost of issue	Nil	5.00
Effective amount of capital	250.00	238.75
(B) Annual interest charges on face value of Rs. 250 lakhs	35.0	32.50
Less: Tax benefit on interest @ 50%	17.5	16.25
	17.5	16.25
(C) Effective cost of capital after tax	$\frac{B}{A} \times 100$ = 7.0%	$\frac{16.25}{238.75} \times 100$ = 6.81% (approx.)

So, the better option is raising of funds of Rs.250 lakhs by issue of 13% Non-convertible Debenture

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Question 22

ABC Limited has the following book value capital structure:

Equity Share Capital (1 crore shares @ Rs.10 each)	**Rs.1,000 lakh**
Reserves and Surplus	**Rs.2,250 lakh**
9% Preference Share Capital (5 lakh shares @ Rs.100 each)	**Rs.500 lakh**
8.5% Debentures (1.5 lakh debentures @ Rs.1,000 each)	**Rs.1,500 lakh**
12% Term Loans from Financial Institutions	**Rs.500 lakh**

- **The debentures of ABC Limited are redeemable at par after five years and are quoting at Rs.985 per debenture.**
- **The current market price per equity share is Rs.60. The prevailing default-risk free interest rate on 10-year GOI Treasury Bonds is 5.5%. The average market risk premium is 7%. The beta of the company is 1.85**
- **The preference shares of the company are redeemable at 10% premium after 5 years is currently selling at Rs.102 per share.**
- **The applicable income tax rate for the company is 35%.**

Required:

CALCULATE weighted average cost of capital of the company using market value weights. (MTP 5 Marks, May'20)

Answer 22

Working Notes:

(1) Computation of cost of debentures (K_d):

$$k_e = \frac{Rs.85(1-0.35)+\frac{(1,000-985)}{5}}{\frac{(1,000-985)}{2}} = \frac{55.25+3}{992.5} = 0.0586 \text{ or } 5.86\%$$

(2) Computation of cost of term loans (K_T):

= r (1-t)

= 0.12 (1-0.35) = 0.078 or 7.8%

$$= K_0 = \frac{\text{preferenc Divident} + (RV - NP)/n}{(RV + NP)/2}$$

$$= \frac{Rs.9+\frac{(110-102)}{5}}{\frac{(110-102)}{2}} = \frac{9+1.6}{106}$$

= 0.1 or 10%

(3) Computation of cost of equity (K_e):

= R_f + ß (R_m – R_f)

Or, = Risk free rate + (Beta × Risk premium)

= 0.055 + (1.85 ×0.07) = 0.1845 or 18.45%

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Calculation of Weighted Average cost of capital Using market value weights

Source of Capital	**Market value of capital structure (Rs. in lakh)**	**Weights**	**After tax cost of capital (%)**	**WACC (%)**
Equity share capital (1 crore shares × Rs.60)	6,000	0.71	18.45	13.09
9% Preference share capital (5 lakh shares × Rs.102)	510	0.06	10.00	0.60
8.5 % Debentures (1.5 lakh × Rs.985)	1,477.5	0.17	5.86	0.99
12% Term loans	500	0.06	7.80	0.47
	8,487.50	1.000		15.15

Question 23

CALCULATE the WACC by using Market value weights. The capital structure of the company is as under:

	(Rs.)
Debentures (Rs.100 per debenture)	**10,00,000**
Preference shares (Rs.100 per share)	**10,00,000**
Equity shares (Rs.10 per share)	**20,00,000**
	40,00,000

The market prices of these securities are:

Debentures Rs. 115 per debenture

Preference shares Rs. 120 per preference share

Equity shares Rs. 265 each.

Additional information:

(1) **Rs.100 per debenture redeemable at par, 10% coupon rate, 2% floatation cost, 10-year maturity.**

(2) **Rs.100 per preference share redeemable at par, 5% coupon rate, 2% floatation cost and 10 - year maturity.**

(3) **Equity shares have a floatation cost of Rs. 1 per share.**

The next year expected dividend is Rs. 5 with an annual growth of 15%. The firm has the practice of paying all earnings in the form of dividend.

Corporate tax rate is 30%. Use YTM method to calculate cost of debentures and preference shares.

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(MTP 10 Marks, March'21, Old & New SM, RTP Nov '20)

Answer 23

(i) Cost of equity (K_e)

$$= \frac{D_1}{P_0 - F} + g = \frac{Rs.5}{Rs.265 - Rs.1} + 0.15 = 0.1689 \text{ or } 16.89\%$$

(ii) Cost of Debt (Kd)

Calculation of NPV at discount rate of 5% and 7%

Year	Cash flows (Rs.)	Discount factor @ 5%	Present Value	Discount factor @ 7%	Present Value (Rs.)
0	112.7	1.000	(112.7)	1.000	(112.7)
1 to 10	7	7.722	54.05	7.024	49.17
10	100	0.614	61.40	0.508	50.80
NPV			+2.75		-12.73

Calculation of IRR

$$IRR = 5\% + \frac{2.75}{2.75-(-12.73)} (7\%-5\%) = 5\% + \frac{2.75}{15.48} (7\%-5\%) = 5.36\%$$

Cost of Debt (Kd) = 5.36%

(iii) Cost of Preference shares (Kp)

Calculation of NPV at discount rate of 2% and 5%

Year	Cash flows (Rs.)	Discount factor @ 2%	Present Value	Discount factor @ 5%	Present Value (Rs.)
0	117.6	1.000	(117.6)	1.000	(117.6)
1 to 10	5	8.983	44.92	7.722	38.61
10	100	0.820	82.00	0.614	61.40
NPV			+9.32		-17.59

Calculation of IRR

$$IRR = 2\% + \frac{9.32}{9.32-(-17.59)} (5\%-2\%) = 2\% + \frac{9.32}{26.91} = 3.04\%$$

Cost of Preference Shares (Kp) = 3.04%

Calculation of WACC using market value weights

Source of capital	Market Value	Weights	After tax cost of capital	WACC (Koi)
	(Rs.)	(a)	(b)	(c) = (a)×(b)
10% Debentures (Rs.115× 10,000)	11,50,000	0.021	0.0536	0.00113

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5% Preference shares (Rs.120× 10,000)	12,00,000	0.022	0.0304	0.00067
Equity shares (Rs.265 × 2,00,000)	5,30,00,000	0.957	0.1689	0.16164
	5,53,50,000	1.000		0.16344

WACC (Ko) = 0.16344 or 16.344%

Question 24

The following is the capital structure of Shard Ltd. as on 31.12.2020:

	(₹)
Equity shares: 2,00,000 shares (of Rs.100 each)	**2,00,00,000**
9% Preference Shares (of Rs.100 each)	**60,00,000**
8% Debentures	**90,00,000**
	3,50,00,000

The market price of the company's share is Rs.120 and it is expected that a dividend of Rs.12 per share would be declared for the year 2021. The dividend growth rate is 5% and the company is in the 30% tax bracket.

(i) **CALCULATE the company's weighted average cost of capital.**

(ii) **Further, in order to finance an expansion plan, the company intends to borrow a fund of ₹ 2 crores bearing 12% rate of interest. In this situation, WHAT will be the company's revised weighted average cost of capital? This financing decision is expected to increase dividend from Rs.12 to Rs.14 per share. However, the market price of equity share is expected to decline from Rs.120 to Rs.115 per share.**

In case of both (I) and (ii) above, use market value weight while calculating weighted average cost of capital. [MTP 5 Marks, Oct'21]

Answer 24

(i) Computation of the weighted average cost of capital

Source of finance (a)	**Market Value of capital (₹)**	**Weight (b)**	**After tax Cost of capital (%) (c)**	**WACC (%) (d) = (b) × (c)**
Equity share (Working note 1)	2,40,00,000	0.6154	15	9.231
[₹120 × 2,00,000 shares]				
9% Preference share	60,00,000	0.1538	9	1.3842
8% Debentures	90,00,000	0.2308	5.60	1.2925
	3,90,00,000	1.0000		11.9077

(ii) Computation of Revised Weighted Average Cost of Capital

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Source of finance (a)	Market Value of capital (₹)	Weight (b)	After tax Cost of capital (%) (c)	WACC (%) (d) = (b) × (c)
Equity shares (Working note 2)	2,30,00,000	0.3966	17.17	6.8096
[₹115 × 2,00,000 shares]				
9% Preference shares	60,00,000	0.1034	9.00	0.9306
8% Debentures	90,00,000	0.1552	5.60	0.8691
12% Loan	2,00,00,000	0.3448	8.40	2.8963
	5,80,00,000	1.0000		11.5056

Working Notes:

(1) Cost of Equity Shares
Ke = {Dividend Per Share (D1)/Market Price Share (P0)} + Growth Rate
= 12/120 + 0.05
= 0.15 or 15%

(2) Revised cost of equity shares (Ke) Revised Ke = 14/115 + 0.05 = 0.1717 or 17.17%

Question 25

The capital structure of RV Limited as on 31st March, 2022 as per its Balance Sheet is as follows:

Particulars	₹
Equity shares of ₹ 10 each	**25,00,000**
10% Preference shares of ₹ 100 each	**5,00,000**
Retained earnings	**5,00,000**
13% debentures of ₹ 100 each	**20,00,000**

The market price of equity shares is ₹ 50 per share. Expected dividend on equity shares is ₹ 3 per share. The dividend per share is expected to grow at the rate of 8%.

Preference shares are redeemable after eight years and the current market price is ₹ 80 per share. Debentures are redeemable after five years and are currently selling at ₹ 90 per debenture. The tax rate applicable to the company is 35%. CALCULATE weighted average cost of capital using:

(i) **Book value proportions**

(ii) **Market value proportions (MTP 10 Marks April 22)**

Answer 25

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Working Notes:

(i) Cost of Equity (K_e)

$$\frac{D_1}{P} + g = \frac{Rs.3}{Rs.50} + 0.08 = 0.14 \text{ i.e. } 14\%$$

(ii) Cost of preference Shares (Kp)

$$\frac{D+\frac{RV-NP}{n}}{\frac{RV+NP}{2}} = \frac{10+\frac{100-80}{8}}{\frac{100+80}{2}} = \frac{12.5}{90} = 0.1389 = 13.89\%$$

(iii) *Cost* of debenture (kd)

$$\frac{I(1-t)+\frac{RV-NP}{n}}{\frac{RV+NP}{2}} = \frac{13(1-0.35)+\frac{100-90}{5}}{\frac{100+90}{2}} = \frac{8.45+2}{95} = 0.11$$

i.e.11%

Or,

$$\left[\frac{I+\frac{RV-NP}{n}}{\frac{RV+NP}{2}}\right](1-t) = \left[\frac{13+\frac{100-90}{5}}{\frac{100+90}{2}}\right](1-0.35) = 0.1026 \text{ i.e.} 10.26\%$$

Weighted Average cost of capital (Book Value)

	Amount (₹)	Weight (W)	Cost (K)	W x K
Equity shares	25,00,000	0.4546	0.14	0.0636
Preference shares	5,00,000	0.0909	0.1389	0.0126
Retained Earnings	5,00,000	0.0909	0.14	0.0127
Debentures	20,00,000	0.3636	0.1026	0.0373
	55,00,000			0.1262

Or (if K_d is 11%) the WACC = 0.1289

Thus, WACC (Book value based) = 12.62% or 12.89%

Weighted Average cost of capital (Market Value)

	Amount (₹)	Weight (W)	Cost (K)	W x K
Equity shares	1,25,00,000	0.85	0.14	0.119
Preference shares	4,00,000	0.028	0.1389	0.0039
Debentures	18,00,000	0.122	0.1026	0.0125
	1,47,00,000			0.1354

Or (if K_d is 11%) the WACC = 0.1363

Thus, WACC (Market value based) = 13.54% or 13.63%

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Question 26

The financial advisor of Sun Ltd is confronted with following two alternative financing plans for raising ₹ 10 lakhs that is needed for plant expansion and modernization Alternative I: Issue 80% of funds with 14% Debenture [Face value (FV) ₹ 100] at par and redeem at a premium of 10% after 10 years and balance by issuing equity shares at 33 $\frac{1}{3}$% premium.

Alternative II: Raise 10% of funds required by issuing 8% Irredeemable Debentures [Face value (FV) ₹ 100] at par and the remaining by issuing equity shares at current market price of ₹125. Currently, the firm has an Earnings per share (EPS) of ₹ 21 The modernization and expansion programme is expected to increase the firm's Earnings before Interest and Taxation (EBIT) by ₹ 200,000 annually.

The firm's condensed Balance Sheet for the current year is given below:

Balance Sheet as on 31.3.2022

Liabilities	Amount (₹)	Assets	Amount (₹)
Current Liabilities	5,00,000	Current Assets	16,00,000
10% Long Term Loan	15,00,000	Plant & Equipment (Net)	34,00,000
Reserves & Surplus	10,00,000		
Equity Share Capital (FV: ₹ 100 each)	20,00,000		
TOTAL	50,00,000	TOTAL	50,00,000

However, the finance advisor is concerned about the effect that issuing of debt might have on the firm. The average debt ratio for firms in industry is 35%.He believes if this ratio is exceeded, the P/E ratio of the company will be 7 because of the potentially greater risk.

If the firm increases its equity capital by more than 10 %, he expects the P/E ratio of the company will increase to 8.5 irrespective of the debt ratio.

Assume Tax Rate of 25%. Assume target dividend pay-out under each alternative to be 60% for the next year and growth rate to be 10% for the purpose of calculating Cost of Equity

SUGGEST with reason which alternative is better on the basis of each of the below given criteria:

I. **Earnings per share (EPS) & Market Price per share (MPS)**
II. **Financial Leverage**
III. **Weighted Average Cost of Capital & Marginal Cost of Capital (using Book Value weights) (MTP 10 Marks Oct'22)**

Answer 26

Calculation of Equity Share capital and Reserves and surplus:

Alternative 1:

$$\text{Equity Share capital} = ₹20,00,000 + \frac{₹2,00,000 \times 100}{133.3333} = ₹21,50,000$$

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Reserves = ₹ 10,00,000 + $\frac{₹2,00,000 \times 33.3333}{133.3333}$ = ₹10,50,000

Alternative 2:

Equity Share capital =₹20,00,000 + $\frac{₹\ 9,00,000 \times 25}{125}$ = 11,80,000

Capital **Structure** Plans

Amount in ₹

Capital	Alternative 1	Alternative 2
Equity Share capital	21,50,000	27,20,000
Reserves and surplus	10,50,000	11,80,000
10% long term debt	15,00,000	15,00,000
14% Debentures	8,00,000	-
8% Irredeemable Debentures	-	1,00,000
Total Capital Employed	55,00,000	55,00,000

Computation of Present Earnings before interest and tax (EBIT)

EPS (₹)	21
No. of equity shares	20,000
Earnings for equity shareholders (I x II) (₹)	4,20,000
Profit Before Tax (III/75%) (₹)	5,60,000
Interest on long term loan (1500000 x 10%) (₹)	1,50,000
EBIT (IV + V) (₹)	7,10,000

EBIT after expansion = ₹7,10,000 +₹ 2,00,000 = ₹9,10,000

Evaluation of Financial Plans on the basis of EPS, MPS and Financial Leverage

Amount in ₹

Particulars	Alternative I	Alternate II
EBIT	9,10,000	9,10,000
Less: Interest: 10% on long term loan	(1,50,000)	(1,50,000)
14% on Debentures	(1,12,000)	Nil
8% on Irredeemable Debentures	Nil.	(8000)
PBT	6,48,000	7,52,000
Less: Tax @25%	(1,62,000)	(1,88,000)
PAT	4,86,000	5,64,000
No. of equity shares	21,500	27,200
EPS	22.60	20.74
Applicable P/E ratio (Working Note 1)	7	8.5
MPS (EPS X P/E ratio)	158.2	176.29
Financial Leverage EBIT/PBT	1.40	1.21

Working Note 1

	Alternative I	Alternative II
Debt:		
₹15,00,000 +₹8,00,000	23,00,000	-
₹15,00,000 +₹1,00,000	-	16,00,000
Total capital Employed (₹)	55,00,000	55,00,000

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Debt Ratio (Debt/Capital employed)	= 0.4182	= 0.2909
	= 41.82%	= 29.09%
Change in Equity: ₹21,50,000-₹20,00,000	1,50,000	
₹27,20,000-₹20,00,000		7,20,000
Percentage change in equity	7.5%	36%
Applicable P/E ratio	7	8.5

Calculation of Cost of equity and various type of debt

	Alternative I	Alternative II
A) **Cost of equity**		
EPS	22.60	20.74
DPS (EPS X 60%)	13.56	12.44
Growth (g)	10%	10%
Po (MPS)	158.2	176.29
K_e= Do (1 + g)/ Po	$\frac{13.56(1.1)}{158.2}$	$\frac{12.44(1.1)}{176.29}$
	= 9.43%	= 7.76%
B) Cost of Debt:		
10% long term debt	10% + (1-0.25)	10% +(1-0.25)
	= 7.5%	= 7.5%
14% redeemable debentures	$\frac{14(1-0.25)+(110-100/10)}{110+100/2}$	nil
	= 10.5 + 1 / 10.5	
	= 10.95%	
8% irredeemable debenture	NA	8000(1-0.25)/1,00,00 = 6%

Calculation of Weighted Average cost of capital (WACC)

	Alternative 1			Alternative 2		
Capital	Weights	Cost (%)	WACC	Weights	Cost (%)	WACC
Equity Share Capital	0.3909	9.43	3.69%	0.4945	7.76	3.84%
Reserves and Surplus	0.1909	9.43	1.80%	0.2145	7.76	1.66%
10% Long term Debt	0.2727	7.50	2.05%	0.2727	7.50	2.05%
14% Debenture	0.1455	10.95	1.59%			
8% Irredeemable Debentures	-			0.0182	6	0.11%
			9.12%			7.66%

Calculation Marginal Cost of Capital (MACC)

	Alternative 1	Alternative 2

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Capital	Amount(weight)	Cost (%)	MACC	Amount (weight)	Cost (%)	MACC
Equity Share Capital	₹ 1,50,000(0.15)	9.43	1.41%	₹7,20,000(0.72)	7.76	5.59%
Reserves and Surplus	₹ 50,000(0.05)	9.43	0.47%	₹1,80,000(0.18)	7.76	1.40%
14% Debenture	₹ 8,00,000(0.80)	10.95	8.76%	-		0.00%
8% Irredeemable Debentures	-			₹1,00,000(0.10)	6	0.60%
Total Capital Employed	₹10,00,000		10.65%	₹10,00,000		7.58%

Summary of solution:

	Alternate I	Alternate II
Earnings per share (EPS)	22.60	20.74
Market price per share (MPS)	158.20	176.29
Financial leverage	1.4043	1.2101
Weighted Average cost of capital (WACC)	9.12%	7.66%
Marginal cost of capital (MACC)	10.65%	7.58%

Alternative 1 of financing will be preferred under the criteria of EPS, whereas Alternative II of financing will be preferred under the criteria of MPS, Financial leverage, WACC and marginal cost of capital.

Question 27

Navya Limited wishes to raise additional capital of ₹10 lakhs for meeting its modernization plan. It has ₹ 3,00,000 in the form of retained earnings available for investments purposes. The following are the further details:

Debt/ equity mix	**40%/60%**
Cost of debt (before tax)	
Upto ₹ 1,80,000	**10%**
Beyond ₹ 1,80,000	**16%**
Earnings per share	**₹ 4**
Dividend pay out	**₹ 2**
Expected growth rate in dividend	**10%**
Current market price per share	**₹ 44**
Tax rate	**50%**

Required:

(i) **To DETERMINE the pattern for raising the additional finance.**

(ii) **To CALCULATE the post-tax average cost of additional debt.**

(iii) **To CALCULATE the cost of retained earnings and cost of equity, and**

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(iv) **To DETERMINE the overall weighted average cost of capital (after tax). (RTP May '18) (Same concept different figures Old & New SM)**

Answer 27

(i) Pattern of Raising Additional Finance

Equity = 10,00,000 × 60/100 = ₹ 6,00,000

Debt = 10,00,000 × 40/100 = ₹ 4,00,000

Capital structure after Raising Additional Finance

Sources of fund	Amount (₹)
Shareholder's funds	
Equity capital (6,00,000 – 3,00,000)	3,00,000
Retained earnings	3,00,000
Debt at 10% p.a.	1,80,000
Debt at 16% p.a. (4,00,000 – 1,80,000)	2,20,000
Total funds	10,00,000

(ii) Post-tax Average Cost of Additional Debt

Kd = I(1 – t), where 'Kd' is cost of debt, 'I' is interest and 't' is tax rate.

On ₹ 1,80,000 = 10% (1 - 0.5) = 5% or 0.05

On ₹ 2,20,000 = 16% (1 – 0.5) = 8% or 0.08

Average Cost of Debt (Post tax) i.e.

$$k_d = \frac{(1{,}80{,}000 \times 0.05) + (2{,}20{,}000 \times 0.08)}{4{,}00{,}000} \times 100 = 6.65\%$$

(iii) Cost of Retained Earnings and Cost of Equity applying Dividend Growth Model

$$k_e = \frac{D_1}{P_0} + g \text{ or } \frac{D_0(1+g)}{P_0} + g$$

$$Then,\ k_e = \frac{2(1.1)}{44} + 0.10 = \frac{2.2}{44} + 0.10 = 0.15 \text{ or } 15\%$$

(iv) Overall Weighted Average Cost of Capital (WACC) (After Tax)

Particulars	Amount (₹)	Weights	Cost of Capital	WACC
Equity (including retained earnings)	6,00,000	0.60	15%	9.00

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Debt	4,00,000	0.40	6.65%	2.66
Total	10,00,00 0	1.00		11.66

Question 28

As a financial analyst of a large electronics company, you are required to DETERMINE the weighted average cost of capital of the company using (a) book value weights and (b) market value weights. The following information is available for your perusal.

The Company's present book value capital structure is:

	(₹)
Debentures (₹100 per debenture)	**8,00,000**
Preference shares (₹100 per share)	**2,00,000**
Equity shares (₹10 per share)	**10,00,000**
	20,00,000

All these securities are traded in the capital markets. Recent prices are:

Debentures, ₹110 per debenture, Preference shares, ₹120 per share, and Equity shares, ₹ 22 per share

Anticipated external financing opportunities are:

(i) **₹ 100 per debenture redeemable at par; 10-year maturity, 11 per cent coupon rate, 4 per cent flotation costs, sale price, ₹ 100**

(ii) **₹ 100 preference share redeemable at par; 10-year maturity, 12 per cent dividend rate, 5 per cent flotation costs, sale price, ₹100.**

(iii) **Equity shares: ₹ 2 per share flotation costs, sale price = ₹ 22.**

In addition, the dividend expected on the equity share at the end of the year is ₹ 2 per share, the anticipated growth rate in dividends is 7 per cent and the firm has the practice of paying all its earnings in the form of dividends. The corporate tax rate is 35 per cent. (RTP May '19)

Answer 28

Determination of specific costs:

(i) Cost Debt(K_d) = $\frac{Interest(1-t)+\frac{(RV-NP)}{N}}{\frac{(RV+NP)}{2}}$ = $\frac{Rs.11(1-0.35)+\frac{(Rs.100-Rs.96)}{10\ Years}}{\frac{(Rs.100+Rs.96)}{2}}$

= $\frac{Rs.7.15+Rs.0.4}{Rs.98}$ = 0.077 or 7.70%

(ii) Cost of Preference Shares(K_p) = $\frac{PD+\frac{(RV-NP)}{N}}{\frac{(RV+NP)}{2}}$ = $\frac{Rs.12+\frac{(Rs.100-Rs.95)}{10Years}}{\frac{(Rs.100+Rs.95)}{2}}$

= $\frac{Rs.12+Rs.0.5}{Rs.97.5}$ = 0.1282 or 12.82%

(iii) Cost of Equity Shares(K_e) = $\frac{D_1}{P_0}$ +G = $\frac{Rs.2}{Rs.22-Rs.2}$ +0.07 = 0.17 or 17%

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I – Interest, t – Tax, RV- Redeemable value, NP- Net proceeds, N- No. of years, PD- Preference dividend, D1- Expected Dividend, P0- Price of share (net)

Using these specific costs we can calculate WACC on the basis of book value and market value weights as follows:

(a) Weighted Average Cost of Capital (K_0) based on Book value weights

Source of capital	Book value (₹)	Weights	Specific cost (%)	WACC (%)
Debentures	8,00,000	0.40	7.70	3.08
Preferences shares	2,00,000	0.10	12.82	1.28
Equity shares	10,00,000	0.50	17.00	8.50
	20,00,000	1.00		12.86

(b) Weighted Average Cost of Capital (K_0) based on market value weights:

Source of capital	Market value (₹)	Weights	Specific cost (%)	WACC (%)
Debentures $\left(\frac{Rs.8,00,000}{Rs.100} \times Rs.110\right)$	8,80,000	0.265	7.70	2.04
Preferences shares $\left(\frac{Rs.2,00,000}{Rs.100} \times Rs.120\right)$	2,40,000	0.072	12.82	0.92
Equity shares $\left(\frac{Rs.10,00,000}{Rs.10} \times Rs.22\right)$	22,00,000	0.663	17.00	11.27
	33,20,000	1.000		14.23

Question 29

The information relating to book value (BV) and market value (MV) weights of Ex Limited is given below:

Sources	**Book Value (₹)**	**Market Value (₹)**
Equity shares	**2,40,00,000**	**4,00,00,000**
Retained earnings	**60,00,000**	**-**
Preference shares	**72,00,000**	**67,50,000**
Debentures	**18,00,000**	**20,80,000**

Additional information:

I. **Equity shares are quoted at ₹ 130 per share and a new issue priced at ₹ 125 per share will be fully subscribed; flotation costs will be ₹ 5 per share on face value.**

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II. **During the previous 5 years, dividends have steadily increased from ₹ 10 to ₹ 16.105 per share. Dividend at the end of the current year is expected to be ₹ 17.716 per share.**

III. **15% Preference shares with face value of ₹ 100 would realise ₹ 105 per share.**

IV. **The company proposes to issue 11-year 15% debentures but the yield on debentures of similar maturity and risk class is 16%; flotation cost is 2% on face value.**

V. **Corporate tax rate is 30%.**

You are required to DETERMINE the weighted average cost of capital of Ex Limited using both the weights. (RTP May 22)

Answer 29

(i) Cost of Equity (K_e) = $\frac{D_1}{P_0 - F}$ + g = $\frac{Rs.17.716}{Rs.125 - Rs.5}$ + 0.10*

K_e = 0.2476

∗ Calculation of g :

$Rs.$ 10 (1+g)^5 = Rs. 16.105

$Or,$ (1+g)^5 = $\frac{16.105}{10}$ = 1.6105

Table (FVIF) Suggests that Rs. 1 Compounds to Rs. 1.6105 in years at the Compound rate of 10 percent . Therefore, g is 10 per cent.

(ii) Cost of Retained Earnings (K_r) = $\frac{D_1}{P_0}$ + g = $\frac{Rs.17.716}{Rs.130}$ +0.10 = 0.2363

(iii) Cost of Preference Shares (K_p) = $\frac{PD}{P_0}$ = $\frac{Rs.15}{Rs.105}$ = 0.1429

(iv) Cost of Debentures (K_d) = $\frac{I(1-t)+\left(\frac{RV-NP}{n}\right)}{\frac{RV+NP}{2}}$

$$= \frac{Rs.15(1-0.30)+\left(\frac{Rs.100-Rs.91.75*}{11\ years}\right)}{\frac{Rs.100+Rs.91.75*}{2}}$$

$$= \frac{Rs.15\times0.70+Rs.0.75}{Rs.95.875} = \frac{Rs.11.25}{Rs.95.875} = 0.1173$$

*Since yield on similar type of debentures is 16 per cent, the company would be required to offer debentures at discount.

Market price of debentures (approximation method)

= ₹ 15 ÷ 0.16 = ₹ 93.75

Market value (P0) of debentures can also be found out using the present value method:

P0 = Annual Interest × PVIFA (16%, 11 years) + Redemption value × PVIF (16%, 11 years)

P0 = ₹ 15 × 5.0287 + ₹ 100 × 0.1954 P0 = ₹ 75.4305 + ₹ 19.54

= ₹ 94.9705

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Net Proceeds = ₹ 94.9705 – 2% of ₹ 100 = ₹ 92.9705 Accordingly, the cost of debt can be calculated

Sale proceeds from debentures = ₹ 93.75 – ₹ 2 (i.e., floatation cost) = ₹91.75

Total Cost of capital [BV weights and MV weights] (Amount in (₹) lakh)

Source of capital	Weights		Specific Cost (K)	Total cost	
	BV	MV		(BV × K)	(MV × K)
Equity Shares	240	320**	0.2476	59.4240	79.2320
Retained Earnings	60	80**	0.2363	14.1780	18.9040
Preference Shares	72	67.50	0.1429	10.2888	9.6458
Debentures	18	20.80	0.1173	2.1114	2.4398
Total	390	488.30		86.0022	110.2216

**Market Value of equity has been apportioned in the ratio of Book Value of equity and retained earnings i.e., 240:60 or 4:1.

Weighted Average Cost of Capital (WACC):

Using Book Value $= \frac{Rs.86.0022}{Rs.390} = 0.2205$ or 22.05%

Using Market Value $= \frac{Rs.110.2216}{Rs.488.30} = 0.2257$ or 22.57%

Question 30

Amrit Corporation has the following book value capital structure:

Equity Capital (50 lakh shares of ₹ 10 each).	**₹ 5,00,00000**
15% Preference share (50,000 shares ₹ 100 each)	**₹ 50,00,000**
Retained earnings	**₹ 4,00,00,000**
Debentures 14% (2,50,000 debentures ₹ 100 each)	**₹ 2,50,00,000**
Term loan 13%	**₹ 4,00,00000**

The companies last year earnings per share was ₹ 5, and it maintains a dividend pay-out ratio of 60% and returns on equity is 10%. The market price per share is ₹ 20.8. Preference share redeemable after 10 years is currently selling for ₹ 90 per share. Debentures redeemable after 6 years are currently selling for ₹ 75 per debenture. The income tax rate is 40%.

(a) **CALCULATE the Weighted Average Cost of Capital (WACC) using market value proportions.**

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(b) **DETERMINE the Marginal Cost of Capital (MACC) if it needs ₹ 5,00,00000 next year assuming the amount will be raised by 60% equity, 20% debt and 20% retained earnings. Equity issues will fetch a net price of ₹ 14 and cost of debt will be 13% before tax up to ₹ 40,00,000 and beyond ₹ 40,00,000 it will be 15% before tax. (RTP May 23)**

Answer 30

(a) Calculation of Cost of Equity

(i) D_0 = ₹ 5x 60%

D_0 = ₹ 3

g = b x r

= (1-0.6) x 10% = 4%

$D_1 = D_0$ x (1 + g)

= 3 x (1 + 4%)

= 3 x 1.04 = 3.12

$K_e = \frac{D_1}{P_0} + g$

$K_e = \frac{3.12}{20.8} + 0.04$

K_e = 19%

(ii) Calculation of Cost of Preference Shares N =10 years

NP = ₹ 90 PD = ₹ 15 RV = ₹ 100

$K_P = \frac{PD+(RV-NP)/N}{(RV+NP)}$ X 100

$K_P = \frac{15+(100-90)/10}{(100+90)/2}$ X 100

K_P = 16/95 x 100

K_P = 16.84%

(iii) Calculation of Cost of Debentures N = 6 years

NP = ₹ 75 Interest = ₹ 14 RV = ₹ 100

T = 40%

$K_d = \frac{int(1-t)+(RV-NP)/N}{(RV+NP)/2}$ X 100

$K_d = \frac{14(1-0.4)+(100-75)/6}{(100+75)/2}$ X 100

$K_d = \frac{8.4-4.17}{87.5}$ X 100

K_d =14.37%

(iv) Cost of Term Loan

Kd = Interest rate (1-t)

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Kd = 13% (1-40%) Kd = 7.8%

Calculation of Weighted Average Cost of Capital (WACC) (using market weights)

Capital	Cost of Capital	Market Value		Market Value Weights	Product (Cost x weights)
Equity	19.00%	20.8 x 50,00,000	₹10,40,00,000	0.6218	11.81%
Preference Shares	16.84%	90 x 50,000	₹ 45,00,000	0.0269	0.45%
Debentures	14.37%	75 x 2,50,000	₹ 1,87,50,000	0.1121	1.61%
Term Loan	7.80%		₹ 4,00,00,000	0.2392	1.87%
Total			₹16,72,50,000	1	15.74%

WACC= 15.74%

(b) Calculation of Marginal Cost of Capital (MACC)

The required capital of ₹ 50,000,000 will be raised as follows: Equity = 60% of ₹ 50,000,000
= ₹ 30,000,000

Deby = 20% of ₹ 50,000,000 = ₹10,000,000

Retained Earnings= 20% of ₹ 50,000,000 = ₹ 10,000,000

Marginal Cost of Equity $= \frac{3.12}{1.4} + 0.04$

= 26.28%

Marginal Cost of Debt

Cost of Debt (before tax) $= \frac{13\,\%\, of\ Rs.40,00,000+15\,\%\, of\ Rs.60,00,000}{Rs.1,00,00,000}$

$= \frac{Rs.5,20,000+Rs.9,00,000}{Rs.1,00,00,000}$ = 14.2%

Cost of Debt (after tax). = 14.2% (1-t)
= 14.2% (1-0.4)
= 8.52%

Calculation of marginal cost of capital

Capital	Cost of Capital	Value	Weights	Product (Cost x weights)

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Equity	26.28%	₹ 3,00,00,000	0.6	15.77%
Reserves	26.28%	₹ 1,00,00,000	0.2	5.26%
Debt	8.52%	₹ 1,00,00,000	0.2	1.70%
Total		₹ 5,00,00,000	1	22.73%

Marginal Cost of Capital (MACC) = 22.73%

Question 31

Following are the information of TT Ltd.:

Particulars	
Earnings per share	**Rs.10**
Dividend per share	**Rs.6**
Expected growth rate in Dividend	**6%**
Current market price per share	**Rs.120**
Tax Rate	**30%**
Requirement of Additional Finance	**Rs.30 lakhs**
Debt Equity Ratio (For additional finance)	**2:1**
Cost of Debt	
0-5,00,000	**10%**
5,00,001 - 10,00,000	**9%**
Above 10,00,000	**8%**

Assuming that there is no Reserve and Surplus available in TT Ltd. You are required to:

Find the pattern of finance for additional requirement Calculate post tax average cost of additional debt Calculate cost of equity

Calculate the overall weighted average after tax cost of additional finance. (PYP 10 Marks, July'21)

Answer 31

(a) Pattern of raising additional finance

Equity	1/3 of Rs.30,00,000	Rs.10,00,000
Debt	2/3 of Rs.30,00,000	Rs.20,00,000

The capital structure after raising additional finance:

Particulars		**(₹)**
Shareholder's Funds		
Equity Capital		10,00,000
Debt (Interest at 10% p.a.)		5,00,000
(Interest at 9% p.a.)		5,00,000
(Interest at 8% p.a.)	(20,00,000–10,00,000)	10,00,000
Total Funds		30,00,000

(b) Determination of post-tax average cost of additional debt

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K_e = I (1 – t)

Where,

I = Interest Rate

t = Corporate tax-rate

On First ₹ 5,00,000 = 10% (1 – 0.3) = 7% or 0.07

On Next ₹ 5,00,000 = 9% (1 – 0.3) = 6.3% or 0.063

On Next Rs.10,00,000 = 8% (1 – 0.3) = 5.6% or 0.056

Average Cost of Debt

$$\frac{(₹\ 5{,}00{,}000 \times 0.07) + (₹\ 5{,}00{,}000 \times 0.063) + (\text{Rs.}\ 10{,}00{,}000 \times 0.056)}{20{,}00{,}000} \times 100$$

= 6.125%

$K_e = \frac{D_1}{P_0} + g$

Where,

K_e= Cost of equity

D1 = D0 (1+ g)

D0 = Dividend paid

g = Growth rate = 6%

P0 = Current market price per share = Rs.120

$K_e = \frac{\text{Rs.}6(1+0.06)}{\text{Rs.}120} + 0.06 = \frac{\text{Rs.}6.36}{\text{Rs.}120} + 0.06 = 0.13 \text{ or } 11.3\%$

Computation of overall weighted average after tax cost of additional finance

Particulars	(Rs)	eights	Cost of funds	Weighted Cost (%)
Equity	10,00,000	1/3	11.3%	3.767
Debt	20,00,000	2/3	6.125%	4.083
WACC	30,00,000			7.85

(Note: In the above solution different interest rate have been considered for different slab of Debt)

Alternative Solution

(a) **Pattern of raising additional finance**

Equity	1/3 of Rs.30,00,000	= Rs.10,00,000
Debt	2/3 of Rs.30,00,000	= Rs.20,00,000

The capital structure after raising additional finance:

Particulars	(₹)

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Shareholders' Funds	
Equity Capital	10,00,000
Debt (Interest at 8% p.a.)	20,00,000
Total Funds	**30,00,000**

(b) **Determination of post-tax average cost of additional debt Kd = I (1 – t)**

Where,

I = Interest Rate

t = Corporate tax-rate

K_d= 8% (1 – 0.3) = 5.6%

(c) **Determination of cost of equity applying Dividend growth model:**

Then $k_e=\frac{D_1}{p_0}+g$

Where,

K_e = Cost of equity

D_1= D_0 (1+ g)

D_0= Dividend paid

g = Growth rate =6%

P_0= Current market price per share = Rs.120

$K_e=\frac{Rs.6(1+0.06)}{Rs.120}+0.06=\frac{Rs.6.36}{Rs.120}+0.06=0.13$ or 11.3%

(d) **Computation of overall weighted average after tax cost of additional finance**

Particulars	**(₹)**	**Weights**	**Cost of funds**	**Weighted Cost (%)**
Equity	10,00,000	1/3	11.3%	3.767
Debt	20,00,000	2/3	5.6%	3.733
WACC	30,00,000			7.50

(Note: In the above solution single interest rate have been considered for Debt)

Question 32

TT Ltd. issued 20,000, 10% convertible debenture of Rs.100 each with a maturity period of 5 years. At maturity the debenture holders will have the option to convert debentures into equity shares of the company in ratio of 1:5 (5 shares for each debenture). The current market price of the equity share is Rs.20 each and historically the growth rate of the share is 4% per annum. Assuming tax rate is 25%. Compute the cost of 10% convertible debenture using Approximation Method and Internal Rate of Return Method.

PV Factor are as under:

Year	**1**	**2**	**3**	**4**	**5**
PV Factor @ 10%	**0.909**	**0.826**	**0.751**	**0.683**	**0.621**

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PV Factor @ 15%	0.870	0.756	0.658	0.572	0.497

(PYP 5 Marks, Nov'20)

Answer 32

Determination of Redemption value:

Higher of-

(i) The cash value of debentures = ₹100

(ii) Value of equity shares = 5 shares × Rs.20 $(1+0.04)^5$

= 5 shares × Rs.24.333

= ₹121.665 rounded to ₹121.67

₹121.67 will be taken as redemption value as it is higher than the cash option and attractive to the investors.

Calculation of Cost of 10% Convertible debenture

(i) Using Approximation Method:

Cost of Preference Shares

$$K_d = \frac{I(1-t)+\frac{(RV-NP)}{n}}{\frac{(RV+NP)}{2}} = \frac{10(1-0.25)+\frac{(121.67-100)}{5}}{\frac{(121.67-100)}{5}} = \frac{7.5+4.334}{110.835} = 10.676\%$$

(ii) **Using Internal Rate of Return Method**

Year	Cash flows (₹)	Discount factor @ 10%	Present Value	Discount factor @ 15%	Present Value (₹)
0	100	1.000	(100.00)	1.000	(100.00)
1 to 5	7.5	3.790	28.425	3.353	25.148
5	121.67	0.621	75.557	0.497	60.470
NPV			+3.982		-14.382

$$IRR = L + \frac{NPV_l}{NPV_l - NPV_h}(H-L) = 10\% + \frac{3.982}{3.982—14.382}(15\% - 10\%)$$

= 0.11084 or 11.084% (approx.)

Question 33

Explain the significance of Cost of Capital. (PYP 4 Marks, Nov'19)

Answer 33

Significance of the Cost of Capital: The cost of capital is important to arrive at correct amount and helps the management or an investor to take an appropriate decision. The correct cost of capital helps in the following decision making:

(i) **Evaluation of investment options**: The estimated benefits (future cash flows) from available investment opportunities (business or project) are converted into

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the present value of benefits by discounting them with the relevant cost of capital. Here it is pertinent to mention that every investment option may have different cost of capital hence it is very important to use the cost of capital which is relevant to the options available. Here Internal Rate of Return (IRR) is treated as cost of capital for evaluation of two options (projects).

(ii) Performance Appraisal: Cost of capital is used to appraise the performance of a particulars project or business. The performance of a project or business in compared against the cost of capital which is known here as cut-off rate or hurdle rate.

(iii) Designing of optimum credit policy: While appraising the credit period to be allowed to the customers, the cost of allowing credit period is compared against the benefit/ profit earned by providing credit to customer of segment of customers. Here cost of capital is used to arrive at the present value of cost and benefits received.

Question 34

Stop-go Ltd, an all equity financed company, is considering the repurchase of Rs.200 lakhs equity and to replace it with 15% debentures of the same amount. Current market Value of the company is Rs.1140 lakhs and it's cost of capital is 20%. It's Earnings before Interest and Taxes (EBIT) are expected to remain constant in future. Its entire earnings are distributed as dividend. Applicable tax rate is 30 per cent.

You are required to calculate the impact on the following on account of the change in the capital structure as per Modigliani and Miller (MM) Hypothesis:

(i) The market value of the company

(ii) It's cost of capital, and

(iii) It's cost of equity (PYP 5 Marks, May'18)

Answer 34

(a) Working Note

$$\frac{\text{Net income (NI)for equity–holders}}{k_e} = \text{Market Value of Equity}$$

$$\frac{\text{Net income (NI)for equity holders}}{0.20} = \text{Rs. 1,140 lakhs}$$

Therefore, Net Income to equity–holders = Rs.228 lakhs

EBIT = Rs.228 lakhs / 0.7 = Rs.325.70 lakhs

	All Equity (₹ In lakhs)	Debt of Equity (₹ In lakhs)
EBIT	325.70	325.70
Interest on ₹200 lakhs @ 15%	--	30.00
EBT	325.70	295.70
Tax @ 30 %	97.70	88.70

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Income available to equity holders	228	207

(i) Market value of levered firm = Value of unlevered firm + Tax Advantage

= Rs. 1,140 lakhs + (₹200 lakhs x 0.3)

= Rs. 1,200 lakhs

The impact is that the market value of the company has increased by Rs.60 lakhs (Rs. 1,200 lakhs – Rs. 1,140 lakhs)

Calculation of Cost of Equity

k_e= (Net Income to equity holders / Equity Value) X 100

= (207 lakhs / 1200 lakhs – 200 lakhs) X 100

= (207/ 1000) X 100

= 20.7 %

(ii) Cost of Capital

Components	Amount (₹ In lakhs)	Cost of Capital %	Weight	WACC %
Equity Debt	1000 200	20.7 (15% X 0.7) =10.5	83.33 16.67	17.25 1.75
	1200			19.00

The impact is that the WACC has fallen by 1% (20% - 19%) due to the benefit of tax relief on debt interest payment.

(iii) Cost of Equity is 20.7% [As calculated in point (I)]

The impact is that cost of equity has risen by 0.7% i.e. 20.7% - 20% due to the presence of financial risk.

Further, Cost of Capital and Cost of equity can also be calculated with the help of formulas as below, though there will be no change in final answers.

Cost of Capital (k_o) = k_{eu} (1-tL)

Where,

k_{eu} = Cost of equity in an unlevered company

t = Tax rate

$$L=\frac{\text{Debt}}{\text{Debt+Equity}}$$

$$k_o = 0.2 \times \left[1 + \frac{\text{Rs.200Lakh}}{\text{Rs.1,200Lakh}} \times 3\right]$$

So, Cost of capital = 0.19 or 19%

Cost of Equity (k_e) =k_{eu} + (k_{eu}–k_d) $\frac{\text{Debt}\ (1-t)}{\text{Debt+Equity}}$

Where,

k_{eu} = Cost of equity in an unlevered company

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k_d = Cost of debt

t= Tax rate

$k_e = 0.20 + \left[(\mathbf{0.20 - 0.15}) + \frac{\textbf{Rs.200Lakh×0.7}}{\textbf{Rs.1000Lakh}}\right]$

k_e = 0.20 + 0.007 = 0.207 or 20.7%

So, Cost of Equity = 20.70%

Question 35

A company issues:

- **15% convertible debentures of ₹ 100 each at par with a maturity period of 6 years. On maturity, each debenture will be converted into 2 equity shares of the company. The risk - free rate of return is 10%, market risk premium is 18% and beta of the company is 1.25. The company has paid dividend of ₹ 12.76 per share. Five year ago, it paid dividend of₹ 10 per share. Flotation cost is 5% of issue amount.**
- **5% preference shares of ₹ 100 each at premium of 10%. These shares are redeemable after 10 years at par. Flotation cost is 6% of issue amount.**

Assuming corporate tax rate is 40%.

(i) **Calculate the cost of convertible debentures using the approximation method.**

(ii) **Use YTM method to calculate cost of preference shares.**

Year	1	2	3	4	5	6	7	8	9	10
PVIF 0.03, t	0.971	0.943	0.915	0.888	0.863	0.837	0.813	0.789	0.766	0.744
PVIF 0.05, t	0.952	0.907	0.864	0.823	0.784	0.746	0.711	0.677	0.645	0.614
PVIFA 0.03, t	0.971	1.913	2.829	3.717	4.580	5.417	6.230	7.020	7.786	8.530
PVIFA 0.05, t	0.952	1.859	2.723	3.546	4.329	5.076	5.786	6.463	7.108	7.722

Interest rate	1%	2%	3%	4%	5%	6%	7%	8%	9%
FVIF i, 5	1.051	1.104	1.159	1.217	1.276	1.338	1.403	1.469	1.539
FVIF i, 6	1.062	1.126	1.194	1.265	1.340	1.419	1.501	1.587	1.677
FVIF i, 7	1.072	1.149	1.230	1.316	1.407	1.504	1.606	1.714	1.828

(PYP 10 Marks May'22)

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Answer 35

(i) **Calculation of Cost of Convertible Debentures:**

Given that, R_F = 10%

$R_m - R_f$ = 18%

B = 1.25

D_0 = 12.76

D_{-5} = 10

Flotation Cost = 5%

Using CAPM,

$\mathbf{k_e} = R_f + \beta\ (R_m - R_f)$

= 10%+1.25 (18%)

= 32.50%

Calculation of growth rate in dividend

12.76 = 10 $(1+g)^5$

1.276 = $(1+g)^5$

(1+5%)5 = 1.276.............. from FV Table

g = 5%

Price of share after 6 years

$$P_1 = \frac{D_7}{K_e - g} = \frac{12.76(1.05)^2}{0.325 - 0.05}$$

$$P_6 = \frac{12.76 \times 1.407}{0.275}$$

P_6 = 65.28

Redemption Value of Debenture (RV) = 65.28 × 2 = 130.56 (RV)

NP = 95

n= 6

$$\mathbf{k_d} = \frac{INT(1-t)\frac{RV-NP}{n}}{\frac{RV+NP}{2}} \times 100$$

$$= \frac{15(1-0.4)\frac{130.56-95}{6}}{\frac{130.56+95}{2}} \times 100$$

$$= \frac{9+5.93}{112.78} \times 100$$

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k_d = 13.24%

(ii) **Calculation of Cost of Preference Shares**:

Net Proceeds = 100 (1.1) - 6% of 100 (1.1)

= 110 - 6.60

= 103.40

Redemption Value = 100

Year	Cash Flows (₹)	PVF @ 3%	PV (₹)	PVF @ 5%	PV (₹)
	03.40		03.40		03.40
-10	5	.530	42.65	.722	38.61
0	100	.744	74.40	.614	61.40
			13.65		.39

$k_p = 3\% + \frac{5\%-3\%}{[3.39-(-13.65)]} \times 13.65$

$= 3\% + \frac{2\%}{17.4} \times 13.65$

k_p = 4.6021%

Question 36

MR Ltd. is having the following capital structure, which is considered to be optimum as on 31.03.2022.

Equity share capital (50,000 shares)	**₹ 8,00,000**
12% Pref. share capital	**₹ 50,000**
15% Debentures	**₹ 1,50,000**
	₹ 10,00,000

The earnings per share (EPS) of the company were ₹ 2.50 in 2021 and the expected growth in equity dividend is 10% per year. The next year's dividend per share (DPS) is 50% of EPS of the year 202I. The current market price per share (MPS) is ₹ 25.00. The 15% new debentures can be issued by the company. The company's debentures are currently selling at ₹ 96 per debenture. The new 12% Pref. share can be sold at a net price of ₹ 91.50 (face value ₹ 100 each). The applicable tax rate is 30%.

You are required to calculate

(a) **After tax cost of**

(i) **New debt,**

(ii) **New pref. share capital and**

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(iii) **Equity shares assuming that new equity shares come from retained earnings.**

(b) **Marginal cost of capital,**

How much can be spent for capital investment before sale of new equity shares assuming that retained earnings for next year investment is 50% of 2021? (6 Marks Nov '22)

Answer 36

(a)

(i) After tax Cost of new Debt:

$K_d = I \frac{(1-t)}{P_1} = 15 \frac{(1-0.3)}{96}$

$= 0.1094$ (or) 10.94%

(ii) After tax cost of new Preferences share Capital

$K_p = \frac{PD}{P_o} + g = \left[\frac{(2.50\ X 50\%)}{25}\right] + 0.10$

$= 0.15$ (or) 15%

(b) Marginal Cost of Capital

Type of capital	Proportions	Specific cost	Product
Equity Shares	0.80	0.15	0.12
Preference Shares	0.05	0.1311	0.0066
Debentures	0.15	0.1094	0.0164
∴Marginal cost of capital			0.1430

(c) Amount that can be spend for capital investment

Retained earnings = 50% of EPS x No. of outstanding Equity shares

= 1.25 x 50,000

= ₹ 62,500

Proportion of equity (Retained earnings here) capital is 80% of total capital.

Therefore,₹ 62,500 is 80% of total capital.

∴ Amount of Capital Investment = $\frac{62,500}{0.80}$ = Rs. 78,125

Section B

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1. **Which of the following is not an assumption of the capital asset pricing model (CAPM)?**

    (a) The capital market is efficient.

    (b) Investors lend or borrow at a risk-free rate of return.

    (c) Investors do not have the same expectations about the risk and return.

    (d) Investor's decisions are based on a single-time period.

Ans: (c)

2. **Given: risk-free rate of return = 5 %; market return = 10%; cost of equity = 15%; value of beta (β) is:**

    a) 1.9

    b) 1.8

    c) 2.0

    d) 2.2

Ans: (c)

3. **___________may be defined as the cost of raising an additional rupee of capital:**

    (a) Marginal cost of capital

    (b) Weighted Average cost of capital

    (c) Simple Average cost of capital

    (d) Liquid cost of capital

Ans: (a)

4. **Which of the following cost of capital requires to adjust taxes?**

    (a) Cost of Equity Share

    (b) Cost of Preference Shares,

    (c) Cost of Debentures

    (d) Cost of Retained Earnings

Ans: (c)

5. **Marginal Cost of capital is the cost of:**

    (a) Additional Revenue

    (b) Additional Funds

    (c) Additional Interests

    (d) None of the above

Ans: (b)

6. **In order to calculate Weighted Average Cost of Capital, weights may be based on:**

    (a) Market Values

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(b) Target Values

(c) Book Values

(d) Anyone of the above

Ans:(d)

7. Firm's Cost of Capital is the average cost of:

(a) All sources of finance

(b) All Borrowings

(c) All share capital

(d) All Bonds & Debentures

Ans: (a)

8. A company has a financial structure where equity is 70% of its total debt plus equity. Its cost of equity is 10% and gross loan interest is 5%. Corporation tax is paid at 30%. What is the company's weighted average cost of capital (WACC)?

(a) 7.55%

(b) 7.80%

(c) 8.70%

(d) 8.05%

Ans:(d)

9. The cost of equity capital is all of the following except:

(a) The minimum rate that a firm should earn on the equity-financed part ofan investment.

(b) A return on the equity-financed portion of an investment that, at worst, leaves the market price of the stock unchanged.

(c) By far, the most difficult component cost to estimate.

(d) Generally, lower than the before-tax cost of debt.

Ans:(d)

10. What is the overall (weighted average) cost of capital when the firm has ₹ 20 crores in long-term debt, ₹ 4 crores in preferred stock, and ₹ 16 crores in equity shares? The before-tax cost for debt, preferred stock, and equity capital are 8%, 9%, and 15%, respectively. Assume a 50% tax rate.

(a) 7.60%

(b) 6.90%

(c) 7.30%

(d) 8.90%

Ans:(d)

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Theoretical Questions Answers

Question 1

DISCUSS the meaning of weighted average cost of capital? ILLUSTRATE with an example.

Answer 1

To balance financial risk, control over the company and cost of capital, a company usually does not procure entire fund from a single source, rather it makes a mix of various sources of finance. Hence, cost of total capital will be equal to weighted average of cost of individual sources of finance.

WACC is also known as the overall cost of capital which includes the cost of different sources of capital as explained above. WACC of a company depends onthe capital structure of a company. It weighs the cost of capital of a particular source of capital with its proportion to the total capital. Thus, weighted averagecost of capital is the weighted average after-tax costs of the individual components of firm's capital structure. That is, the after-tax cost of each debt and equity is calculated separately and added together to a single overall cost of capital

The steps to calculate WACC is as follows:

Step 1: Calculate the total capital from all the sources of capital.

(Long-term debt capital + Pref. Share Capital + Equity Share Capital + Retained Earnings)

Step 2: Calculate the proportion (or %) of each source of capital to the totalcapital.

$$\frac{Equity\ Share\ Capital\ (For\ example)}{Total\ Capital\ as\ calculated\ in\ step\ 1\ above}$$

Step 3: Multiply the proportion as calculated in Step 2 above with therespective cost of capital.

(K_e × Proportion (%) of equity share capital (for example) calculatedin Step 2 above)

Step 4: Aggregate the cost of capital as calculated in Step 3 above. This is theWACC.

(K_e + K_d + K_p + K_s as calculated in Step 3 above)

Calculation of WACC

Source of Capital	Cost of capital	% of total capital	Total
Retained Earnings	10% (K_r)	25% (W_r)	2.50% ($K_r \times W_r$)
Equity Share Capital	11% (K_e)	10% (W_e)	1.10% ($K_e \times W_e$)
Preference Share Capital	9% (K_p)	15% (W_p)	1.35% ($K_p \times W_p$)
Long term debts	6% (K_d)	50% (W_d)	3.00% ($K_d \times W_d$)
Total (WACC)			7.95%

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The cost of weighted average method is preferred because the proportions of various sources of funds in the capital structure are different. To be representative, therefore, cost of capital should take into account the relative proportions of different sources of finance.

Securities analysts employ WACC all the time when valuing and selectinginvestments. In discounted cash flow analysis, WACC is used as the discount rate applied to future cash flows for deriving a business' net present value. WACC canbe used as a hurdle rate against which to assess return on investment capital performance. Investors use WACC as a tool to decide whether or not to invest.The WACC represents the minimum rate of return at which a company produces value for its investors. Let's say, if a company produces a return of 20% and has a WACC of 11%. By contrast, the company's return is less than WACC meaning the company is shedding value, which indicates that investors should put their money elsewhere.

Therefore, WACC serves as a useful reality check for investors.

Question 2

DISCUSS the dividend price approach, and earnings price approach to estimate cost of equity capital.

Answer 2

Dividend Price Approach

This is also known as Dividend Valuation Model. This model makes an assumption that the dividend per share is expected to remain constant forever. Here, cost of equity capital is computed by dividing the expected dividend by market price per share as follows:

Cost of Equity (K_e)= $\frac{D}{Po}$

Where,

K_e= Cost of equity

D = Expected dividend (also written as D_1)

P_0 = Market price of equity (ex- dividend)

Equity Price Approach

The advocates of this approach co-relate the earnings of the company with the market price of its share. Accordingly, the cost of equity share capital would be based upon the expected rate of earnings of a company. The argument is thateach investor expects a certain amount of earnings, whether distributed or notfrom the company in whose shares he invests

Cost of Equity (K_e)= $\frac{E}{P}$

Where,

E = Current earnings per share

P = Market price per share

This approach assumes that the earnings per share will remain constant forever. The Earning Price Approach is similar to the dividend price approach; only it seeksto nullify the effect of changes in the dividend policy.

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Question 3

What is the DIFFERENCE between Book Value and Market Value weights?

Answer 3

There is a choice weights between the book value (BV) and market value (MV).

Book Value (BV): Book value weights is operationally easy and convenient. While using BV, reserves such as share premium and retained profits are included in theBV of equity, in addition to the nominal value of share capital. Here, the value of equity will generally not reflect historic asset values, as well as the future prospects of an organisation.

Market Value (MV): Market value weight is more correct and represent a firm's capital structure. **It is preferable to use MV weights for the equity**. While using MV, reserves such as share premium and retained profits are ignored as they arein effect incorporated into the value of equity. It represents existing conditionsand also take into consideration the impacts of changing market conditions andthe current prices of various security. Similarly, in case of debt, MV is better to be used rather than the BV of the debt, though the difference may not be very significant.

There is no separate market value for retained earnings. Market value of equityshares represents both paid up equity capital and retained earnings. But cost of equity is not same as cost of retained earnings. Hence to give market value weights, market value of equity shares should be apportioned in the ratio of book value of paid up equity capital and book value of retained earnings.

Question 4

DISCUSS Marginal Cost of Capital?

Answer 4

The marginal cost of capital may be defined as the cost of raising an additional rupee of capital. Since the capital is raised in substantial amount in practice, marginal cost is referred to as the cost incurred in raising new funds. Marginal cost of capital is derived, when the average cost of capital is **calculated using the marginal weights**.

The marginal weights represent the proportion of funds the firm intends to employ. Thus, the problem of choosing between the book value weights and the **market value weights** does not arise in the case of marginal cost of capital computation.

To calculate the marginal cost of capital, the intended financing proportion should be applied as weights to marginal component costs. The marginal cost of capital should, therefore, be calculated in the composite sense. When a firm raises funds in proportional manner and the component's cost remains unchanged, there will be no difference between average cost of capital (of the total funds)and the marginal cost of capital. The component costs may remain constant upto certain level of funds raised and then start increasing with amount of funds raised.

Question 5

EXPLAIN YTM approach of calculating Cost of Debt.

Answer 5

The cost of redeemable debt (K_d) is also calculated by discounting the relevant cash flows using Internal rate of return (IRR). (The concept of IRR is discussed in the Chapter 7 - Investment Decisions). Here, YTM is the annual return of an investment from the current date till maturity date. So, YTM is the internal rate of return at which current price of a debt equals to the present value of all cash-flows.

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The relevant cash flows are as follows:

Year	Cash flows
0	Net proceeds in case of new issue/ Current market price in case ofexisting debt (NP or P0)
1 to n	Interest net of tax [I(1-t)]
n	Redemption value (RV)

Steps to calculate relevant cash flows:

Step-1: Identify the cash flows.

Step-2: Calculate NPVs of cash flows as identified above using two discount rates(guessing).

Step-3: Calculate IRR.

Question 6

DISCUSS the meaning of Amortisation of Bond?

Answer 6

A bond may be amortised every year i.e., principal is repaid every year rather than at maturity. In such a situation, the principal will go down with annual payments and interest will be computed on the outstanding amount. The cash flows of the bonds will be uneven.

Question 7

Gamma Limited has 5,00,000, ₹ 1 ordinary shares whose current ex-dividend market price is ₹ 1.50 per share. The company has just paid a dividend of 27 paise per share, and dividends are expected to continue at this level for some time. If the company has no debt capital, COMPUTE the weighted average cost of capital?

Answer 7

Market value of equity, E = 5,00,000 shares × ₹1.50 = ₹7,50,000Market value of debt, D = Nil

Cost of equity capital, $k_e = \frac{D_1}{P_0} = \frac{Rs.0.27}{Rs.1.50}$

Since there is no debt capital, WACC = k_e = 18 per cent.

Question 8

The following details are provided by the GPS Limited:

	(₹)
Equity Share Capital	**65,00,000**
12% Preference Share Capital	**12,00,000**
15% Redeemable Debentures	**20,00,000**
10% Convertible Debentures	**8,00,000**

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The cost of equity capital for the company is 16.30% and income tax rate for the company is 30%.

You are required to CALCULATE the Weighted Average Cost of Capital (WACC) of the company

Answer 8

Calculation of Weighted Average Cost of Capital (WACC)

Source	Amount (₹)	Weight	Cost of Capital after tax	WACC
Equity Capital	65,00,000	0.619	0.163	0.1009
12% Preference Capital	12,00,000	0.114	0.120	0.0137
15% RedeemableDebentures	20,00,000	0.190	0.105*	0.020
10% ConvertibleDebentures	8,00,000	0.076	0.070**	0.0053
Total	1,05,00,000	1.0000		0.1399

* Cost of 15% Redeemable Debentures (after tax) = 15 (1 – 0.30)

= 10.5% or 0.105

** Cost of 10% Convertible Debentures (after tax) = 10 (1 – 0.30) = 7% or 0.070 Weighted

Average Cost of Capital (WACC) = 0.1399 = 13.99%

(**Note:** In the above solution, the Cost of Debentures has been computed without considering the impact of special features i.e. redeemability and convertibility in absence of requisite information.)

Question 9

ABC Company's equity share is quoted in the market at ₹ 25 per share currently. The company pays a dividend of ₹ 2 per share and the investor's market expects a growth rate of 6% per year.

You are required to:

(i) CALCULATE the company's cost of equity capital.

(ii) If the company issues 10% debentures of face value of ₹ 100 each and realises ₹96 per debenture while the debentures are redeemable afteb12 years at a premium of 12%, CALCULATE cost of debenture usingYTM? Assume Tax Rate to be 50%.

Answer 9

i. Cost of Equity Capital (Ke):

$$k_e = \frac{\text{Expected dividend pershare(D1}}{\text{Market price per share(P0)}} + \text{Growth rate(g)}$$

$$\frac{\text{Rs.}2\times1.06}{\text{Rs.}25} + \mathbf{0.06} = 0.1448 \text{ or } 14.48\%$$

ii. Cost of Debenture : (k_d)

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Using Present Value method (YTM)

Identification of relevant cash flows

Year	Cash flows
0	Current market price (P0) = ₹96
1 to 12	Interest net of tax [I(1-t)] = 10% of ₹100 (1 – 0.5) = ₹5
12	Redemption value (RV) = ₹100 (1.12) = ₹112

Calculation of Net Present Values (NPV) at two discount rates

Year	Cash flows (₹)	Discount factor @ 5% (L)	Present Value (₹)	Discount factor @ 10% (H)	Present Value (₹)
0	(96)	1.000	(96.00)	1.000	(96.00)
1 to 12	5	8.863	44.32	6.814	34.07
12	112	0.557	62.38	0.319	35.73
NPV			+10.7		-26.2

Calculation of IRR

$$\text{IRR} = L + \frac{NPV_1}{NPV_L - NPV_H}(H - L)$$

$$5\% + \frac{10.7}{10.7 - (-26.2)}(10\% - 5\%) = 5\% + \frac{53.5}{36.9} = 6.45\%$$

Therefore, k_d = 6.45%

Question 10

Masco Limited wishes to raise additional finance of ₹ 10 lakhs for meetingits investment plans. It has ₹ 2,10,000 in the form of retained earnings available for investment purposes. Further details are as following:

(1)	**Debt / Equity mix**	**3:7**
(2)	**Cost of debt:**	
	Upto ₹1,80,000	**10% (before tax)**
	Beyond ₹1,80,000	**16% (before tax)**
(3)	**Earnings per share**	**₹4**
(4)	**Dividend pay out**	**50% of earnings**
(5)	**Expected growth rate of dividend**	**10%**
(6)	**Current market price per share**	**₹44**
(7)	**Tax rate**	**50%**

You are required to:

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(a) **DETERMINE the pattern for raising the additional finance.**

(b) **DETERMINE the post-tax average cost of additional debt.**

(c) **DETERMINE the cost of retained earnings and cost of equity.**

(d) **COMPUTE the overall weighted average after tax cost of additional finance.**

Answer 10

a) **Pattern for raising the additional finance:**

Equity 70% of ₹10,00,000 = ₹7,00,000

Debt 30% of ₹10,00,000 = ₹3,00,000

The capital structure after raising additional finance:

		(₹)
Shareholders' funds		
Equity Capital	(₹7,00,000 – ₹2,10,000)	4,90,000
Retained earnings		2,10,000
Debt (Interest at 10% p.a.)		1,80,000
(Interest at 16% p.a.)	(₹3,00,000 – ₹1,80,000)	1,20,000
Total Funds		10,00,000

(b) **Determination of post-tax average cost of additional debt:**

Kd = I (1 – t)

Where,

I = Interest Rate

t = Corporate tax-rate

On ₹1,80,000 = 10% (1 – 0.5) = 5% or 0.05

On ₹1,20,000 = 16% (1 – 0.5) = 8% or 0.08

Average Cost of Debt

$$\frac{\text{Rs. }1{,}80{,}000 \times 0.05) + (\text{Rs..}1{,}20{,}000 \times 0.08)}{\text{Rs. }3{,}00{,}000} \times 100 = 6.2\%$$

(c) **Determination of cost of retained earnings and cost of equity by applying Dividend growth model:**

$$k_e \text{ or } k_r = \frac{D_1}{P_0} + g = \frac{D_{1(1+g)}}{P_0} + g$$

Where,

D_0 = Dividend paid = 50% of EPS = 50%

g = Growth rate = 10%

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P0 = Current market price per share = ₹44

So k_e or $k_r = \frac{Rs.2(1+0.10)}{Rs.44} + 0.10$ =0.05 + 0.10 = 0.15 or 15%

(b) Computation of overall weighted average after tax cost of additionalfinance:

Particulars	Amount(₹)	Weights	Cost of funds	Weighted Cost (%)
Equity (including retained earnings)	7,00,000	0.70	15%	10.5
Debt	3,00,000	0.30	6.2%	1.86
WACC	10,00,000			**12.36**

Question 11

DETERMINE the cost of capital of Best Luck Limited using the book value (BV) and market value (MV) weights from the following information:

Sources	Book Value(₹)	Market Value(₹)
Equity shares	**1,20,00,000**	**2,00,00,000**
Retained earnings	**30,00,000**	-
Preference shares	**36,00,000**	**33,75,000**
Debentures	**9,00,000**	**10,40,000**

Additional information:

I. Equity: Equity shares are quoted at ₹ 130 per share and a new issue priced at ₹125 per share will be fully subscribed; flotation costs will be ₹5 per share.

II. Dividend: During the previous 5 years, dividends have steadily increased from ₹ 10.60 to ₹ 14.19 per share. Dividend at the end of the current year is expected to be ₹15 per share.

III. Preference shares: 15% Preference shares with face value of ₹ 100 would realise ₹105 per share.

IV. Debentures: The company proposes to issue 11-year 15% debenturesbut the yield on debentures of similar maturity and risk class is 16%; flotation cost is 2%.

V. Tax: Corporate tax rate is 35%. Ignore dividend tax. Floatation cost would be calculated on face value.

Answer 11

(i) Cost of Equity (Ke)

$= \frac{D_1}{P_0 - F} + g = \frac{Rs.15}{Rs.125 - Rs.5} + 0.06*$

Ke = 0.125 + 0.06 = 0.185

*Calculation of g:

₹10.6$(1+g)^5$ = ₹14.19

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Or, $(1+g)^5 = \frac{14.19}{10.6} = 1.338$

Table (FVIF) suggests that ₹1 compounds to ₹1.338 in 5 years at thecompound rate of 6 percent. Therefore, g is 6 per cent.

Cost of Retained Earnings (Kr)= $k_r = \frac{D_1}{P_0} + g = \frac{Rs.15}{Rs.125} 0.06 = 0.18$

Cost of Preference Shares (Kp)= $k_r = \frac{PD}{P_0} + g = \frac{Rs.15}{Rs.105} = 0.1429$

Cost of Debentures (Kd)=

$= \frac{I(1-t)\left[\frac{RV-NP}{n}\right]}{\left[\frac{RV-NP}{2}\right]}$

$= \frac{15(1-0.35)\left[\frac{Rs.100-Rs91.75*}{11year}\right]}{\left[\frac{Rs.100-Rs.91.75*}{2}\right]}$

$= \frac{Rs15 \times 0.65 + Rs0.75}{Rs.95.875} = \frac{Rs.10.5}{Rs.95.875} = 0.1095$

*Since yield on similar type of debentures is 16 per cent, the companywould be required to offer debentures at discount.

Market price of debentures (approximation method)

= ₹15 ÷ 0.16 = ₹93.75

Sale proceeds from debentures = ₹93.75 – ₹2 (i.e., floatation cost) = ₹91.75

Market value (P_0) of debentures can also be found out using the presentvalue method:

P_0 = Annual Interest × PVIFA (16%, 11 years) + Redemption value × PVIF(16%, 11 years)

P_0 = ` 15 × 5.029 + ` 100 × 0.195P_0 = `

75.435 + ` 19.5 = ` 94.935

Net Proceeds = ` 94.935 – 2% of ` 100 = ` 92.935Accordingly, the cost

of debt can be calculated

Total Cost of capital [BV weights and MV weights]

(Amount in (₹) lakh)

Source of capital	**Weights**		**Specific Cost (K)**	**Total cost**	
	BV	**MV**		**(BV × K)**	**(MV × K)**
Equity Shares	120	160*	0.1850	22.2	29.6
Retained Earnings	30	40*	0.1800	5.4	7.2

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Preference Shares	36	33.75	0.1429	5.14	4.82
Debentures	9	10.4	0.1095	0.986	1.139
Total	195	244.15		33.73	42.76

*Market Value of equity has been apportioned in the ratio of Book Value ofequity and retained earnings i.e., 120:30 or 4:1.

Weighted Average Cost of Capital (WACC):

Using Book Value= $\frac{Rs.33.73}{Rs.195}$ = 0.1729 or 17.29%

Using Market Value = $\frac{Rs.42.76}{Rs244.15}$ = 0.1751 or 17.51%

Question 12

Kalyanam Ltd. has an operating profit of Rs.34,50,000 and has employed Debt which gives total Interest Charge of Rs.7,50,000. The firm has an existing Cost of Equity and Cost of Debt as 16% and 8% respectively. The firm has a new proposal before it, which requires funds of Rs.75 Lakhs and is expected to bring an additional profit of Rs. 14,25,000. To finance the proposal, the firm is expecting to issue an additional debt at 8% and will not be issuing any new equity shares in the market. Assume no tax culture. You are required to CALCULATE the Weighted Average Cost of Capital (WACC)of Kalyanam Ltd.:

(i) Before the new Proposal

(ii) After the new Proposal.

Answer 12

Workings:

a) Value of Debt

$= \frac{\text{interest}}{\text{Cost Debt}(k_e)}$

$= \frac{₹\,7,50,000}{0.08}$ =Rs. 93,75,000

b) Value of equity capital

$= \frac{\text{Operating profit} - \text{Interest}}{\text{Cost of equity } k_e}$ $\frac{₹\,34,50,000 - ₹\,7,50,000}{0.16}$ =**Rs.** 1,68,75,000

c) New Cost of equity (k_e) after proposal=

$$\frac{\text{Increased Operating profit} - \text{Interest on Increased debt}}{\text{Equity capital}}$$

$= \frac{= (₹\,34,50,000 + ₹\,14,25,000) - (₹\,7,50,000 - ₹\,6,00,000)}{Rs.1,68,75,000}$

(i) Calculation of Weighted Average Cost of Capital (WACC) before the new proposal

Sources	Amount (Rs)	Weight	Cost of Capital	WACC
Equity	1,68,75,000	0.6429	0.160	0.1029

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Debt	93,75,000	0.3571	0.080	0.0286
Total	**2,62,50,000**	**1**		**0.1315 or 13.15 %**

(ii) Calculation of Weighted Average Cost of Capital (WACC) after thenew proposal

Sources	Amount (Rs)	Weight	Cost of Capital	WACC
Equity	1,68,75,000	0.5000	0.209	0.1045
Debt	1,68,75,000	0.5000	0.080	0.0400
Total	**3,37,50,000**	**1**		**0.1445 or 14.45 %**

Question 13

A company issues:

- **15% convertible debentures of ₹ 100 each at par with a maturity period of 6 years. On maturity, each debenture will be converted into 2 equity shares of the company. The risk-free rate of return is 10%, market risk premium is 18% and beta of the company is 1.25. The company has paid dividend of ₹ 12.76 per share. Five years ago, it paid dividend of ₹ 10 per share. Flotation cost is 5% of issue amount.**
- **5% preference shares of ₹ 100 each at premium of 10%. These shares are redeemable after 10 years at par. Flotation cost is 6% of issue amount.**

Assuming corporate tax rate is 40%.

(i) CALCULATE the cost of convertible debentures using the approximation method.

(ii) Use YTM method to CALCULATE cost of preference shares.

Year	1	2	3	4	5	6	7	8	9	10
PVIF 0.03, t	0.971	0.943	0.915	0.888	0.863	0.837	0.813	0.789	0.766	0.744
PVIF 0.05, t	0.952	0.907	0.864	0.823	0.784	0.746	0.711	0.677	0.645	0.614
PVIFA 0.03, t	0.971	1.913	2.829	3.717	4.580	5.417	6.230	7.020	7.786	8.530
PVIFA 0.05, t	0.952	1.859	2.723	3.546	4.329	5.076	5.786	6.463	7.108	7.722

Interest rate	1%	2%	3%	4%	5%	6%	7%	8%	9%
FVIF i, 5	1.051	1.104	1.159	1.217	1.276	1.338	1.403	1.469	1.539
FVIF i, 6	1.062	1.126	1.194	1.265	1.340	1.419	1.501	1.587	1.677
FVIF i, 7	1.072	1.149	1.230	1.316	1.407	1.504	1.606	1.714	1.828

Answer 13

(i) Calculation of Cost of Convertible Debentures:

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Given that, RF = 10%

Rm – Rf = 18%

B = 1.25

D0 = 12.76 D5 = ₹ 10

Flotation Cost = 5%

Using CAPM,

Ke = Rf + β (Rm – Rf)

= 10%+1.25 (18%)

= 32.50%

Calculation of growth rate in dividend

12.76 = 10 (1+g)^5

1.276 = (1+g)^5

(1+5%)^5 = 1.276............... from FV Table

g = 5%

Price of Share after 6 Years = $\frac{D_7}{k_e - g}$ = $\frac{12.76(1.05)^7)}{0.325-0.05}$

$P_6 = \frac{12.76 \ X \ 1.407}{0.275}$ P_6 = 65.28

Redemption Value of Debenture (RV) = 65.28X 2 = 130.56(RV)

NP = 95

N=6

$k_d = \frac{INT(1-t)+\frac{RV-NP}{n}}{\frac{RV-NP}{n}}$ X 100

= $\frac{15(1-0.4)+\frac{130.56-95}{6}}{\frac{130.56-95}{2}}$ X 100 = $\frac{9+5.93}{112.78}$ X 100 k_d =13.24%

(ii) Calculation of Cost of preference Shares:

Net Proceeds = 100(1.1)- 6% of 100(1.1)

= 110-6.60

=103.40

Redemption Value = 100

Year	Cash Flows (₹)	PVF @ 3%	PV (₹)	PVF @ 5%	PV (₹)

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0	103.40	1	103.40	1	103.40
1-10	-5	8.530	-42.65	7.722	-38.61
10	-100	0.744	-74.40	0.614	-61.40
			-13.65		3.39

k_p = 3% + $\frac{5\%-3\%}{[3.39-(-13.65)]}$

$= 3\% + \frac{2\%}{17.04}$ X 13.65

k_p = 4.6021%

Question 14: Illustration

Five years ago, Sona Limited issued 12 per cent irredeemable debentures at ₹ 103,at ₹ 3 premium to their par value of ₹ 100. The current market price of these debentures is ₹ 94. If the company pays corporate tax at a rate of 35 per centCALCULATE its current cost of debenture capital?

Answer 14

Cost of irredeemable debenture:

$k_d = \frac{1}{NP}(1-t)$

$k^d = \frac{Rs.12}{Rs94}(1-0.35) =$ = 0.08297 or 8.30%

Question 15: Illustration

A company issued 10,000, 10% debentures of ₹ 100 each at a premium of 10% on 1.4.2017 to be matured on 1.4.2022. The debentures will be redeemed on maturity. COMPUTE the cost of debentures assuming 35% as tax rate.

Answer 15

The cost of debenture k_d will be calculated as below:

Cost of debenture(k_d) $= \frac{I(1-t)\left[\frac{RV-NP}{n}\right]}{\left[\frac{RV-NP}{2}\right]}$

I	= Interest on debenture = 10% of ₹100	= ₹10
NP	= Net Proceeds = 110% of ₹100	= ₹110
RV	= Redemption value	= ₹100
n	= Period of debenture	= 5 years
t	= Tax rate	= 35% or 0.35

$k_d = \frac{Rs.10(1-0.35)\left[\frac{Rs.100-Rs.110}{5years}\right]}{\left[\frac{Rs.100-Rs.110}{2}\right]}$

$= \frac{Rs.10 \times 0.65 - Rs.2}{Rs.105} = \frac{Rs4.5}{Rs.105} =$ 0.0428or4.28%

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Question 16: Illustration

A company issued 10,000, 10% debentures of ₹ 100 each at par on 1.4.2012 to be matured on 1.4.2022. The company wants to know the cost of its existing debt on 1.4.2017 when the market price of the debentures is ₹ 80. COMPUTE the cost of existing debentures assuming 35% tax rate.

Answer 16

The cost debenture((k_d) will be calculated as below:

The Cost of debenture $((k_d) = \frac{I(1-t)\left[\frac{RV-NP}{n}\right]}{\left[\frac{RV-NP}{2}\right]}$

I	= Interest on debenture = 10% of ₹100		= ₹10
NP	= Current market price		= ₹80
RV	= Redemption value		= ₹100
n	= Period of debenture		= 5 years
t	= Tax rate		= 35% or 0.35

$$k_d = \frac{Rs.10(1-0.35)\left[\frac{Rs.100-Rs.80}{5years}\right]}{\left[\frac{Rs.100-Rs.80}{2}\right]}$$

$$= \frac{Rs.10\times0.65-Rs.4}{Rs.90} = \frac{Rs10.5}{Rs.90} = 0.1166 \text{ or } 11.67\ \%$$

Question 17: : Illustration

Institutional Development Bank (IDB) issued Zero interest deep discount bonds offace value of ₹ 1,00,000 each issued at ₹ 2,500 & repayable after 25 years. COMPUTE the cost of debt if there is no corporate tax.

Answer 17

Here,

Redemption Value (RV)= ₹ 1,00,000

Net Proceeds (NP) = ₹ 2,500

Interest = 0

Life of bond = 25 years

There is huge difference between RV and NP, therefore, in place of approximation method, we should use trial & error method.

FV = PV x $(1+r)^n$

1,00,000 = 2,500 x $(1+r)^{25}$

40 = $(1+r)^{25}$

Trial 1: r = 15%, $(1.15)^{25}$ = 32.919

Trial 2: r = 16%, $(1.16)^{25}$ = 40.874

Here:

L = 15%, H = 16%

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NPV_L = 32.919-40 = -7.081

NPV_H = 40.874-40 = +0.874

$=L+\frac{NPV_L}{NPV_L - NPV_H}(H-L)$

$= 15\% + \frac{-7.081}{-7.081-(0.874)}(16\% - 18\%)$=15.89%

Question 18: Illustration

RBML is proposing to sell a 5-year bond of ₹ 5,000 at 8 per cent rate of interest per annum. The bond amount will be amortised equally over its life. CALCULATE the bond's present value for an investor if he expects a minimum rate of return of 6 per cent?

Answer 18

The amount of interest will go on declining as the outstanding amount of bondwill be reducing due to amortisation. The amount of interest for five years will be:

First year: ₹5,000 × 0.08 = ₹400;

Second year: (₹5,000 – ₹1,000) × 0.08 = ₹320;

Third year: (₹4,000 – ₹1,000) × 0.08 = ₹240;

Fourth year: (₹3,000 – ₹1,000) ×0.08 = ₹160; and

Fifth year: (₹2,000 – ₹1,000) × 0.08 = ₹80

The outstanding amount of bond will be zero at the end of fifth year.

Since RBML will have to return ₹ 1,000 every year, the outflows every year will consist of interest payment and repayment of principal as follows:

First year: ₹ 1,000 + ₹ 400 = ₹ 1,400;

Second year: ₹1,000 + ₹320 = ₹1,320;

Third year: ₹1,000 + ₹240 = ₹1,240;

Fourth year:₹1,000 + ₹160 = ₹1,160; and

Fifth year:₹1,000 + ₹80 = ₹1,080

The above cash flows of all five years will be discounted with the cost of capital. Here, cost of capital will be the minimum expected rate of return i.e. 6%.

Value of the bond is calculated as follows:

$V_B = \frac{Rs.1{,}400}{(1.06)^1} + \frac{Rs.1{,}320}{(1.06)^2} + \frac{Rs.}{(1.06)^3} + \frac{Rs.1{,}240}{(1.06)^4} + \frac{Rs.1{,}160}{(1.06)^5} + \frac{Rs.1{,}080}{(1.06)^6}$

$= \frac{Rs.1{,}400}{1.06} + \frac{Rs1{,}320}{1.1236} + \frac{Rs1{,}240}{1.1910} + \frac{Rs.1{,}160}{1.2624} + \frac{Rs1{,}080}{1.3382}$

= ₹ 1,320.75 + ₹ 1,174.80 + ₹ 1,041.14 + ₹ 918.88 + ₹ 807.05 = ₹ 5,262.62

Question 19: Illustration

XYZ & Co. issues 2,000 10% preference shares of ₹ 100 each at ₹ 95 each. CALCULATE the cost of preference shares.

Answer 19

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$$k_p = \frac{PD}{P_0} = k_p \frac{(10\times 2{,}000)}{(95\times 2{,}000)} = \frac{10}{95} == 0.1053 \text{ or } 10.53\%$$

Question 20: Illustration

If R Energy is issuing preferred stock at ₹ 100 per share, with a stated dividend of₹ 12, and a floatation cost of 3% then, CALCULATE the cost of preference share?

Answer 20

Here, Net Proceeds (Po) will be issue price less floatation cost

Po = ₹ 100 – 3% of ₹ 100 = ₹ 97

$$=k_p = \frac{PD}{P_0}$$

$$=k_p = \frac{12}{97} = 0.1237 \text{ or } 0.1237\ \%$$

Question 21: Illustration

XYZ Ltd. issues 2,000 10% preference shares of ₹ 100 each at ₹ 95 each. The company proposes to redeem the preference shares at the end of 10th year from the date of issue. CALCULATE the cost of preference share?

Answer 21

$$=k_p = \frac{PD\left[\frac{RV-NP}{n}\right]}{\left[\frac{RV-NP}{2}\right]}$$

$$=k_p = \frac{10+\left[\frac{100-95}{10}\right]}{\left[\frac{100+95}{2}\right]} = 0.1077 \text{ or } 10.77\% \text{ (approx.)}$$

Question 22: Illustration

XYZ Ltd. issues 2,000 10% preference shares of ₹ 100 each at ₹ 95 each. The company proposes to redeem the preference shares at the end of 10th year from the date of issue. CALCULATE the cost of preference share?

Answer 22

$$k_p = \frac{PD}{P_0} = k_p \frac{(10\times 2{,}000)}{(95\times 2{,}000)} = \frac{10}{95} == 0.1053 \text{ or } 10.53\%$$

Question 23: Illustration

A company has paid dividend of ₹ 1 per share (of face value of ₹ 10 each) last year and it is expected to grow @ 10% every year. CALCULATE the cost of equity if the market price of share is ₹ 55.

Answer 23

$$k_e = \frac{D_1}{P_0} + g = \frac{Rs.1(1+0.1)}{Rs.55} + 0.1 = 0.12 or 12\%$$

Question 24: Illustration

Mr. Mehra had purchased a share of Alpha Limited for ₹ 1,000. He received dividend for a period of five years at the rate of 10 percent. At the end of the fifth year, he sold the share of Alpha Limited for ₹ 1,128. You are required to COMPUTE the cost of equity as per realised yield approach.

Answer 24

We know that as per the realised yield approach, cost of equity is equal to the realised rate of return. Therefore, it is important to compute the internal rate ofreturn by trial and error method. This realised

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rate of return is the discount rate which equates the present value of the dividends received in the past five yearsplus the present value of sale price of ₹1,128 to the purchase price of ₹1,000.The discount rate which equalizes these two is 12 percent approximately. Let uslook at the table given for a better understanding:

Year	Dividend(₹)	Sale Proceeds(₹)	Discount Factor @12%	Present Value (₹)
1	100	-	0.893	89.3
2	100	-	0.797	79.7
3	100	-	0.712	71.2
4	100	-	0.636	63.6
5	100	-	0.567	56.7
6	Beginning	1,128	0.567	639.576
				1,000.076

We find that the purchase price of Alpha Limited's share was ₹ 1,000 and thepresent value of the past five years of dividends plus the present value of the sale price at the discount rate of 12 per cent is ₹ 1,000.076. Therefore, the realised rateof return may be taken as 12 percent. This 12 percent is the cost of equity.

Question 25: Illustration

CALCULATE the cost of equity from the following data using realized yield approach:

Year	1	2	3	4	5
Dividend per share (₹)	1.00	1.00	1.20	1.25	1.15
Price per share (at the beginning) (₹)	9.00	9.75	11.50	11.00	10.60

Answer 25

In this question, we will first calculate the yield for last 4 years and then willcalculate it's geometric mean.

Yield for last 4 years:

$1+Y_1=\frac{D_1+P_1}{P_0}=\frac{1+9.75}{9}=1.1944$

$1+Y_2=\frac{D_2+P_2}{P_1}=\frac{1+11.50}{9.75}=1.2821$

$1+Y_3=\frac{D_3+P_3}{P_2}=\frac{1.2+11.50}{11.5}=1.0609$

$1+Y_4=\frac{D_4+P_4}{P_3}=\frac{1.25+10.60}{11}$

Geometric mean:

$$k_e=[(1+Y_1)\times(1+y_2)\times\ldots\ldots\ldots(1+y_n)])^{1/n}-1$$

k_e= [1.1944×1.2821×1.0609×1.0772]1/4-1 = 0.15 = 15%

Question 26: Illustration

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CALCULATE the cost of equity capital of H Ltd., whose risk-free rate of return equals 10%. The firm's beta equals 1.75 and the return on the market portfolio equals to 15%.

Answer 26

$k_e = R_f + \beta(R_m - R_f)$

Ke= 0.10 + 1.75 (0.15 − 0.10)

= 0.10 + 1.75 (0.05) = 0.1875 or 18.75%

Question 27: Illustration

Face value of equity shares of a company is ₹ 10, while current market price is₹ 200 per share. Company is going to start a new project, and is planning to finance it partially by new issue and partially by retained earnings. You are required to CALCULATE cost of equity shares as well as cost of retained earnings if issue price will be ₹ 190 per share and floatation cost will be ₹ 5 per share. Dividend at the end of first year is expected to be ₹ 10 and growth rate will be 5%.

Answer 27

$k_r = \frac{D_1}{P_0} + g = \frac{10}{200} + 0.05 = 10\%$

$k_r = \frac{D_1}{P_0} + g = \frac{10}{190-5} + 0.05 = 10.41\%$

personal income tax is also considered then a shortcut formula may be as follows:

$k_r = k_e\ (1 - t_p)(1 - f)$

Here t_p is rate of personal income tax on dividend and "f" is rate of flotationcost.
Here, personal income tax means income tax payable on dividend income by equity shareholders.

Question 28: Illustration

ABC Company provides the following details:

D0=₹ 4.19 P0 = ₹ 50 g = 5%

CALCULATE the cost of retained earnings.

Answer 28

$= k_r = \frac{D_1}{P_0} + g = \frac{D_{0(1+g)}}{P_0} + g$

$= \frac{₹4.19(1+0.05)}{Rs.15} + 0.05$

= 0.088 + 0.05 = 13.8%

Question 29: Illustration

ABC Company provides the following details:

Rf = 7% ß = 1.20 Rm - Rf = 6%

CALCULATE the cost of retained earnings based on CAPM method

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Answer 29

k_r=$R_f + \beta(R_m - R_f)$

7% + 1.20 (6%) = 7% + 7.20
k_r14.2%

Question 30: Illustration

Cost of equity of a company is 10.41% while cost of retained earnings is 10%. There are 50,000 equity shares of ₹ 10 each and retained earnings of ₹ 15,00,000. Market price per equity share is ₹ 50. Calculate WACC using market value weights if there are no other sources of finance.

Answer 30

Book value of paid up equity capital = ₹5,00,000 Book value of retained earnings = ₹15,00,000

Ratio of Paid up equity capital & retained earnings = 5,00,000:15,00,000 = 1:3Market

value of paid up equity capital & retained earnings = ₹50,000 x ₹50

= ₹25,00,000

Market value of paid up equity capital = ₹25,00,000 x ¼ = ₹6,25,000

Market value of retained earnings = ₹ 25,00,000 x

¾ = ₹ 18,75,000**Calculation of WACC using market value weights**

Source of capital	Market Value	Weights	Cost of capital	WACC (Ko)
	(₹)	(a)	(b)	(c) = (a)×(b)
Equity shares	6,25,000	0.25	0.1041	0.0260
Retained earnings	18,75,000	0.75	0.1000	0.0750
	25,00,000	1.000		0.1010

WACC (Ko) = 0.1010 or 10.10%

Question 31: Illustration

CALCULATE the WACC using the following data by using:

(a) Book value weights

(b) Market value weights

The capital structure of the company is as under:

	(₹)
Debentures (₹ 100 per debenture)	**5,00,000**
Preference shares (₹ 100 per share)	**5,00,000**
Equity shares (₹ 10 per share)	**10,00,000**

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	20,00,000

The market prices of these securities are: Debentures ₹ 105 per debenture Preference shares ₹ 110 per preference shareEquity shares ₹ 24 per equity share

Additional information:

(1) ₹ 100 per debenture redeemable at par, 10% coupon rate, 4% floatation costs,10-year maturity.

(2) ₹ 100 per preference share redeemable at par, 5% coupon rate, 2% floatationcost and 10-year maturity.

(3) Equity shares has ₹ 4 floatation cost and market price of ₹ 24 per share.

The next year expected dividend is ₹ 1 with annual growth of 5%. The firm haspractice of paying all earnings in the form of dividend.

Corporate tax rate is 30%. Use YTM method to calculate cost of debentures andpreference shares.

Answer 31

(i) Cost of Debt (Ke)

$= \frac{D_1}{P_0 - F} + g =$

$= \frac{Rs.1}{Rs.15 - Rs4} + 0.05 = 0.1$ or 10%

(ii) Cost of Debt (Kd)

Current market price (P0) – floatation cost = I(1-t) × PVAF(r,10) + RV×PVIF(r,10)

₹105 – 4% of ₹105 = ₹10(1-0.3) × PVAF (r,10) + ₹100×PVIF (r,10)

Calculation of NPV at discount rate of 5% and 7%

Year	Cash flows (₹)	Discount factor @ 5%	Present Value (₹)	Discount factor @ 7%	Present Value (₹)
0	100.8	1.000	(100.8)	1.000	(100.8)
1 to 10	7	7.722	54.05	7.024	49.17
10	100	0.614	61.40	0.508	50.80
NPV			+14.65		-0.83

Calculation of IRR

IRR=5%$\frac{14.65}{14.65-(-0.83)}(7\% - 5\%) = 5\% + \frac{14.65}{15.48}(7\% - 5\%) = 6.89\%$

Cost of Debt (Kd) = 6.89%

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(iii) Cost of Preference shares (Kp)

Current market price (P0) – floatation cost = PD × PVAF (r,10) + RV × PVIF (r,10)

₹110 – 2% of ₹110 = ₹5 × PVAF (r,10) + ₹100 × PVIF (r,10)

Calculation of NPV at discount rate of 3% and 5%

Year	Cash flows (₹)	Discount factor @ 3%	Present Value (₹)	Discount factor @ 5%	Present Value (₹)
0	107.8	1.000	(107.8)	1.000	(107.8)
1 to 10	5	8.530	42.65	7.722	38.61
10	100	0.744	74.40	0.614	61.40
NPV			+9.25		-7.79

Calculation of IRR

IRR=3%$\frac{9.25}{9.25-(-7.79)}(5\% - 3\%) = 3\% + \frac{9.25}{17.04}(5\% - 3\%) = 4.08\%$

Cost of Debt (Kd) = 4.08%

(a) Calculation of WACC using book value weights

Source of capital	Book Value (₹)	Weights (a)	After tax costof capital (b)	WACC (K_o) (c) = (a)×(b)
10% Debentures	5,00,000	0.25	0.0689	0.01723
5% Preference shares	5,00,000	0.25	0.0408	0.0102
Equity shares	10,00,000	0.50	0.10	0.05000
	20,00,000	1.00		0.07743

WACC (K_o) = 0.07743 or 7.74%

(b) Calculation of WACC using market value weights

Source of capital	Market Value (₹)	Weights (a)	After tax costof capital (b)	WACC (K_o) (c) = (a)×(b)
10% Debentures (₹105× 5,000)	5,25,000	0.151	0.0689	0.0104
5% Preference shares (₹110× 5,000)	5,50,000	0.158	0.0408	0.0064
Equity shares (₹24× 1,00,000)	24,00,000	0.691	0.10	0.0691
	34,75,000	1.000		0.0859

WACC (K_o) = 0.0859 or 8.59%

Question 32: illustration

ABC Ltd. has the following capital structure, which is considered to be optimum ason 31st March, 2022.

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	(₹)
14% Debentures	30,000
11% Preference shares	10,000
Equity Shares (10,000 shares)	1,60,000
	2,00,000

The company share has a market price of ₹ 23.60. Next year dividend per share is50% of year 2021 EPS. Following is the uniform trend of EPS for the preceding 10years which is expected to continue in future:

Year	EPS (₹)	Year	EPS (₹)
2012	1.00	2017	1.61
2013	1.10	2018	1.77
2014	1.21	2019	1.95
2015	1.33	2020	2.15
2016	1.46	2021	2.36

The company issued new debentures carrying 16% rate of interest and the current market price of debenture is ₹ 96.
Preference shares of ₹ 9.20 (with annual dividend of ₹ 1.1 per share) were also issued. The company is in 50% tax bracket.

(A) CALCULATE after tax:
- **(i) Cost of new debt**
- **(ii) Cost of new preference shares**
- **(iii) Cost of new equity share (assuming new equity from retained earnings)**

(B) CALCULATE marginal cost of capital when no new shares are issued.
DETERMINE the amount that can be spent for capital investment before new ordinary shares must be sold. Assuming that the retained earnings for next year's investment is 50 percent of 2021.
COMPUTE marginal cost of capital when the fund exceeds the amount calculated in (C), assuming new equity is issued at Rs. 200 per share?

Answer 32

A.

(i) Cost of new debt

$$k_d = \frac{I(1-t)}{p_0} = \frac{16(1-0.5)}{96} = 0.0833$$

(ii) Cost of new preference shares

(iii) $k_d = \frac{PD}{P_0} = \frac{1.1}{9.2} = 0.12$

(iv) Cost of new equity shares

$$k_e = \frac{D_1}{P_0} + g = \frac{1.18}{23.60} + +0.10 = 0.05 + 0.10 = 0.15$$

Calculation of g when there is a uniform trend (on the basis of EPS)

$$\frac{\text{EPS (2013)} - \text{EPS (2012}}{\text{EPS (2012)}} = \frac{₹\,1.10 - ₹\,1.00}{Rs.\,1.00}$$

D1 = 50% of 2021 EPS = 50% of 2.36 = ₹1.18

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B. Calculation of marginal cost of capital

Type of Capital	Proportion	Specific Cost	Product
(1)	(2)	(3)	(2) × (3) = (4)
Debenture	0.15	0.0833	0.0125
Preference Share	0.05	0.1200	0.0060
Equity Share	0.80	0.1500	0.1200
Marginal cost of capital			**0.1385**

C. The company can spend the following amount without increasing marginalcost of capital and without selling the new shares:

Retained earnings = 50% of EPS of 2021 × outstanding equity shares

= 0.50 × ₹2.36 × 10,000 shares = ₹11,800

The ordinary equity (Retained earnings in this case) is 80% of total capitalSo, ₹

11,800 = 80% of Total Capital

∴Capital investment before issuing equity shares = $\frac{Rs.11{,}800}{0.80}$ = ₹14,750

D. If the company spends in excess of ₹14,750, it will have to issue new equityshares at ₹20 per share.

∴The cost of new issue of equity shares will be

$$\frac{D_1}{P_0} + g = \frac{1.08}{20} + 0.10 = 9.59$$

The marginal cost of capital will be:

Type of Capital	Proportion	Specific Cost	Product
(1)	(2)	(3)	(2) × (3) = (4)
Debentures	0.15	0.0833	0.0125
Preference Shares	0.05	0.1200	0.0060
Equity Shares (New)	0.80	0.1590	0.1272
			0.1457

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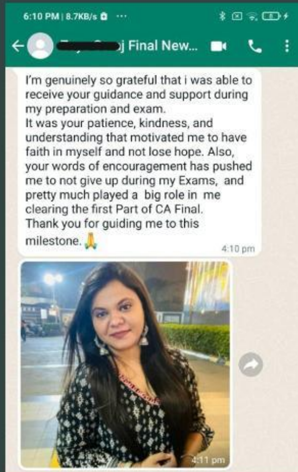

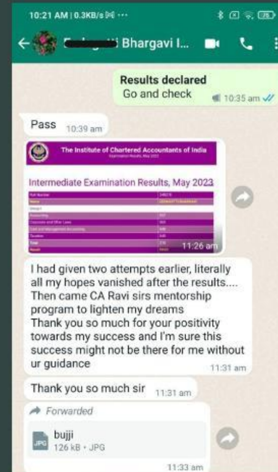

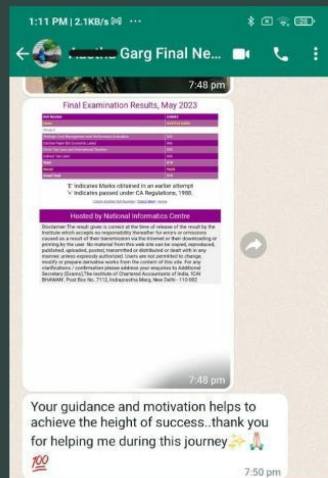

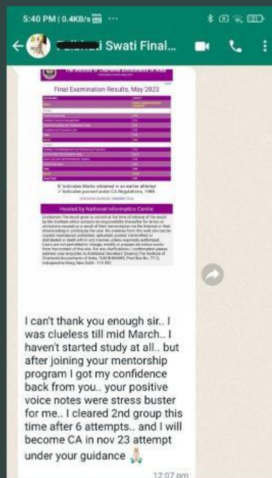

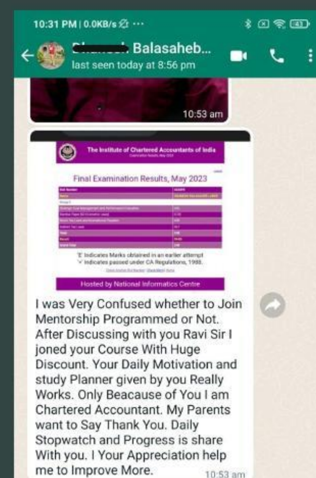

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Chapter 5
Financing Decisions Capital Structure

Attempt wise Distribution

Q & A													
Attempts	May'18	Nov'18	May'19	Nov'19	May'20	Nov'20	Jan'21	Jul'21	Dec'21	May'22	Nov'22	May'23	Nov'23
MTP		Q11, Q16, Q26	Q9, Q36	Q31		Q3, Q19, Q27		Q1, Q17		Q25	Q4, Q18, Q37	Q12, Q14, Q30, Q42	Q5
PYP		Q39	Q35			Q40	Q38	Q21	Q8	Q10, Q28	Q2, Q41, Q15	Q6, Q23	
RTP	Q22					Q32, Q33		Q13	Q29	Q20	Q7, Q24	Q34	

Section A

Question 1

Keep Ltd. and Lee Ltd. are identical in every respect except for capital structure. Keep Ltd. does not employ debt in its capital structure, whereas Lee Ltd. employs 12% debentures amounting to Rs. 20 lakhs. Assuming that:

(i) **All assumptions of MM model are met;**
(ii) **The income tax rate is 30%;**
(iii) **EBIT is Rs. 5,00,000 and**
(iv) **The equity capitalization rate of Keep Ltd. is 25%. CALCULATE the average value of both the Companies. (MTP 5 Marks, April'21)**

Answer 1

Keep Ltd. (pure Equity) i.e. unlevered company: EAT = EBT (1 – t)

= EBIT (1 - 0.3) = Rs. 5,00,000 × 0.7 = Rs. 3,50,000

(Here, EBIT = EBT as there is no debt)

Value of unlevered company Keep Ltd. $\frac{EAT}{Equity\ Capitalion\ rate}$

$\frac{Rs. 3,50,000}{25\%}$

Lee Ltd. (Equity and Debt) i.e. levered company:

Value of levered company = Value of Equity + Value of Debt

= Rs. 14,00,000 + (Rs. 20,00,000 × 0.3)

= Rs. 20,00,000

<u>Question</u> 2

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What are the important factors considered for deciding the source and quantum of capital? (PYP 2 Marks Nov '22)

Answer 2

The source and quantum of capital is decided keeping in mind the following factors:

(i) Control: Capital structure should be designed in such a manner that existing shareholders continue to hold majority stake

(ii) Risk: Capital structure should be designed in such a manner that financial risk of a company does not increase beyond tolerable limit.

(iii) Cost: Overall cost of capital remains minimum.

Question 3

EXPLAIN in brief the Pecking order theory. [MTP 4 Marks, May'20]

OR

'Pecking order theory' suggests manager to use various sources for raising of fund in certain order. BRIEF out that order. [MTP 2Marks, Nov'21]

Answer 3

This theory states that firms prefer to issue debt when they are positive about future earnings. Equity is issued when they are doubtful and internal finance is insufficient.

The pecking order theory argues that the capital structure decision is affected by manager's choice of a source of capital that gives higher priority to sources that reveal the least amount of information.

Pecking order theory suggests that managers may use various sources for raising of fund in the following order.

1. Managers first choice is to use internal finance
2. In absence of internal finance, they can use secured debt, unsecured debt, hybrid debt etc.
3. Managers may issue new equity shares as a last option. So briefly under this theory rules are

Rule 1: Use internal financing first.

Rule 2: Issue debt next

Rule 3: Issue of new equity shares at last

Question 4

Leo Ltd. has a net operating income of ₹ 21,60,000 and the total capitalisation of ₹ 120 lakhs. The company is evaluating the options to introduce debt financing in the capital structure and the following information is available at various levels of debt value.

Debt value (₹)	Interest rate (%)	Equity Capitalisation rate (%)
0	N.A.	12.00
10,00,000	7.00	12.50
20,00,000	7.00	13.00
30,00,000	7.50	13.50
40,00,000	7.50	14.00

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50,00,000	**8.00**	**15.00**
60,00,000	**8.50**	**16.00**
70,00,000	**9.00**	**17.00**
80,00,000	**10.00**	**20.00**

You are required to COMPUTE the equity capitalization rate if MM approach is followed. Assume that the firm operates in zero tax regime and calculations to be based on book values. [MTP 8 Marks Sep'22]

Answer 4

As per MM approach, cost of the capital (Ko) remains constant, and cost of equity increases linearly with debt.

Value of a Firm = $\frac{NOI}{k_e}$

$\therefore$ 1,20,00,000 = $\frac{21,60,000}{K_0}$

$\therefore K_0 = \frac{21,60,000}{1,20,000}$ = 18%

Under MM approach = $K_e = k_0 + \frac{D}{E}(K_0 - K_e)$

Statement of equity capitalization under MM approach

Debt Value (₹)	Equity Value (₹)	Debt/ Equity	Kd (%)	Ko (%)	Ko-kd (%)	Ke = Ko+(Ko-Kd) (D/E) (%)
-	1,20,00,000	0.0000	NA	18.00	18.00	18.00
10,00,000	1,10,00,000	0.0909	7.00	18.00	11.00	19.00
20,00,000	1,00,00,000	0.2000	7.00	18.00	11.00	20.20
30,00,000	90,00,000	0.3333	7.50	18.00	10.50	21.50
40,00,000	80,00,000	0.5000	7.50	18.00	10.50	23.25
50,00,000	70,00,000	0.7143	8.00	18.00	10.00	25.14
60,00,000	60,00,000	1.0000	8.50	18.00	9.50	27.50
70,00,000	50,00,000	1.4000	9.00	18.00	9.00	30.60
80,00,000	40,00,000	2.0000	10.00	18.00	8.00	34.00

Question 5

Bhaskar Manufactures Ltd. have Equity Share Capital of ₹ 5,00,000 (face value ₹100) to meet the expenditure of an expansion programme, the company wishes to raise ₹ 3,00,000 and is having following four alternative sources to raise the funds:

Plan A: To have full money from equity shares.

Plan B: To have ₹ 1 lakhs from equity and ₹ 2 lakhs from borrowing from the financial institution @ 10% p.a.

Plan C: Full money from borrowing @ 10% p.a.

Plan D: ₹1 lakh in equity and ₹ 2 lakhs from preference shares at 8% p.a.

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The company is expected to have an earning of ₹ 1,50,000. The corporate tax is 50%. Suggest a suitable plan of the above four plans to raise the required funds. (MTP 5 Marks Sep '23)

Answer 5

Statement showing the EPS under the four plans

	Plan A	Plan B	Plan C	Plan D
Equity share capital	₹ 8,00,000	₹ 6,00,000	₹ 5,00,000	₹ 6,00,000
8% Pref. Share capital	-	-	-	₹ 2,00,000
Borrowing @ 10%	-	₹ 2,00,000	₹ 3,00,000	-
	₹ 8,00,000	₹ 8,00,000	₹ 8,00,000	₹ 8,00,000
E.B.I.T	₹ 1,50,000	₹ 1,50,000	₹ 1,50,000	₹ 1,50,000
Less: Interest @ 10%		₹ 20,000	₹ 30,000	
E.B.T	₹ 1,50,000	₹ 1,30,000	₹1,20,000	₹ 1,50,000
Less: Tax	₹ 75,000	₹65,000	₹60,000	₹ 75,000
Less: Pref Divided				₹ 16,000
Earnings available to equity share holders	₹ 75,000	₹ 65,000	₹ 60,000	₹ 59,000
No.of equity shares (₹100)	8,000	6,000	5,000	6,000
Earning per share	₹ 9.38	₹ 10.83	₹ 12.00	₹ 9.83

Plan C given the highest EPS and therefore to be accepted.

Question 6

Briefly explain concept of "Trading on Equity" in financial leverage analysis. (PYP 2 Marks May '23)

Answer 6

Financial Leverage as 'Trading on Equity':

Financial leverage indicates the use of funds with fixed cost like long term debts and preference share capital along with equity share capital which is known as trading on equity. The basic aim of financial leverage is to increase the earnings available to equity shareholders using fixed cost fund. A firm is known to have a positive/favourable leverage when its earnings are more than the cost of debt. If earnings are equal to or less than cost of debt, it will be a negative/unfavourable leverage. When the quantity of fixed cost fund is relatively high in comparison to equity capital it is said that the firm is 'trading on equity".

Question 7

Akash Limited provides you the following information:

(₹)	
Profit (EBIT)	**2,80,000**
Less: Interest on Debenture @ 10%	**(40,000)**
EBT	**2,40,000**
Less Income Tax @ 50%	**(1,20,000)**

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	1,20,000
No. of Equity Shares (₹ 10 each)	**30,000**
Earnings per share (EPS)	**4**
Price /EPS (PE) Ratio	**10**

The company has reserves and surplus of ₹ 7,00,000 and required ₹ 4,00,000 further for modernization. Return on Capital Employed (ROCE) is constant. Debt (Debt/ Debt + Equity) Ratio higher than 40% will bring the P/E Ratio down to 8 and increase the interest rate on additional debts to 12%. You are required to ASCERTAIN the probable price of the share.

(i) **If the additional capital are raised as debt; and**

(ii) **If the amount is raised by issuing equity shares at ruling market price. (RTP May '19 & Nov '23)**

Answer 7

Ascertainment of probable price of shares of Akash limited

Particulars	**Plan-I**	**Plan-II**
	If ₹ 4,00,000 is raised as debt (₹)	**If ₹ 4,00,000 is raised by issuing equity shares (₹)**
Earnings Before Interest and Tax (EBIT) {20% of new capital i.e. 20% of (₹ 14,00,000 + ₹4,00,000)} (Refer working note1)	3,60,000	3,60,000
Less: Interest on old debentures (10% of ₹4,00,000)	(40,000)	(40,000)
Less: Interest on new debt (12% of ₹4,00,000)	(48,000)	--
Earnings Before Tax (EBT)	2,72,000	3,20,000
Less: Tax @ 50%	(1,36,000)	(1,60,000)
Earnings for equity shareholders (EAT)	1,36,000	1,60,000
No. of Equity Shares (refer working note 2)	30,000	40,000
Earnings per Share (EPS)	₹ 4.53	₹ 4.00
Price/ Earnings (P/E) Ratio (refer working note 3)	8	10
Probable Price Per Share (PE Ratio × EPS)	₹ 36.24	₹ 40

Working Notes:

1. **Calculation of existing Return of Capital Employed (ROCE):**

	(₹)
Equity Share capital (30,000 shares × ₹10)	3,00,000

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10% Debentures (Rs. 40,000 × 100/10)	4,00,000
Reserves and Surplus	7,00,000
Total Capital Employed	14,00,000
Earnings before interest and tax (EBIT) (given)	2,80,000
ROCE = $\frac{Rs.2,80,000}{Rs.14,00,000}$	20%

2. **Number of Equity Shares to be issued in Plan-II:**

$= \frac{Rs.4,00,000}{Rs.40} = 10,000$ Shares

Thus, after the issue total number of shares = 30,000+ 10,000 = 40,000 shares

3. **Debt/Equity Ratio if ₹ 4,00,000 is raised as debt:**

$= \frac{Rs.8,00,000}{Rs.18,00,000} \times 100 = 44.44\%$

As the debt equity ratio is more than 40% the P/E ratio will be brought down to 8 in Plan-I

Question 8

Earnings before interest and tax of a company are ₹ 4,50,000. Currently the company has 80,000 Equity shares of ₹ 10 each, retained earnings of ₹ 12,00,000. It pays annual interest of ₹ 1,20,000 on 12% Debentures. The company proposes to take up an expansion scheme for which it needs additional fund of ₹ 6,00,000. It is anticipated that after expansion, the company will be able to achieve the same return on investment as at present.

It can raise fund either through debts at rate of 12% p.a. or by issuing Equity shares at par. Tax rate is 40%.

Required:

Compute the earning per share if:

(i) **The additional funds were raised through debts.**

(ii) **The additional funds were raised by issue of Equity shares.**

Advise whether the company should go for expansion plan and which sources of finance should be preferred. (PYP 10 Marks Dec '21)

Answer 8

Working Notes:

(1) **Capital employed before expansion plan:**

	(₹)
Equity shares (₹ 10 × 80,000 shares)	8,00,000

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Debentures {(₹ 1,20,000/12) X 100}	10,00,000
Retained earnings	12,00,000
Total capital employed	30,00,000

(2) **Earnings before interest and tax (EBIT) = 4,50,000**

(3) **Return on Capital Employed (ROCE):**

ROCE = $\frac{EBIT}{Capital\ employed}$ X 100 = $\frac{Rs.4,50,000}{Rs.30,00,000}$ X100 = 15%

(4) **Earnings before interest and tax (EBIT) after expansion scheme:**

After expansion, capital employed = ₹ 30,00,000 + ₹ 6,00,000 = ₹ 36,00,000

Desired EBIT = 15% X₹ 36,00,000 = ₹ 5,40,000

(i) & (ii) Computation of Earnings Per Share (EPS) under the following options:

	Present situation	**Expansion scheme Additional funds raised as**	
		Debt (i)	**Equity (ii)**
	(₹)	**(₹)**	**(₹)**
Earnings before Interest and Tax (EBIT)	4,50,000	5,40,000	5,40,000
Less: Interest - Old Debt	1,20,000	1,20,000	1,20,000
- New Debt	--	72,000 (₹ 6,00,000 X 12%)	--
Earnings before Tax (EBT)	3,30,000	3,48,000	4,20,000
Less: Tax (40% of EBT)	1,32,000	1,39,200	1,68,000
PAT/EAT	1,98,000	2,08,800	2,52,000
No. of shares outstanding	80,000	80,000	1,40,000
Earnings per Share (EPS)	2.475 $\left(\frac{Rs.1,98,000}{80,000}\right)$	2.610 $\left(\frac{Rs.2,08,800}{80,000}\right)$	1.800 $\left(\frac{Rs.2,52,000}{80,000}\right)$

Advise to the Company: When the expansion scheme is financed by additional debt, the EPS is higher. Hence, the company should finance the expansion scheme by raising debt.

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Question 9

EXPLAIN the principles of "Trading on equity". (MTP 4 Marks, April'19, MTP 2 Marks April 21)

Answer 9

The term trading on equity means debts are contracted and loans are raised mainly on the basis of equity capital. Those who provide debt have a limited share in the firm's earning and hence want to be protected in terms of earnings and values represented by equity capital. Since fixed charges do not vary with firm's earnings before interest and tax, a magnified effect is produced on earning per share. Whether the leverage is favorable, in the sense, increase in earnings per share more proportionately to the increased earnings before interest and tax, depends on the profitability of investment proposal. If the rate of returns on investment exceeds their explicit cost, financial leverage is said to be positive.

Question 10

Sun Ltd. is considering two financing plans. Details of which are as under:

(iv) **Fund's requirement – Rs.100 Lakhs**

(v) **Financial Plan**

Plan	Equity	Debt
I	100%	-
II	25%	75%

(vi) **Cost of debt – 12% p.a.**

(vii) **Tax Rate – 30%**

(viii) **Equity Share Rs.10 each, issued at a premium of Rs.15 per share**

(ix) **Expected Earnings before Interest and Taxes (EBIT) Rs.40 Lakhs**

You are required to compute:

(i) **EPS in each of the plan**

(ii) **The Financial Break Even Point**

(iii) **Indifference point between Plan I and II (PYP 5 Marks, May'18)**

Answer 10

(i) **Computation of Earnings Per Share (EPS)**

Plans	I (Rs.Rs.)	II (Rs.)
Earnings before interest & tax (EBIT)	40,00,000	40,00,000
Less: Interest charges (12% of ₹75 lakh)	--	(9,00,000)
Earnings before tax (EBT)	40,00,000	31,00,000
Less: Tax @ 30%	(12,00,000)	(9,30,000)
Earnings after tax (EAT)	28,00,000	21,70,000

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No. of equity shares (@ ₹10+₹15)	4,00,000	1,00,000
E.P.S (Rs.)	7.00	21.70

(ii) Computation of Financial Break-even Points

Plan 'I' = 0 – Under this plan there is no interest payment, hence the financial break- even point will be zero.

Plan 'II' = ₹ 9,00,000 - Under this plan there is an interest payment of ₹9,00,000, hence the financial break -even point will be ₹9 lakhs

(iii) Computation of Indifference Point between Plan I and Plan II:

Indifference point is a point where EBIT of Plan-I and Plan-II are equal. This can be calculated by applying the following formula:

{(EBIT –I1) (1- T)} / E1 = {(EBIT –I2) (1- T)} / E2

So = $\frac{EBIT(1-03)}{4,00,000 Shares} = \frac{(EBIT - RS.9,00,000)(1-0.3)}{1,00,000 Shares}$

Or, 2.8 EBIT – 25,20,000 = 0.7EBIT or, 2.1EBIT = 25,20,000

EBIT =12,00,000

Question 11

BRIEF OUT the remedies for Over-Capitalisation. [MTP 2 Marks Sep'22)

Answer 11

Remedies for Over-Capitalisation: Following steps may be adopted to avoid the negative consequences of over-capitalisation-

(i) Company should go for thorough reorganization.

(ii) Buyback of shares.

(iii) Reduction in claims of debenture-holders and creditors.

(iv) Value of shares may also be reduced. This will result in sufficient funds for the company to carry out replacement of assets.

Question 12

Sinha Steel Ltd. requires ₹ 30,00,000 for a new plant which expects to yield earnings before interest and taxes of ₹ 5,00,000. While deciding about the financial plan, the company considers the objective of maximizing earnings per share. It has three alternatives to finance the project as follows -

Alternative	Debt	Equity Shares
1	Rs.2,50,000	balance
2	Rs.10,00,000	balance
3	Rs.15,00,000	balance

The company's share is currently selling at Rs.200, but is expected to decline to Rs.160 in case the funds are borrowed in excess of Rs.10,00,000.

Slab wise interest rate for fund borrowed are as follows -

Fund Limit	Applicable Interest

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	rate
up-to Rs.2,50,000	10%
over Rs.2,50,000 and up-to Rs.10,00,000	15%
over Rs.10,00,000	20%

The tax rate applicable to the company is 50 percent.
ANALYSE which form of financing should the company choose? [MTP 10 Marks, Oct'20)

Answer 12

Alternative I = Raising Debt of Rs.2.5 lakh + Equity of Rs.27.5 lakh. Alternative II = Raising Debt of Rs.10 lakh + Equity of ₹20 lakh. Alternative III = Raising Debt of Rs.15 lakh + Equity of Rs.15 lakh.

Calculation of Earnings per share (EPS):

(Amount in ₹)

Particulars	**FINANCIAL ALTERNATIVES**		
	Alternative I	**Alternative II**	**Alternative III**
Expected EBIT	5,00,000	5,00,000	5,00,000
Less: Interest (working note I)	(25,000)	(1,37,500)	(2,37,500)
Earnings before taxes	4,75,000	3,62,500	2,62,500
Less: Taxes @ 50%	(2,37,500)	(1,81,250)	(1,31,250)
Earnings after taxes (EAT)	2,37,500	1,81,250	1,31,250
Number of shares (working note ii)	13,750	10,000	9,375
Earnings per share (EPS)	**17.27**	**18.125**	**14.00**

Financing Alternative II (i.e. Raising debt of ₹10 lakh and issue of equity share capital of Rs.20 lakh) is the option which maximizes the earnings per share.

Working Notes:

(i) Calculation of interest on Debt **(Amount in ₹)**

Alternative I	(2,50,000 × 10%)		25,000
Alternative II	(2,50,000 × 10%)	25,000	
	(7,50,000 × 15%)	1,12,500	1,37,500
Alternative III	(2,50,000 × 10%)	25,000	
	(7,50,000 × 15%)	1,12,500	
	(5,00,000 × 20%)	1,00,000	2,37,500

(ii) Number of equity shares to be issued

Alternative I = Rs.27,50,000/ ₹Rs.200 (Market Price of share)
= 13,750 shares

Alternative II = Rs.20,00,000/ Rs.200= 10,000 shares

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Alternative III = Rs.15,00,000/ Rs. 160 = 9,375 shares

Question 13

Zordon Ltd. has net operating income of ₹ 5,00,000 and total capitalization of ₹ 50,00,000 during the current year. The company is contemplating to introduce debt financing in capital structure and has various options for the same. The following information is available at different levels of debt value:

Debt value (₹)	Interest rate (%)	Equity capitalization rate (%)
0	-	10.00
5,00,000	6.0	10.50
10,00,000	6.0	11.00
15,00,000	6.2	11.30
20,00,000	7.0	12.40
25,00,000	7.5	13.50
30,00,000	8.0	16.00

Assuming no tax and that the firm always maintains books at book values, you are REQUIRED to calculate:

(i) Amount of debt to be employed by firm as per traditional approach.

(ii) **Equity capitalization rate, if MM approach is followed. (RTP May '21)**

Answer 13

Amount of debt to be employed by firm as per traditional approach

Calculation of Equity, W_d and W_e

Total Capital (₹)	Debt (₹)	W_d	Equity value (₹)	W_e
(a)	(b)	(b)/(a)	(c) = (a) - (b)	(c)/(a)
50,00,000	0	-	50,00,000	1.0
50,00,000	5,00,000	0.1	45,00,000	0.9
50,00,000	10,00,000	0.2	40,00,000	0.8
50,00,000	15,00,000	0.3	35,00,000	0.7
50,00,000	20,00,000	0.4	30,00,000	0.6
50,00,000	25,00,000	0.5	25,00,000	0.5
50,00,000	30,00,000	0.6	20,00,000	0.4

Statement of Weighted Average Cost of Capital (WACC)

K_e	W_e	K_d	W_d	$K_e W_e$	$K_d W_d$	K_o

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(1)	(2)	(3)	(4)	(5) = (1) x (2)	(6) = (3) x (4)	(7) = (5) + (6)
0.100	1.0	-	-	0.100	-	0.100
0.105	0.9	0.060	0.1	0.095	0.006	0.101
0.110	0.8	0.060	0.2	0.088	0.012	0.100
0.113	0.7	0.062	0.3	0.079	0.019	0.098
0.124	0.6	0.070	0.4	0.074	0.028	0.102
0.135	0.5	0.075	0.5	0.068	0.038	0.106
0.160	0.4	0.080	0.6	0.064	0.048	0.112

So, amount of Debt to be employed = ₹ 15,00,000 as WACC is minimum at this level of debt i.e. 9.8%.

(b) As per MM approach, cost of the capital (K_o) remains constant and cost of equity increases linearly with debt.

Value of a firm = $\frac{Net\ Operating\ Income(NOI}{K_o}$

Rs. 50,00,000 = $\frac{Rs.5,00,000}{K_o}$

$K_o = \frac{Rs.5,00,000}{Rs.50,00,000}$ = 10%

Statement of Equity Capitalization rate (k_e) under MM approach

Debt (₹)	Equity (₹)	Debt/Equity	K_o	K_d	$K_o - K_d$	$K_e = K_o + (K_o - K_d)\frac{Debt}{Equity}$
(1)	(2)	(3) = (1)/(2)	(4)	(5)	(6) = (4) -(5)	(7) = (4) + (6) x (3)
0	50,00,000	0	0.10	-	0.100	0.100
5,00,000	45,00,000	0.11	0.10	0.060	0.040	0.104
10,00,000	40,00,000	0.25	0.10	0.060	0.040	0.110
15,00,000	35,00,000	0.43	0.10	0.062	0.038	0.116
20,00,000	30,00,000	0.67	0.10	0.070	0.030	0.120
25,00,000	25,00,000	1.00	0.10	0.075	0.025	0.125
30,00,000	20,00,000	1.50	0.10	0.080	0.020	0.130

Question 14

RPS Company presently has Rs. 36,00,000 in debt outstanding bearing an interest rate of 10 per cent. It wishes to finance a Rs. 40,00,000 expansion programmer and is considering three alternatives: additional debt at 12 per cent interest, preferred stock with an 11 per cent dividend, and the sale of common stock at Rs.

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16 per share. The company presently has 8,00,000 shares of common stock outstanding and is in a 40 per cent tax bracket.

(v) **If earnings before interest and taxes are presently Rs. 15,00,000, CALCULATE earnings per share for the three alternatives, assuming no immediate increase in profitability?**

(vi) **CALCULATE indifference point between debt and common stock. [MTP 5 Marks, Oct'19]**

Answer 14

(I) (Rs. in thousands)

	Debt	**Preferred Stock**	**Common Stock**
	Rs.	**Rs.**	**Rs.**
EBIT	1,500	1,500	1,500
Interest on existing debt	360	360	360
Interest on new debt	480	-	-
Profit before taxes	660	1,140	1,140
Taxes	264	456	456
Profit after taxes	396	684	684
Preferred stock dividend	-	440	-
Earnings available to common shareholders	396	244	684
Number of shares	800	800	1,050
Earnings per share	.495	.305	.651

(ii) Mathematically, the indifference point between debt and common stock is (Rs in thousands):

$$\frac{\text{EBIT}* - \text{Rs.}840}{800} = \frac{\text{EBIT}* - \text{Rs.}360}{1050}$$

EBIT* (1,050) – Rs. 840(1,050) = EBIT* (800) – Rs. 360 (800) 250EBIT* = Rs. 5,94,000

EBIT* = Rs. 2,376

Question 15

The following are the costs and values for the firms A and B according to the traditional approach.

	Firm A	**Firm B**
Total value of firm, V (in ₹)	**50,000**	**60,000**
Market value of debt, D (in ₹)	**0**	**30,000**
Market value of equity, E (in ₹)	**50,000**	**30,000**
Expected net operating income (in ₹)	**5,000**	**5,000**

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Cost of debt (in ₹)	0	1,800
Net Income (in ₹)	5,000	3,200
Cost of equity, K_e = NI/V	10.00%	10.70%

(i) **Compute the Equilibrium value for Firm A and B in accordance with the M-M approach. Assume that (a) taxes do not exist and (b) the equilibrium value of K_e is 9.09%.**

(ii) **Compute Value of Equity and Cost of Equity for both the firms. (PYP 4 Marks Nov '22)**

Answer 15

(i) **Computation of Equilibrium value of Firms A & B under MM Approach:**

As per MM approach K_o is equal to K_{eu}

$\therefore K_0 = K_{eu}$ (1 – t) = 9.09 (1 – 0) = 9.09

Particulars	A	B
EBIT (NOI) (₹)	5000	5000
KO (%)	9.09	9.09
Equilibrium value (₹) (NOI/Ko) X 100	55005.5	55005.5

$\frac{5,000}{9.09}$ X 100 $\frac{5,000}{9.09}$ X 100

(ii) **Computation of value of equity and cost of equity of Firms A & B**

Particulars	A	B
Equilibrium value (₹)	55,005.5	55,005.5
Less: Value of Debt	-	30,000
Value of Equity	55,005.5	25,005.5

Cost of Equity of Firm A (unlevered) = 9.09

Cost of Debt of Firm B (K_d) (levered) = (1800/30000) x 100 = 6%

Cost of Equity of Firm B (Levered) = K_o + (K_o - K_d) x (Debt / Equity)

= 9.09 + (9.09 – 6) x (30000/25005.5)

= 9.09 + 3.09 x 1.2 = 9.09 + 3.71 = 12.80%

(OR)

Cost of Equity of Firm B (Levered) = $\left(\frac{NI}{Value\ of\ Equity}\right)$ X 100

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$= \left(\frac{3200}{25005.5}\right)$ X100 = 12.8%

Question 16

ABC Limited is setting up a project with a capital outlay of ₹ 90,00,000. It has two alternatives in financing the project cost.
Alternative-I: 100% equity finance by issuing equity shares of Rs.10 each
Alternative-II: Debt-equity ratio 2:1 (issuing equity shares of Rs.10 each)
The rate of interest payable on the debts is 18% p.a. The corporate tax rate is 30%. CALCULATE the indifference point between the two alternative methods of financing. [MTP 5 Marks Nov'21)

Answer 16

Calculation of Indifference point between the two alternatives of financing.
Alternative-I by issue of 9,00,000 equity shares of ₹10 each amounting to ₹ 90 lakhs. No financial charges are involved.
Alternative-II by raising the funds in the following way: Debt = ₹ 60 lakhs

Equity = ₹ 30 lakhs (3,00,000 equity shares of Rs.10 each)
Interest payable on debt = 60,00,000× $\frac{18}{100}$ = Rs.10,80,000

The difference point between the two alternatives is calculated by:

$$\frac{(EBT-I_{1})(1-T)}{E_1} = \frac{(EBT-I_2)(1-T)}{E_2}$$

$$\frac{\mathbf{EBIT-0(1-0.30)}}{\mathbf{9,00,000}} = \frac{\mathbf{(EBIT-10,80,000)(1-0.30)}}{\mathbf{3,00,000}}$$

$$= \frac{\mathbf{(EBIT)(0.70)}}{\mathbf{9,00,000}} = \frac{\mathbf{(EBIT-10,80,000)(0.70)}}{\mathbf{3,00,000}}$$

$$= \frac{\mathbf{(EBIT)(0.70)}}{\mathbf{3}} = \frac{\mathbf{0.70(EBIT-10,80,000)}}{\mathbf{1}}$$

EBIT = 3EBIT - 32,40,000
-2EBT = -32,40,00,000
= EBT = $\frac{32,40,00,000}{2}$
EBIT = Rs.16,20,000

Therefore, at EBIT of Rs.16,20,000, earnings per share for the two alternatives is equal.

Question 17

RML Limited needs ₹6,50,00,000 for the Expansion purposes. The following three plans are feasible:

(I) **The Company may issue 6,50,000 equity shares at ₹100 per share.**

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(II) **The Company may issue 4,00,000 equity shares at ₹100 per share and 2,50,000 debentures of ₹100 denomination bearing a 9% rate of interest.**

(III) **The Company may issue 4,00,000 equity shares at ₹100 per share and 2,50,000 cumulative preference shares at ₹100 per share bearing a 9% rate of dividend.**

(i) **If the Company's earnings before interest and taxes are ₹15,62,500, ₹22,50,000, ₹62,50,000, ₹93,75,000 and ₹1,56,25,000, CALCULATE the earnings per share under each of three financial plans? Assume a Corporate Income tax rate of 25%.**

(ii) **WHICH alternative would you recommend and why? (MTP 10 Marks March '23, March '19 & Sep '23)**

Answer 17

Computation of EPS under three-financial plans.

Plan I: Equity Financing

	(₹)	(₹)	(₹)	(₹)	(₹)
EBIT	15,62,500	22,50,000	62,50,000	93,75,000	1,56,25,000
Interest	0	0	0	0	0
EBT	15,62,500	22,50,000	62,50,000	93,75,000	1,56,25,000
Less: Tax @ 25%	3,90,625	5,62,500	15,62,500	23,43,750	39,06,250
PAT	11,71,875	16,87,500	46,87,500	70,31,250	1,17,18,750
No. of equity shares	6,50,000	6,50,000	6,50,000	6,50,000	6,50,000
EPS	1.80	2.60	7.21	10.82	18.03

Plan II: Debt – Equity Mix

	(₹)	(₹)	(₹)	(₹)	(₹)
EBIT	15,62,500	22,50,000	62,50,000	93,75,000	1,56,25,000
Less: Interest	22,50,000	22,50,000	22,50,000	22,50,000	22,50,000
EBT	(6,87,500)	0	40,00,000	71,25,000	1,33,75,000
Less: Tax @ 25%	1,71,875*	0	10,00,000	17,81,250	33,43,750
PAT	(5,15,625)	0	30,00,000	53,43,750	1,00,31,250
No. of equity shares	4,00,000	4,00,000	4,00,000	4,00,000	4,00,000
EPS (₹)	(1.29)	0.00	7.50	13.36	25.08

* The Company can set off losses against the overall business profit or may carry forward it to next financial years.

Plan III: Preference Shares – Equity Mix

	(₹)	(₹)	(₹)	(₹)	(₹)

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EBIT	15,62,500	22,50,000	62,50,000	93,75,000	1,56,25,000
Less: Interest	0	0	0	0	0
EBT	15,62,500	22,50,000	62,50,000	93,75,000	1,56,25,000
Less: Tax @ 25%	3,90,625	5,62,500	15,62,500	23,43,750	39,06,250
PAT	11,71,875	16,87,500	46,87,500	70,31,250	1,17,18,750
Less: Pref. dividend *	22,50,000	22,50,000	22,50,000	22,50,000	22,50,000
PAT after Pref. dividend.	(10,78,125)	(5,62,500)	24,37,500	47,81,250	94,68,750
No. of Equity shares	4,00,000	4,00,000	4,00,000	4,00,000	4,00,000
EPS	(2.70)	(1.41)	6.09	11.95	23.67

* In case of cumulative preference shares, the company has to pay cumulative dividend to preference shareholders.

(ii) In case of lower EBIT Plan I i.e Equity Financing is better however in case of higher EBIT Plan II i.e Debt=Equity Mix is best.

Question 18

A&R Ltd. is an all equity financed company with a market value of Rs. 25,000 lakhs and cost of equity (Ke) 18%. The company wants to buyback equity shares worth Rs. 5,000 lakhs by issuing and raising 10% debentures redeemable at 10% premium after 5 years. Rate of tax may be taken as 35%. Applying Modigliani-Miller (MM) (with taxes), you are required to CALCULATE after restructuring:

(i) **Market value of A&R Ltd.**
(ii) **Cost of Equity (Ke)**
(iii) **Weighted average cost of capital (using market weights). (MTP 5 Marks, May'20) (Same concept different figures RTP Nov'18) (Includes concepts of Chp 4: Cost of Capital)**

Answer 18

Value of a company (V) = Value of equity (S) + Value of debt (D)

A&R Ltd. is all equity financed company, its value would equal to value of equity

Market value of equity = $\frac{\text{Net Income}}{\text{(NI)}K_E}$

In the question, market value of equity is Rs. 25,000 lakhs and cost of equity (K_e) is 18%. The Net Income (NI) is calculated as follows:

$\frac{\text{Net income (NI) for equity}}{\text{holders}K_E}$ = Market Value of Equity

= $\frac{\text{Net income (NI) for equity}}{\text{holders 0.8}}$ = 25,000 lakhs

holders 0.18

Net income for equity holders = 4,500 lakh

Net Income (NI) is after tax income, the before tax income would be

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EBT = $\frac{45 \text{ Lakh}}{(1-0.35)}$ = 6,923.07 lakh.

Since, A&R Ltd. is an all equity financed and there is no interest expense, so here EBT is equal to EBIT. After issuing 10% debentures, the A&R Ltd would become a levered company.

(i) The value of A&R Ltd. after issuing debentures would be calculated as follows:

Value of a levered company (Vg)
= Value of an unlevered company (Vu) + Tax benefit (TB)
= Rs. 25,000 lakhs + (Rs. 5,000 lakhs × 35%)
= Rs. 25,000 + Rs. 1,750 = Rs. 26,750

(ii) Cost of Equity (Ke)

Total Value = Rs. 26,750 lakh
Less: Value of Debt = Rs. 5,000 lakh
Value of Equity = Rs. 21,750

$$Ke = \frac{4{,}175 \text{ Lakh}}{21{,}750 \text{ Lakh}} = 0.1919 = 19.19\%$$

(iii) WACC (on market value weight)

Components of Costs	Amount (lakh)	Cost of Capital (%)	Weight	WACC (%)
Equity	21,750	19.19	0.81	15.54
Debt	5,000	8.10	0.19	1.54
	26,750			17.08

Workings Note:
(Rs. in lakh)

	All Equity	Debt and Equity
EBIT (as calculated above)	6,923.07	6,923.07
Interest to debt-holders	-	500.00
EBT	6,923.07	6,423.07
Taxes (35%)	2,423.07	2,248.07
Income available to equity shareholders	4,500.00	4,175.00
Income to debt holders plus income available to shareholders	4,500.00	4,675.00

Cost of Debenture (Kd) = $\frac{\text{Rs.}500(1-0.35) + \frac{(5{,}500-5{,}000)}{5}}{\frac{(5{,}500+5{,}000)}{2}}$

$\frac{\text{Rs.}325+100}{5{,}525}$ = 0.081 or 8.1%

Question 19

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Sophisticated Limited is considering three financing plans. The key information is as follows:

(e) **Total investment amount to be raised Rs.4,00,000**

(f) **Plans of Financing Proportion:**

Plans	Equity	Debt	Preference Shares
A	100%	-	-
B	50%	50%	-
C	50%	-	50%

(g) **Cost of debt 10%**

Cost of preference shares 10%

(h) **Tax rate 30%**

(i) **Equity shares of the face value of Rs.10 each will be issued at a premium of Rs.10 per share.**

(j) **Expected EBIT is Rs.10,00,000.**

You are required to DETERMINE for each plan: -

(i) **Earnings per share (EPS)**

(ii) **The financial break-even point.**

(iii) **Indicate if any of the plans dominate and compute the EBIT range among the plans for indifference. [MTP 10 Marks, Oct'21]**

Answer 19

Computation of Earnings per share (EPS)

Plans	A	B	C
Earnings before interest and tax (EBIT)	10,00,000	10,00,000	10,00,000
Less: Interest charges	---	(20,000) (10% × ₹2 lakh)	---
Earnings before tax (EBT)	10,00,000	9,80,000	10,00,000
Less: Tax (@ 30%)	(3,00,000)	(2,94,000)	(3,00,000)
Earnings after tax (EAT)	7,00,000	6,86,000	7,00,000
Less: Preference Dividend	---	---	(20,000) (10% × ₹2 lakh)
Earnings available for Equity shareholders (A)	7,00,000	6,86,000	6,80,000
No. of Equity shares (B)	20,000 (Rs.4 lakh ÷ Rs.20)	10,000 (Rs.2 lakh ÷ Rs.20)	10,000 (Rs.2 lakh ÷ Rs.20)
EPS ₹ [(A) ÷ (B)]	35	68.6	68

(ii) Calculation of Financial Break-even point

Financial break-even point is the earnings which are equal to the fixed finance charges and preference dividend.

Plan A: Under this, plan there is no interest or preference dividend payment. Hence, the Financial Break-even point will be zero.

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Plan B: Under this plan, there is an interest payment of Rs.20,000 and no preference dividend. Hence, the Financial Break-even point will be Rs.20,000 (Interest charges).

Plan C: Under this plan, there is no interest payment but an after tax preference dividend of

Rs.20,000 is paid. Hence, the Financial Break- even point will be before tax earnings of Rs.28,571 (i.e. Rs.20,000 ÷ 0.7)

(iii) Computation of indifference point between the plans.

The indifference between two alternative methods of financing is calculated by applying the following formula.

$$= \frac{(EBIT - I1)(1-T)}{E_1} = \frac{(EBIT - I2)(1-T)}{E_2}$$

EBIT	=	Earnings before interest and tax.
I1	=	Fixed charges (interest or pref. dividend) under Alternative 1
I2	=	Fixed charges (interest or pref. dividend) under Alternative 2
T	=	Tax rate
E1	=	No. of equity shares in Alternative 1
E2	=	No. of equity shares in Alternative 2

Now, we can calculate indifference point between different plans of financing.

(a) Indifference point where EBIT of Plan A and Plan B is equal.

$$\frac{(EBIT - 0)(1 - 0.3)}{20,000} = \frac{(EBIT - 20,000)(1 - 0.3)}{10,000}$$

0.7 EBIT (10,000) = (0.7 EBIT – 14,000) (20,000)

7,000 EBIT = 14,000 EBIT – 28 crores

EBIT = 40,000

(b) Indifference point where EBIT of Plan A and Plan C is equal

$$\frac{(EBIT - 0)(1 - 0.3)}{20,000} = \frac{(EBIT - 20,000)(1 - 0.3)}{10,000}$$

0.7 EBIT (10,000) = (0.7 EBIT – 20,000) (20,000)

7000 EBIT = 14,000 EBIT – 40 crores

EBIT = 57,142.86

(c) Indifference point where EBIT of Plan B and Plan C are equal

$$\frac{(EBIT - 20,000)(1 - 0.3)}{10,000} = \frac{(EBIT - 0)(1 - 0.3) - 20,000}{10,000}$$

(0.7 EBIT – 14,000) (10,000) = (0.7 EBIT – 20,000) (10,000)

7,000 EBIT – 14 crore = 7,000 EBIT - 20 crore

There is no indifference point between the financial plans B and C.

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Question 20

The following data relates to two companies belonging to the same risk class:

Particulars	Bee Ltd.	Cee Ltd.
12% Debt	₹ 27,00,000	-
Equity Capitalization Rate	-	18
Expected Net Operating Income	₹ 9,00,000	₹ 9,00,000
You are required to:		

(a) **DETERMINE the total market value, Equity capitalization rate and weighted average cost of capital for each company assuming no taxes as per M.M. Approach.**

(b) **DETERMINE the total market value, Equity capitalization rate and weighted average cost of capital for each company assuming 40% taxes as per M.M. Approach. (RTP May 22, PYP 10 Marks Nov '18)**

Answer 20

Assuming no tax as per MM Approach.

Calculation of Value of Firms 'Bee Ltd.' and 'Cee Ltd' according to MM Hypothesis Market Value of 'Cee Ltd' [Unlevered(u)]

Total Value of Unlevered Firm (Vu) = [NOI/K_e] = 9,00,000/0.18 = ₹ 50,00,000

K_e of Unlevered Firm (given) = 0.18

K_o of Unlevered Firm (Same as above = K_e as there is no debt) = 0.18

Market Value of 'Bee Ltd' [Levered Firm (I)]

Total Value of Levered Firm (VL) = Vu + (Debt× Nil)

= ₹ 50,00,000 + (27,00,000 × nil)

= ₹ 50,00,000

Computation of Equity Capitalization Rate and Weighted Average Cost of Capital (WACC)

Particulars	Bee Ltd.
Net Operating Income (NOI)	9,00,000
Less: Interest on Debt (I)	3,24,000
Earnings of Equity Shareholders (NI)	5,76,000
Overall Capitalization Rate (K_o)	0.18
Total Value of Firm (V = NOI/K_o)	50,00,000
Less: Market Value of Debt	27,00,000
Market Value of Equity (S)	23,00,000
Equity Capitalization Rate [K_e = NI /S]	0.2504
Weighted Average Cost of Capital (K_o)* K_o = (K_e×S/V) + (K_d×D/V)	0.18

***Computation of WACC Bee Ltd**

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Component of Capital	Amount	Weight	Cost of Capital	WACC
Equity	23,00,000	0.46	0.2504	0.1152
Debt	27,00,000	0.54	0.12*	0.0648
Total	50,00,000			0.18

*Kd = 12% (since there is no tax) WACC = 18%

(b) Assuming 40% taxes as per MM Approach
Calculation of Value of Firms 'Bee Ltd.' and 'Cee Ltd' according to MM Hypothesis Market Value of 'Cee Ltd' [Unlevered(u)]

Total Value of unlevered Firm (Vu) = [NOI (1 - t)/ K_e] = 9,00,000 (1 – 0.40)] / 0.18
= ₹ 30,00,000

K_e of unlevered Firm (given) = 0.18

K_o of unlevered Firm (Same as above = ke as there is no debt) = 0.18

Market Value of 'Bee Ltd' [Levered Firm (I)]

Total Value of Levered Firm (VL) = Vu + (Debt× Tax)
= ₹ 30,00,000 + (27,00,000 × 0.4)
= ₹ 40,80,000

Computation of Weighted Average Cost of Capital (WACC) of 'Cee Ltd. '

= 18% (i.e. K_e = K_o)

Computation of Equity Capitalization Rate and Weighted Average Cost of Capital (WACC) of Bee Ltd

Particulars	Bee Ltd. (₹)
Net Operating Income (NOI)	9,00,000
Less: Interest on Debt (I)	3,24,000
Earnings Before Tax (EBT)	5,76,000
Less: Tax @ 40%	2,30,400
Earnings for equity shareholders (NI)	3,45,600
Total Value of Firm (V) as calculated above	40,80,000
Less: Market Value of Debt	27,00,000
Market Value of Equity (S)	13,80,000
Equity Capitalization Rate [K_e = NI/S]	0.2504
Weighted Average Cost of Capital (K_o)* K_o = (K_e×S/V) + (K_d×D/V)	13.23

*Computation of WACC Bee Ltd.

Component of Capital	Amount	Weight	Cost of Capital	WACC

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Equity	13,80,000	0.338	0.2504	0.0846
Debt	27,00,000	0.662	0.072*	0.0477
Total	40,80,000			0.1323

*Kd= 12% (1- 0.4) = 12% × 0.6 = 7.2%

WACC = 13.23%

Question 21

The details about two company's R Ltd. and S Ltd. having same operating risk are given below:

Particulars	R Ltd.	S Ltd.
Profit before interest and tax	**Rs.10 lakhs**	**Rs.10 lakhs**
Equity share capital Rs.10 each	**Rs.17 lakhs**	**₹ 50 lakhs**
Long term borrowings @ 10%	**Rs.33 lakhs**	**-**
Cost of Equity (K_e)	**18%**	**15%**

You are required to:

(1) **Calculate the value of equity of both the companies on the basis of M.M. Approach without tax.**

(2) **Calculate the Total Value of both the companies on the basis of M.M. Approach without tax. (PYP 5 Marks, July'21)**

Answer 21

1. Computation of value of equity on the basis of MM approach without tax

Particulars	R Ltd. (Rs. in lakhs)	S Ltd. (Rs. in lakhs)
Profit before interest and taxes	10	10
Less: Interest on debt (10% × Rs.33,00,000)	3.3	-
Earnings available to Equity shareholders	6.7	10
K_e	18%	15%
Value of Equity (Earnings available to Equity shareholders/K_e)	37.222	66.667

2. Computation of total value on the basis of MM approach without tax

Particulars	R Ltd. (Rs. in lakhs)	S Ltd. (Rs. in lakhs)
Value of Equity (S) (as calculated above)	**37.222**	**66.667**
Debt (D)	**33**	**-**
Value of Firm (V) = S + D	**70.222**	**66.667**

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Question 22

Company P and Q are identical in all respects including risk factors except for debt/equity, company P having issued 10% debentures of ₹ 18 lakhs while company Q is unlevered. Both the companies earn 20% before interest and taxes on their total assets of ₹ 30 lakhs. Assuming a tax rate of 50% and capitalization rate of 15% from an all-equity company.

Required:

CALCULATE the value of companies' P and Q using (i) Net Income Approach and (ii) Net Operating Income Approach. (RTP May '18)

Answer 22

(i) Valuation under Net Income Approach

Particulars	**P Amount (Rs.)**	**Q Amount (Rs.)**
Earnings before Interest & Tax (EBIT) (20% of ₹ 30,00,000)	6,00,000	6,00,000
Less: Interest (10% of ₹ 18,00,000)	1,80,000	
Earnings before Tax (EBT)	4,20,000	6,00,000
Less: Tax @ 50%	2,10,000	3,00,000
Earnings after Tax (EAT) (available to equity holders)	2,10,000	3,00,000
Value of equity (capitalized @ 15%)	14,00,000 (2,10,000 × 100/15)	20,00,000 (3,00,000 × 100/15)
Add: Total Value of debt	18,00,000	Nil
Total Value of Company	32,00,000	20,00,000

(ii) Valuation of Companies under Net Operating Income Approach

Particulars	**P Amount (Rs.)**	**Q Amount (Rs.)**
Capitalization of earnings at 15% $\frac{Rs. 6{,}00{,}000(1-0.5)}{0.15}$	20,00,000	20,00,000
Less: Value of debt {18,00,000 (1 – 0.5)}	9,00,000	Nil
Value of equity	11,00,000	20,00,000
Add: Total Value of debt	18,00,000	Nil
Total Value of Company	29,00,000	20,00,000

Question 23

The following information pertains to CIZA Ltd.:

	₹

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Capital Structure: **Equity share capital (₹ 10 each)**	**8,00,000**
Retained earnings	**20,00,000**
9% Preference share capital (₹ 100 each)	**12,00,000**
12% Long-term loan	**10,00,000**
Interest coverage ratio	**8**
Income tax rate	**30%**
Price – earnings ratio	**25**

The company is proposed to take up an expansion plan, which requires an additional investment of ₹ 34,50,000. Due to this proposed expansion, earnings before interest and taxes of the company will increase by ₹ 6,15,000 per annum. The additional fund can be raised in following manner:

- **By issue of equity shares at present market price, or**
- **By borrowing 16% Long-term loans from bank.**

You are informed that Debt-equity ratio (Debt/ Shareholders' fund) in the range of 50% to 80% will bring down the price-earnings ratio to 22 whereas; Debt-equity ratio over 80% will bring down the price-earnings ratio to 18.

Required:

Advise which option is most suitable to raise additional capital so that the Market Price per Share (MPS) is maximized. (PYP 10 Marks May '23)

Answer 23

Working notes:

(i) Interest Coverage ratio = 8

$\frac{EBIT}{Interest} = 8$

$\frac{EBIT}{1,20,000} = 8$

So, EBIT = ₹ 9,60,000

(ii) Proposed Earnings Before Interest & Tax = 9,60,000 + 6,15,000 = ₹ 15,75,000

Option 1: Equity option

Debt = ₹ 10,00,000

Shareholders Fund = 8,00,000+20,00,000+12,00,000+34,50,000 = ₹ 74,50,000

10,00,000

Debt Equity ratio(Debt/Shareholders fund) = $\frac{10,00,000}{74,50,000}$ = 13.42%

P/E ratio in this case will be 25 times

Option 2: Debt option

Debt = 10,00,000 + 34,50,000 = ₹ 44,50,000

Shareholders Fund = 8,00,000+20,00,000+12,00,000 = ₹ 40,00,000

Debt Equity ratio(Debt/Shareholders fund) = $\frac{44,50,000}{40,00,000}$ = 111.25%

Debt equity ratio has crossed the limit of 80% hence PE ratio in this case will remain at 18 times.

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Number of Equity Shares to be issued = ₹ 34,50,000/ ₹ 150 = 23,000

(iii) Calculation of Earnings per Share and Market Price per share

Particulars	₹
Current Earnings Before Interest & Tax	9,60,000
Less: Interest	1,20,000
Earnings Before Tax	8,40,000
Less: Taxes	2,52,000
Earnings After Tax	5,88,000
Less: Preference Dividend (@9%)	1,08,000
Net earnings for Equity shareholders	4,80,000
Number of equity shares	80,000
Earnings Per Share	6
Price-earnings ratio	25
Market Price per share	150

Calculation of EPS and MPS under two financial options

Particulars	Financial Options	
	Option I	Option II
	Equity Shares Issued (₹)	16% Long Term Debt Raised (₹)
Earnings before interest and Tax (EBIT)	15,75,000	15,75,000
Less: Interest on old debentures @ 12%	1,20,000	1,20,000
Less: Interest on additional loan (new) @ 16% on ₹ 34,50,000	NIL	5,52,000
Earnings before tax	14,55,000	9,03,000
Less: Taxes @ 30%	4,36,500	2,70,900
(EAT/Profit after tax)	10,18,500	6,32,100
Less: Preference Dividend (@9%)	1,08,000	1,08,000
Net Earnings available to Equity shareholders	9,10,500	5,24,100
Number of Equity Shares	1,03,000	80,000
Earnings per Share (EPS)	8.84	6.55
Price/ Earnings ratio	25	18
Market price per share (MPS)	221	117.9

Advise: Equity option has higher Market Price per Share therefore company should raise additional fund through equity option.

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Question 24

ABC Limited provides you the following information:

	(₹)
Profit (EBIT)	**2,80,000**
Less: Intt. on Debt @10%	**40,000**
EBT	**2,40,000**
Less: Income Tax @ 50%	**1,20,000**
	1,20,000
No. of Equity Shares (₹ 10 each)	**30,000**
Earnings per share (EPS)	**4**
Price / EPS (P/E) Ratio	**10**
Ruling Market price per share	**40**

The company has undistributed reserves of ₹ 7,00,000 and needs ₹ 4,00,000 further for expansion. This investment is expected to earn the same rate as funds already invested. You are informed that a debt equity (debt/ debt +equity) ratio higher than 32% will push the P/E ratio down to 8 and raise the interest rate on additional borrowings (debentures) to 12%. You are required to ASCERTAIN the probable price of the share.

(i) **If the additional funds are raised as debt; and**

(ii) **If the amount is raised by issuing equity shares at ruling market price of ₹ 40 per share. (RTP Nov'22)**

Answer 24

Ascertainment of probable price of shares

Particulars	**Plan (i) (If ₹ 4,00,000 is raised as debt) (₹)**	**Plan (ii) (If ₹ 4,00,000 is raised by issuing equity shares) (₹)**
Earnings Before Interest (EBIT) 20% on (14,00,000 + 4,00,000)	3,60,000	3,60,000
Less: Interest on old debentures @ 10% on4,00,000	40,000	40,000
	3,20,000	3,20,000
Less: Interest on New debt @ 12% on ₹ 4,00,000	48,000	-
Earnings Before Tax (After interest)	2,72,000	3,20,000
Less: Tax @ 50%	1,36,000	1,60,000
Earnings for equity shareholders (EAIT)	1,36,000	1,60,000
Number of Equity Shares (in numbers)	30,000	40,000
Earnings per Share (EPS)	4.53	4.00
Price/ Earnings Ratio	8	10
Probable Price Per Share	36.24 (8 x 4.53)	40 (10 x 4)

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Working Notes:

	(₹)
1. Calculation of Present Rate of Earnings	
Equity Share capital (30,000 x ₹ 10)	3,00,000
10% Debentures $\left[40{,}000 \times \frac{100}{10}\right]$	4,00,000
Reserves (given)	7,00,000
	14,00,000
Earnings before interest and tax (EBIT) given	2,80,000
Rate of Present Earnings = $\left[\frac{2{,}80{,}000}{14{,}00{,}000} \times 100\right]$	20%
2.Number of Equity Shares to be issued in Plan $\left[\frac{4{,}80{,}000}{40}\right]$	10,000
Thus, after the issue total number of shares	30,000 + 10,000 = 40,000
3. Debt/Equity Ratio if ₹ 4,00,000 is raised as debt:	$\left[\frac{8{,}00{,}000}{18{,}00{,}000} \times 100\right]$= 44.44%

As the debt equity ratio is more than 32% the P/E ratio shall be 8 in plan (i)

Question 25

Following data is available in respect of two companies having same business risk: Capital employed = ₹ 4,00,000, EBIT = ₹ 60,000 and Ke = 12.5%

Sources	Levered Company (₹)	Unlevered Company (₹)
Debt (@10%)	2,00,000	Nil
Equity	2,00,000	4,00,000

An investor is holding 15% shares in levered company. CALCULATE the increase in annual earnings of investor if he switches his holding from Levered to Unlevered company. (MTP 5 Marks April 22)

Answer 25

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Valuation of firms

Particulars	Levered Firm (₹)	Unlevered Firm (₹)
EBIT	60,000	60,000
Less: Interest on debt (10% × ₹ 2,00,000)	20,000	Nil
Earnings available to Equity shareholders	40,000	60,000
Ke	12.5%	12.5%
Value of Equity (S) (Earnings available to Equity shareholders/Ke)	3,20,000	4,80,000
Debt (D)	2,00,000	Nil
Value of Firm (V) = S + D	5,20,000	4,80,000

Value of Levered company is more than that of unlevered company. Therefore, investor will sell his shares in levered company and buy shares in unlevered company. To maintain the level of risk he will borrow proportionate amount and invest that amount also in shares of unlevered company.

Investment & Borrowings	(₹)
Sell shares in Levered company (₹ 3,20,000 x 15%)	48,000
Borrow money (₹ 2,00,000 x 15%)	30,000
Buy shares in Unlevered company	78,000
Change in Return Income from shares in Unlevered company	(₹)
(₹ 78,000 x 12.5%)	9,750
Less: Interest on loan (₹ 30,000 x 10%)	3,000
Net Income from unlevered firm	6,750
Less: Income from Levered firm (₹ 48,000 x 12.5%)	6,000
Incremental Income due to arbitrage	750

Question 26

The Modern Chemicals Ltd. requires Rs.25,00,000 for a new plant. This plant is expected to yield earnings before interest and taxes of Rs. 5,00,000. While deciding about the financial plan, the company considers the objective of maximizing earnings per share. It has three alternatives to finance the project- by raising debt of Rs.2,50,000 or Rs.10,00,000 or Rs.15,00,000 and the balance, in each case, by issuing equity shares. The company's share is currently selling at Rs. 150, but is expected to decline to Rs.125 in case the funds are borrowed in

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excess of Rs.10,00,000. The funds can be borrowed at the rate of 10% up to Rs. 2,50,000, at 15% over Rs.2,50,000 and up to Rs.10,00,000 and at 20% over Rs.10,00,000. The tax rate applicable to the company is 50%.
DETERMINE, which form of financing should the company choose? (MTP 10 Marks, Aug'18)

Answer 26

Calculation of Earnings per share for three alternatives to finance the project

Particulars	Alternatives		
	I **To raise debt of Rs. 2,50,000 and equity of Rs. 22,50,000**	**II** **To raise debt of Rs.10,00,000 and equity of Rs.15,00,000**	**III** **To raise debt of Rs.15,00,000 and equity of Rs. 10,00,000**
	(Rs.)	**(Rs.)**	**(Rs.)**
Earnings before interest and tax	5,00,000	5,00,000	5,00,000
Less: Interest on debt at the rate of	25,000 (10% on Rs.2,50,000)	1,37,500 (10% on Rs.2,50,000) (15% on Rs. 7,50,000)	2,37,500 (10% on Rs. 2,50,000) (15% on Rs.7,50,000) (20% on Rs.5,00,000)
Earnings before tax	4,75,000	3,62,500	2,62,500
Less: Tax @ 50%	2,37,500	1,81,250	1,31,250
Earnings after tax: (A)	2,37,500	1,81,250	1,31,250
Number of shares: (B) (Equity/ Market price of Share)	15,000 (Rs.22,50,000/Rs.150)	10,000 (Rs.15,00,000/Rs. 150)	8,000 (Rs.10,00,000/Rs. 125)
Earnings per share: [(A)/(B)]	15.833	18.125	16.406

The company should raise Rs.10,00,000 from debt and Rs.15,00,000 by issuing equity shares, as it gives highest EPS.

Question 27

EXPLAIN Over-capitalization. STATE its causes and consequences. [MTP 4Marks May'20)

Answer 27

Over-capitalization and its Causes and Consequences

It is a situation where a firm has more capital than it needs or in other words assets are worth less than its issued share capital, and earnings are insufficient to pay dividend and interest.

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Causes of Over Capitalization

Over-capitalization arises due to following reasons:

(iv) Raising more money through issue of shares or debentures than company can employ profitably.

(v) Borrowing huge amount at higher rate than rate at which company can earn.

(vi) Excessive payment for the acquisition of fictitious assets such as goodwill etc.

(vii) Improper provision for depreciation, replacement of assets and distribution of dividends at a higher rate.

(viii) Wrong estimation of earnings and capitalization.

Consequences of Over-Capitalization

Over-capitalization results in the following consequences:

(i) Considerable reduction in the rate of dividend and interest payments.

(ii) Reduction in the market price of shares.

(iii) Resorting to "window dressing".

(iv) Some companies may opt for reorganization. However, sometimes the matter gets worse and the company may go into liquidation.

Question 28

The particulars relating to Raj Ltd. for the year ended 31 st March, 2022 are given as follows:

Output (units at normal capacity)	**1,00,000**
Selling price per unit	**₹ 40**
Variable cost per unit	**₹ 20**
Fixed cost	**₹ 10,00,000**

The capital structure of the company as on 31st March, 2022 is as follows:

Particulars	Amount in ₹
Equity share capital (1,00,000 shares of ₹ 10 each)	**10,00,000**
Reserves and surplus	**5,00,000**
Current liabilities	**5,00,000**
Total	**20,00,000**

Raj Ltd. has decided to undertake an expansion project to use the market potential that will involve ₹ 20 lakhs. The company expects an increase in output by 50%. Fixed cost will be increased by ₹ 5,00,000 and variable cost per unit will be decreased by 15%. The additional output can be sold at the existing selling price without any adverse impact on the market.

The following alternative schemes for financing the proposed expansion program are planned:

		(Amount in ₹)
Alternative	**Debt**	**Equity Shares**
1	**5,00,000**	**Balance**
2	**10,00,000**	**Balance**

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3	14,00,000	Balance

Current market price per share is ₹ 200.

Slab wise interest rate for fund borrowed is as follows:

Fund limit	Applicable interest rate
Up-to ₹ 5,00,000	10%
Over₹ 5,00,000 and up-to ₹ 10,00,000	15%
Over ₹ 10,00,000	20%

Find out which of the above-mentioned alternatives would you recommend for Raj Ltd. with reference to the EPS, assuming a corporate tax rate is 40%? (PYP 10 Marks May'22)

Answer 28

Alternative 1= Raising Debt of ₹ 5 lakh + Equity of ₹ 15 lakh Alternative 2

=Raising Debt of ₹ 10 lakh + Equity of ₹ 10 lakh Alternative 3=Raising Debt of ₹ 14 lakh + Equity of ₹ 6 lakh Calculation of Earnings per share (EPS)

Particulars	FINANCIAL ALTERNATIVES		
	Alternative 1	Alternative 2	Alternative 3
	(₹)	(₹)	(₹)
Expected EBIT [W. N. (a)]	19,50,000	19,50,000	19,50,000
Less: Interest [W. N. (b)]	(50,000)	(1,25,000)	(2,05,000)
Earnings before taxes (EBT)	19,00,000	18,25,000	17,45,000
Less: Taxes @ 40%	7,60,000	7,30,000	6,98,000
Earnings after taxes (EAT)	11,40,000	10,95,000	10,47,000
Number of shares [W. N. (d)]	1,07,500	1,05,000	1,03,000
Earnings per share (EPS)	10.60	10.43	10.17

Conclusion: Alternative 1 (i.e. Raising Debt of ₹ 5 lakh and Equity of ₹ 15 lakh) is recommended which maximizes the earnings per share.

Working Notes (W.N.):

(a) **Calculation of Earnings before Interest and Tax (EBIT)**

Particulars		
Output (1,00,000 + 50%)	(A)	1,50,000
Selling price per unit		₹ 40
Less: Variable cost per unit (₹ 20 – 15%)		₹ 17
Contribution per unit	(B)	₹ 23
Total contribution	(A x B)	₹ 34,50,000

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Less: Fixed Cost (₹ 10,00,000 + ₹ 5,00,000)	₹ 15,00,000
EBIT	₹ 19,50,000

Calculation of interest on Debt

Alternative		(₹)	Total (₹)
1	(₹ 5,00,000 x 10%)		50,000
2	(₹ 5,00,000 x 10%)	50,000	
	(₹ 5,00,000 x 15%)	75,000	1,25,000
3	(₹ 5,00,000 x 10%)	50,000	
	(₹ 5,00,000 x 15%)	75,000	
	(₹ 4,00,000 x 20%)	80,000	2,05,000

(b) **Number of equity shares to be issued**

Alternative 1 = $\frac{₹\ (20{,}00{,}000 - 5{,}00{,}000)}{₹\ 200\ (\text{Market price of share})} = \frac{₹15{,}00{,}000}{₹200}$ = 7,500 shares

Alternative 2 = $\frac{₹\ (20{,}00{,}000 - 10{,}00{,}000)}{₹\ 200\ (\text{Market price of share})} = \frac{₹10{,}00{,}000}{₹200}$ = 5000 shares

Alternative 3 = $\frac{₹\ (20{,}00{,}000 - 14{,}00{,}000)}{₹\ 200\ (\text{Market price of share})} = \frac{₹6{,}00{,}000}{₹200}$ = 3000 shares

(c) **Calculation of total equity shares after expansion program**

	Alternative 1	Alternative 2	Alternative 3
	1,00,000	1,00,000	1,00,000
Add: issued under expansion program	7,500	5,000	3,000
Total no. of equity shares	1,07,500	1,05,000	1,03,000

Question 29

Blue Ltd., an all equity financed company is considering the repurchase of ₹ 275 lakhs equity shares and to replace it with 15% debentures of the same amount. Current market value of the company is ₹ 1,750 lakhs with its cost of capital of 20%. The company's Earnings before Interest and Taxes (EBIT) are expected to remain constant in future years. The company also has a policy of distributing its entire earnings as dividend.

Assuming the corporate tax rate as 30%, you are required to CALCULATE the impact on the following on account of the change in the capital structure as per Modigliani and Miller (MM) Approach:

(i) **Market value of the company**

(ii) **Overall Cost of capital**

(iii) **Cost of equity (RTP Nov '21)**

Answer 29

Workings:

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Market Value of Equity = $\frac{Net\ income(NI) for\ equity\ holders}{K_e}$

₹ 1,750 lakhs = $\frac{Net\ income(NI) for\ equity\ holders}{0.20}$

Net Income to equity holders/EAT = ₹ 350 lakhs

Therefore, EBIT = $\frac{EAT}{(1-t)} = \frac{Rs.350\ Lakhs}{(1-0.3)}$ = Rs. 500 Lakhs

Income Statement

	All Equity (₹ In lakhs)	**Equity & Debt (₹ In lakhs)**
EBIT (as calculated above)	500	500
Interest on ₹ 275 lakhs @ 15%	-	41.25
EBT	-	458.75
Tax @ 30%	500	137.63
Income available to equity holders	150 350	321.12

(i) Market value of the company

Market value of levered firm = Value of unlevered firm + Tax Advantage

= ₹ 1,750 lakhs + (₹ 275 lakhs x 0.3)

= ₹ 1,832.5 lakhs

Change in market value of the company = ₹ 1,832.5 lakhs – ₹ 1,750 lakhs

= ₹ 82.50 lakhs

The impact is that the market value of the company has increased by ₹ 82.50 lakhs due to replacement of equity with debt.

(ii) Overall Cost of Capital

Market Value of Equity = Market value of levered firm - Equity repurchased

= ₹ 1,832.50 lakhs – ₹ 275 lakhs = ₹ 1,557.50 lakhs

Cost of Equity (Ke) = (Net Income to equity holders / Market value of equity) X 100

= (₹ 321.12 lakhs / ₹ 1,557.50 lakhs) X 100 = 20.62%

Cost of debt (Kd) = I (1 - t) = 15 (1 - 0.3) = 10.50%

Components	**Amount (₹ In lakhs)**	**Cost of Capital %**	**Weight**	**WACC (Ko) %**
Equity Debt	1,557.50 275.00	20.62 10.50	0.8 5 0.1 5	17.5 3 1.58
	1,832.50		1	19.11

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The impact is that the Overall Cost of Capital or Ko has fallen by 0.89% (20% - 19.11%) due to the benefit of tax relief on debt interest payment.

(iii) Cost of Equity

The impact is that cost of equity has risen by 0.62% (20.62% - 20%) due to the presence of financial risk i.e. introduction of debt in capital structure.

Note: Cost of Capital and Cost of equity can also be calculated with the help of following formulas, though there will be no change in the final answers.

Cost of Capital (Ko) = Keu [1 – (t x L)] Where,

K_{eu}= Cost of equity in an unlevered company

$t =$ Tax rate $L = \frac{Debt}{Debt+Equity}$

$$So,\ K_0 = 0.20\left[1-\left(0.3\times\frac{Rs.275\ Lakhs}{Rs.1{,}832.5\ LAkhs}\right)\right] = 0.191 \text{ or } 19.10\% \text{ (approx.)}$$

$$Cost\ \text{of Equity } (K_e) = K_{eu} + (K_{eu} - K_d)\ \frac{Debt(1-t)}{Equity}$$

K_{eu}= Cost of equity in an unlevered company

$t =$ Tax rate

K_d = Cost of debt

$$So,\ K_e = 0.20 + \left((0.20-0.15)\times\frac{Rs.275\ lakhs(1-0.30)}{Rs.1{,}557.5\ LAkhs}\right) = 0.2062 \text{ or } 20.62\%$$

Question 30

Following data is available in respect of two companies having same business risk:

Capital employed = ₹ 12,00,000, EBIT = ₹ 2,40,000 and Ke = 15%

Sources	Dumbo Ltd (₹)	Jumbo Ltd (₹)
Debt (@12%)	4,00,000	Nil
Equity	8,00,000	12,00,000

An investor is holding 20% shares in the levered company. CALCULATE the increase in annual earnings of investor if arbitrage process is undertaken.

Also EXPLAIN the arbitrage process if Ke = 20% for Dumbo Ltd instead of 15%. (MTP 10 Marks, April '23)

Answer 30

(i) Valuation of firms

Particulars	Dumbo Ltd (₹)	Jumbo Ltd (₹)
EBIT	2,40,000	2,40,000
Less: Interest on debt (12% × ₹ 4,00,000)	48,000	Nil

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Earnings available to Equity shareholders	1,92,000	2,40,000
Ke	15%	15%
Value of Equity (S) (Earnings available to Equity shareholders/Ke)	12,80,000	16,00,000
Debt (D)	4,00,000	Nil
Value of Firm (V) = S + D	16,80,000	16,00,000

Value of Levered company is more than that of unlevered company. Therefore, investor will sell his shares in levered company and buy shares in unlevered company. To maintain the level of risk he will borrow proportionate amount and invest that amount also in shares of unlevered company

(ii) Investment & Borrowings

₹

Sell shares in Levered company (12,80,000 x 20%)	2,56,000
Borrow money (4,00,000 x 20%)	80,000
Buy shares in Unlevered company	3,36,000
(III) Change in Return	₹
Income from shares in Unlevered company	
(2,40,000 x 3,36,000/16,00,000)	50,400
Less: Interest on loan (80,000 x 12%)	9,600
Net Income from unlevered firm 40,800	
Less: Income from Levered firm (1,92,000 x 20%)	38,400
Incremental Income due to arbitrage	2,400
Arbitrage process if Ke = 20%	
(I). Valuation of firms	

Particulars	**Dumbo Ltd (₹)**	**Jumbo Ltd (₹)**
EBIT	2,40,000	2,40,000
Less: Interest on debt (12% × ₹ 4,00,000)	48,000	Nil
Earnings available to Equity shareholders	1,92,000	2,40,000
Ke	20%	15%
Value of Equity (S) (Earnings available to Equity shareholders/Ke)	9,60,000	16,00,000
Debt (D)	4,00,000	Nil
Value of Firm (V) = S + D	13,80,000	16,00,000

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Value of unlevered company is more than that of levered company. Therefore, investor will sell his shares in unlevered company and buy proportionate shares and debt in levered company i.e. 20% share.

(II). Investment & Borrowings

	₹
Sell shares in unlevered company (16,00,000 x 20%)	3,20,000
Buy shares in levered company (9,60,000 x 20%)	1,92,000
Buy Debt of levered company	1,28,000

(III). Change in Return

	₹
Income from shares in levered company	
(1,92,000 x 20%)	38,400
Add: Interest on debt of levered (1,28,000 x 12%)	15,360
Net Income from levered firm	53,760
Less: Income from unlevered firm (2,40,000 x 20%)	48,000
Incremental Income due to arbitrage	5,760

Question 31

A Ltd. and B Ltd. are identical in every respect except capital structure. A Ltd. does not employ debts in its capital structure whereas B Ltd. employs 12% Debentures amounting to Rs.100 lakhs. Assuming that:

(i) **All assumptions of M-M model are met;**
(ii) **Income-tax rate is 30%;**
(iii) **EBIT is Rs. 25,00,000 and**
(iv) **The Equity capitalization rate of 'A' Ltd. is 20%.**

CALCULATE the value of both the companies and also find out the Weighted Average Cost of Capital for both the companies. [MTP 5 Marks, Oct'19]

Answer 31

i. Calculation of Value of 'A Ltd.' and 'B Ltd' according to MM Hypothesis

Market Value of 'A Ltd' (Unlevered)

$$Vu = \frac{EBIT\ (1-t)}{k_e} = \frac{Rs.25,00,000(1-0.30)}{20\%} = \frac{Rs.17,50,000}{20\%} = Rs.\ 87,50,000$$

Market Value of 'B Ltd.' (Levered)

Vg = Vu + TB

= Rs. 87,50,000 + (Rs.1,00,00,000 × 0.30)

= Rs. 87,50,000 + Rs.30,00,000 = Rs.1,17,50,000

ii. Computation of Weighted Average Cost of Capital (WACC)

WACC of 'A Ltd.' = 20% (i.e. Ke = Ko)

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WACC of 'B Ltd.'

	B Ltd. (Rs.)
EBIT	25,00,000
Interest to Debt holders	(12,00,000)
EBT	13,00,000
Taxes @ 30%	(3,90,000)
Income available to Equity Shareholders	9,10,000
Total Value of Firm	1,17,50,000
Less: Market Value of Debt	(1,00,00,000)
Market Value of Equity	17,50,000
Return on equity (Ke) = 9,10,000 / 17,50,000	0.52

Computation of WACC B. Ltd

Component of Capital	Amount	Weight	Cost of Capital	WACC
Equity	17,50,000	0.149	0.52	0.0775
Debt	1,00,00,000	0.851	0.084*	0.0715
Total	1,17,50,000			0.1490

*Kd= 12% (1- 0.3) = 12% × 0.7 = 8.4%

WACC = 14.90%

Question 32

HN Limited is considering total investment of Rs. 20 lakhs. You are required to CALCULATE the level of earnings before interest and tax (EBIT) at which the EPS indifference point between the following financing alternatives will occur:

(i) **Equity share capital of Rs. 12,00,000 and 14% debentures of Rs. 8,00,000.**

Or

(ii) **Equity share capital of Rs. 8,00,000, 16% preference share capital of Rs. 4,00,000 and 14% debentures of Rs. 8,00,000.**

Assume the corporate tax rate is 30% and par value of equity share is Rs.10 in each case. (MTP 5 Marks March '21, RTP May 20)

Answer 32

Computation of level of earnings before interest and tax (EBIT)

In case alternative (i) is accepted, then the EPS of the firm would be:

$$EPS_{Alternative(i)} = \frac{(EBIT - Interest)(1 - tax\ Rate)}{No. of\ equity\ Shares} = \frac{(EBIT - 0.14 \times 8,00,000)(1 - 0.3)}{1,20,000\ shares}$$

In case the alternative (ii) is accepted, then the EPS of the firm would be

$$EPS_{Alternative(ii)} = \frac{(EBIT - Interest)(1 - tax\ Rate) - PD}{No. of\ equity\ Shares}$$

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$$\frac{(EBIT - 0.14 \times 8,00,000)(1-0.3) - 0.16 \times 4,00,000}{80,000\ shares}$$

In order to determine the indifference level of EBIT, the EPS under the two alternative plans should be equated as follows:

$$\frac{(EBIT - 0.14 \times 8,00,000)(1-0.3)}{1,20,000\ shares} = \frac{(EBIT - 0.14 \times 8,00,000)(1-0.3) - 0.16 \times 4,00,000}{80,000\ shares}$$

Or 1.40 EBIT - Rs. 1,56,800 = 2.10 EBIT - Rs. 4,27,200

Or 0.70 EBIT = Rs. 2,70,400

Or EBIT = 2,70,400 / 0.7

Or EBIT = Rs. 3,86,285.71 (approx.)

Question 33

Aeron We Ltd. is considering two alternative financing plans as follows:

Particulars	Plan – A (₹)	Plan – B (₹)
Equity shares of ₹ 100 each	**90,00,000**	**90,00,000**
Preference Shares of ₹ 100 each	-	**20,00,000**
9% Debentures	**20,00,000**	-
	1,10,00,000	**1,10,00,000**

The indifference point between the plans is ₹7,60,000. Corporate tax rate is 25%. CALCULATE the rate of dividend on preference shares. (RTP Nov '20)

Answer 33

Computation of Rate of Preference Dividend

$$\frac{(EBIT - Interest)(1-t)}{No.of\ Equity\ Shares\ (N_1)} = \frac{(EBIT(1-t) - Preference\ Dividend}{No.of\ Equity\ Shares\ (N_2)}$$

$$\frac{(7,60,000 - 1,80,000)X(1-0.25)}{90,000\ Shares} = \frac{7,60,000(1-0.25) - Preference\ Dividend}{90,000\ Shares}$$

$$\frac{4,35,000}{90,000\ Shares} = \frac{5,70,000 - Preference\ Dividend}{90,000\ Shares}$$

₹ 4,35,000 = ₹ 5,70,000 – Preference Dividend Preference

Dividend = ₹ 5,70,000 – ₹ 4,35,000 = ₹ 1,35,000

Rate of Dividend = $\frac{Preference\ Dividend}{Preference\ Share\ Capital}$ X 100

= $\frac{1,35,000}{20,00,000}$ X 100 = 6.75%

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Question 34

Current Capital Structure of XYZ Ltd is as follows:

Equity Share Capital of 7 lakh shares of face value ₹ 20 each Reserves of ₹ 10,00,000 9% bonds of ₹ 3,00,00,000

11% preference capital: 3,00,000 shares of face value ₹ 50 each Additional Funds required for XYZ Ltd are ₹ 5,00,00,000.

XYZ Ltd is evaluating the following alternatives:

I. **Proposed alternative I: Raise the funds via 25% equity capital and 75% debt at 10%. PE ratio in such scenario would be 12.**

II. **Proposed alternative II: Raise the funds via 50% equity capital and rest from 12% Preference capital .PE ratio in such scenario would be 11.**

Any new equity capital would be issued at a face value of ₹ 20 each. Any new preferential capital would be issued at a face value of ₹ 20 each. Tax rate is 34%

DETERMINE the indifference point under both the alternatives. (RTP May 23)

Answer 34

Current Capital Structure		
Equity Share Capital	₹ 20 x 7 lakhs	₹ 1,40,00,000
Reserves		₹ 10,00,000
9% Bonds		₹ 3,00,00,000
11% Preference Share Capital	₹ 50 x 3 lakhs	₹ 1,50,00,000
Total Capital Employed		₹ 6,00,00,000

Proposed Capital Structure

Capital	Working	Proposal I	Proposal II
Capital to be raised		₹5,00,00,000	₹5,00,00,000
Equity	50000000 x 25%	₹ 1,25,00,000	-
	50000000 x 50%	-	₹ 2,50,00,000
Debt @ 10%	50000000 x 75%	₹ 3,75,00,000	-
Preference Shares @ 12%	50000000 x 50%	-	₹ 2,50,00,000
Combined Capital		**Amount (proposal 1)**	**Amount (proposal 2)**
Equity		₹ 2,65,00,000	₹ 3,90,00,000
Reserves		₹ 10,00,000	₹ 10,00,000
9% Bond		₹ 3,00,00,000	₹ 3,00,00,000
10% Debt		₹ 3,75,00,000	-
11% Preference Shares		₹ 1,50,00,000	₹ 1,50,00,000

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12% Preference Shares		-	₹ 2,50,00,000
		₹ 11,00,00,000	₹ 11,00,00,000

Interest for Proposal I = ₹ 3,00,00,000 x 9% + ₹ 3,75,00,000 x 10%
= ₹ 27,00,000 + ₹ 37,50,000
= ₹ 64,50,000
Preference Dividend for Proposal I = ₹ 1,50,00,000 x 11% = ₹ 16,50,000
Interest for Proposal II = ₹ 3,00,00,000 x 9% = ₹ 27,00,000
Preference Dividend for Proposal II = ₹ 1,50,00,000 x 11% + ₹ 2,50,00,000 x 12%
= ₹ 16,50,000 + ₹ 30,00,000 = ₹ 46,50,000
Let the indifference Point be Rs. X
For Proposal I,

$$EPS = \frac{(X - Rs.64,50,000)X0.66 - Rs.16,50,000}{13,25,000} \quad (1)$$

For Proposal II,

$$EPS = \frac{(X - Rs.27,00,000)X0.66 - Rs.46,50,000}{19,50,000} \quad (2)$$

Equating (1) and (2),

$$EPS = \frac{(X - Rs.64,50,000)X\ 0.66 - Rs.16,50,000}{13,25,000} = \frac{(X - Rs.27,00,000)X0.66 - Rs.46,50,000}{19,50,000}$$

$$\frac{0.66\ X\ Rs.42,57,000 - Rs.16,50,000}{1,325} = \frac{0.66X - Rs.17,82,000 - Rs\ 46,50,000}{1,950}$$

$$\frac{0.66X - Rs.59,07,000}{53} \ldots\ldots\ldots\ldots\ldots = \frac{0.66X - Rs.64,32,000}{78}$$

51.48X – ₹ 46,07,46,000 = 37.98X - ₹34,08,96,000
16.5X = ₹ 11,98,50,000
Indifference Point = X = ₹ 72,63,636.36

Question 35

RM Steels Limited requires Rs.10,00,000 for construction of a new plant. It is considering three financial plans:

(i) **The company may issue 1,00,000 ordinary shares at Rs.10 per share;**

(ii) **The company may issue 50,000 ordinary shares at Rs.10 per share and 5000 debentures of Rs.100 denominations bearing an 8 per cent rate of interest; and**

(iii) **The company may issue 50,000 ordinary shares at Rs.10 per share and 5,000 preference shares at Rs.100 per share bearing an 8 per cent rate of dividend.**

(iv) **If RM Steels Limited's earnings before interest and taxes are Rs.20,000; Rs.40,000; Rs.80,000; Rs.1,20,000 and Rs.2,00,000, you are required to**

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compute the earnings per share under each of the three financial plans?

(v) **Which alternative would you recommend for RM Steels and why? Tax rate is 50%. (PYP 10 Marks, May'19)**

Answer 35

(i) **Computation of EPS under three-financial plans Plan I: Equity Financing**

	(Rs.)	(Rs.)	(Rs.)	(Rs.)	**(Rs.)**
EBIT	20,000	40,000	80,000	1,20,000	2,00,000
Interest	0	0	0	0	0
EBT	20,000	40,000	80,000	1,20,000	2,00,000
Less: Tax @ 50%	10,000	20,000	40,000	60,000	1,00,000
PAT	10,000	20,000	40,000	60,000	1,00,000
No. of equity shares	1,00,000	1,00,000	1,00,000	1,00,000	1,00,000
EPS	0.10	0.20	0.40	0.60	1

Plan II: Debt – Equity Mix

	(Rs.)	(Rs.)	(Rs.)	(Rs.)	(Rs.)
EBIT	20,000	40,000	80,000	1,20,000	2,00,000
Less: Interest	40,000	40,000	40,000	40,000	40,000
EBT	(20,000)	0	40,000	80,000	1,60,000
Less: Tax @ 50%	10,000*	0	20,000	40,000	80,000
PAT	(10,000)	0	20,000	40,000	80,000
No. of equity shares	50,000	50,000	50,000	50,000	50,000
EPS	(Rs. 0.20)	0	0.40	0.80	1.60

*The Company can set off losses against the overall business profit or may carry forward it to next financial years.

Plan III: Preference Shares – Equity Mix

	(Rs.)	**(Rs.)**	**(Rs.)**	(Rs)	**(Rs.)**
EBIT	20,000	40,000	80,000	1,20,000	2,00,000
Less: Interest	0	0	0	0	0
EBT	20,000	40,000	80,000	1,20,000	2,00,000
Less: Tax @ 50%	10,000	20,000	40,000	60,000	1,00,000
PAT	10,000	20,000	40,000	60,000	1,00,000
Less: Pref. dividend	40,000*	40,000*	40,000	40,000	40,000
PAT after Pref. dividend.	(30,000)	(20,000)	0	20,000	60,000

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No. of Equity shares	50,000	50,000	50,000	50,000	50,000
EPS	(0.60)	(0.40)	0	0.40	1.20

* In case of cumulative preference shares, the company has to pay cumulative dividend to preference shareholders, when company earns sufficient profits.

(ii) From the above EPS computations tables under the three financial plans we can see that when EBIT is Rs.80,000 or more, Plan II: Debt-Equity mix is preferable over the Plan I and Plan III, as rate of EPS is more under this plan. On the other hand, an EBIT of less than
Rs.80,000, Plan I: Equity Financing has higher EPS than Plan II and Plan III. Plan III Preference Share Equity mix is not acceptable at any level of EBIT, as EPS under this plan is lower.

The choice of the financing plan will depend on the performance of the company and other macro-economic conditions. If the company is expected to have higher operating profit Plan II: Debt – Equity Mix is preferable. Moreover, debt financing gives more benefit due to availability of tax shield.

Question 36

A Company earns a profit of Rs.6,00,000 per annum after meeting its interest liability of Rs.1,20,000 on 12% debentures. The Tax rate is 50%. The number of Equity Shares of Rs.10 each are 80,000 and the retained earnings amount to Rs.18,00,000. The company proposes to take up an expansion scheme for which a sum of Rs.8,00,000 is required. It is anticipated that after expansion, the company will be able to achieve the same return on investment as at present. The funds required for expansion can be raised either through debt at the rate of 12% or by issuing equity shares at par.

Required:

(i) **COMPUTE the Earnings per Share (EPS), if:**
- **The additional funds were raised as debt**
- **The additional funds were raised by issue of equity shares.**

(ii) **ADVISE the company as to which source of finance is preferable. [MTP 10 Marks, March'19 & Oct '23]**

Answer 36

Earnings before interest and tax (EBIT) after expansion scheme:

After expansion, capital employed = Rs.36,00,000 + Rs.8,00,000 = Rs.44,00,000
Desired EBIT = 20% × Rs.44,00,000 = Rs.8,80,000

(i) **Computation of Earnings Per Share (EPS) under the following options:**

	Present situation	**Expansion scheme Additional funds raised as**	
		Debt	**Equity**
	(Rs.)	**(Rs.)**	**(Rs.)**
Earnings before Interest and Tax (EBIT)	7,20,000	8,80,000	8,80,000
Less: Interest - Old	1,20,000	1,20,000	1,20,000

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capital			
- New capital	--	96,000 (Rs.8,00,000 × 12%)	--
Earnings before Tax (EBT)	6,00,000	6,64,000	7,60,000
Less: Tax (50% of EBT)	3,00,000	3,32,000	3,80,000
PAT	3,00,000	3,32,000	3,80,000
No. of shares outstanding	80,000	80,000	1,60,000
Earnings per Share (EPS)			

(ii) **Advise to the Company**: When the expansion scheme is financed by additional debt, the EPS is higher. Hence, the company should finance the expansion scheme by raising debt.

Question 37

Axar Ltd. has a Sales of ₹ 68,00,000 with a Variable cost Ratio of 60%.
The company has fixed cost of ₹16,32,000. The capital of the company comprises of 12% long term debt, ₹1,00,000 Preference Shares of ₹ 10 each carrying dividend rate of 10% and 1,50,000 equity shares.
The tax rate applicable for the company is 30%.
At current sales level, DETERMINE the Interest, EPS and amount of debt for the firm if a 25% decline in Sales will wipe out all the EPS (MTP 5 Marks Oct'22)

Answer 37

Break Even Sales = ₹ 6800000×0.75 = ₹ 51,00,000
Income Statement

(Amount in ₹)

	Original	**Calculation of Interest at BEP (backward calculation)**	**Now at present level**
Sales	68,00,000	51,00,000	68,00,000
Less: Variable Cost	40,80,000	30,60,000	40,80,000
Contribution	27,20,000	20,40,000	27,20,000
Less: Fixed Cost	16,32,000	16,32,000	16,32,000
EBIT	10,88,000	4,08,000	10,88,000
Less: Interest (EBIT-PBT)	?	3,93,714	3,93,714
PBT	?	14,286(10,000/70%)	6,94,286
Less: Tax @ 30%(or PBT-PAT)	?	4,286	2,08,286
PAT	?	10,000(Nil+10,000)	4,86,000
Less: Preference Dividend	10,000	10,000	10,000
Earnings for Equity share holders	?	Nil (at BEP)	4,76,000
Number of Equity Shares	1,50,000	1,50,000	1,50,000
EPS	?	-	3.1733

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So, Interest = ₹ 3,93,714, EPS=₹3.1733, Amount of debt = 3,93,714/12% = ₹ 32,80,950

Question 38

PRI Ltd. and SHA Ltd. are identical, however, their capital structure (in market-value terms) differs as follows:

Company	Debt	Equity
PRI Ltd.	60%	40%
SHA Ltd.	20%	80%

The borrowing rate for both companies is 8% in a no-tax world and capital markets are assumed to be perfect.

(a) **(i) If Mr. Rhi, owns 6% of the equity shares of PRI Ltd., DETERMINE his return if the Company has net operating income of ₹ 9,00,000 and the overall capitalization rate of the company (Ko) is 18%.**

(ii) CALCULATE the implied required rate of return on equity of PRI Ltd.

(b) **SHA Ltd. has the same net operating income as PRI Ltd.**

(i) **CALCULATE the implied required equity return of SHA Ltd.**

(ii) **ANALYSE why does it differ from that of PRI Ltd. [MTP 10 Marks March 22, PYP 10 Marks Jan '21)**

Answer 38

Value of PRI Ltd. = $\frac{NOI}{K_0}$ = $\frac{Rs.9,00,000}{18\%}$ = Rs. 50,00,000

(a) **(i) Return on Shares of Mr. Rhi on PRI Ltd.**

Particulars	Amount (₹)
Value of the company	50,00,000
Market value of debt (60% x ₹ 50,00,000)	30,00,000
Market value of shares (40% x ₹ 50,00,000)	20,00,000
Particulars	Amount (₹)
Net operating income	9,00,000
Interest on debt (8% × ₹ 30,00,000)	2,40,000
Earnings available to shareholders	6,60,000
Return on 6% shares (6% × ₹ 6,60,000)	39,600

(ii) Implied required rate of return on equity of PRI Ltd. = $\frac{Rs.6,60,000}{Rs.20,00,000}$ = 33%

(b) (i) **Calculation of Implied rate of return of SHA Ltd.**

Particulars	**Amount (₹)**
Total value of company	50,00,000

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Market value of debt (20% × ₹ 50,00,000)	10,00,000
Market value of equity (80% × ₹ 50,00,000)	40,00,000
Particulars	**Amount (₹)**
Net operating income	9,00,000
Interest on debt (8% × ₹ 10,00,000)	80,000
Earnings available to shareholders	8,20,000

Implied required rate of return on equity = $\frac{Rs.8,20,000}{Rs.40,00,000}$ = 20.5%

(ii) Implied required rate of return on equity of SHA Ltd. is lower than that of PRI Ltd. because SHA Ltd. uses less debt in its capital structure. As the equity capitalization is a linear function of the debt-to-equity ratio when we use the net operating income approach, the decline in required equity return offsets exactly the disadvantage of not employing so much in the way of "cheaper" debt funds.

Question 39

Sinha Steel Ltd. requires ₹ 30,00,000 for a new plant which expects to yield earnings before interest and taxes of ₹ 5,00,000. While deciding about the financial plan, the company considers the objective of maximizing earnings per share. It has three alternatives to finance the project as follows -

Alternative	Debt	Equity Shares
1	Rs.2,50,000	balance
2	Rs.10,00,000	balance
3	Rs.15,00,000	balance

The company's share is currently selling at Rs.200, but is expected to decline to Rs.160 in case the funds are borrowed in excess of Rs.10,00,000.
Slab wise interest rate for fund borrowed are as follows -

Fund Limit	Applicable Interest rate
up-to Rs.2,50,000	10%
over Rs.2,50,000 and up-to Rs.10,00,000	15%
over Rs.10,00,000	20%

The tax rate applicable to the company is 50 percent.
ANALYSE which form of financing should the company choose? [PYP 5 Marks Nov '18)

Answer 39

Alternative I = Raising Debt of Rs.2.5 lakh + Equity of Rs.27.5 lakh. Alternative II = Raising Debt of Rs.10 lakh + Equity of ₹20 lakh. Alternative III = Raising Debt of

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Rs.15 lakh + Equity of Rs.15 lakh.

Calculation of Earnings per share (EPS):

(Amount in ₹)

Particulars	**FINANCIAL ALTERNATIVES**		
	Alternative I	**Alternative II**	**Alternative III**
Expected EBIT	5,00,000	5,00,000	5,00,000
Less: Interest (working note I)	(25,000)	(1,37,500)	(2,37,500)
Earnings before taxes	4,75,000	3,62,500	2,62,500
Less: Taxes @ 50%	(2,37,500)	(1,81,250)	(1,31,250)
Earnings after taxes (EAT)	2,37,500	1,81,250	1,31,250
Number of shares (working note ii)	13,750	10,000	9,375
Earnings per share (EPS)	**17.27**	**18.125**	**14.00**

Financing Alternative II (i.e. Raising debt of ₹10 lakh and issue of equity share capital of Rs.20 lakh) is the option which maximizes the earnings per share.

Working Notes:

(iii) Calculation of interest on Debt **(Amount in ₹)**

Alternative I	(2,50,000 × 10%)		25,000
Alternative II	(2,50,000 × 10%)	25,000	
	(7,50,000 × 15%)	1,12,500	1,37,500
Alternative III	(2,50,000 × 10%)	25,000	
	(7,50,000 × 15%)	1,12,500	
	(5,00,000 × 20%)	1,00,000	2,37,500

(iv) Number of equity shares to be issued

Alternative I = Rs.27,50,000/ ₹Rs.200 (Market Price of share)
= 13,750 shares

Alternative II = Rs.20,00,000/ Rs.200= 10,000 shares

Alternative III = Rs.15,00,000/ Rs. 160 = 9,375 shares

Question 40

Sophisticated Limited is considering three financing plans. The key information is as follows:

(k) **Total investment amount to be raised Rs.4,00,000**

(l) **Plans of Financing Proportion:**

Plans	**Equity**	**Debt**	**Preference Shares**
A	**100%**	**-**	**-**
B	**50%**	**50%**	**-**
C	**50%**	**-**	**50%**

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(m) **Cost of debt** **10%**
Cost of preference shares **10%**
(n) **Tax rate** **30%**
(o) **Equity shares of the face value of Rs.10 each will be issued at a premium of Rs.10 per share.**
(p) **Expected EBIT is Rs.10,00,000.**
You are required to DETERMINE for each plan: -
(iv) **Earnings per share (EPS)**
(v) **The financial break-even point.**
(vi) **Indicate if any of the plans dominate and compute the EBIT range among the plans for indifference. (PYP 10 Marks Nov'20)**

Answer 40

Computation of Earnings per share (EPS)

Plans	A	B	C
Earnings before interest and tax (EBIT)	10,00,000	10,00,000	10,00,000
Less: Interest charges	---	(20,000) (10% × ₹2 lakh)	---
Earnings before tax (EBT)	10,00,000	9,80,000	10,00,000
Less: Tax (@ 30%)	(3,00,000)	(2,94,000)	(3,00,000)
Earnings after tax (EAT)	7,00,000	6,86,000	7,00,000
Less: Preference Dividend	---	---	(20,000) (10% × ₹2 lakh)
Earnings available for Equity shareholders (A)	7,00,000	6,86,000	6,80,000
No. of Equity shares (B)	20,000 (Rs.4 lakh ÷ Rs.20)	10,000 (Rs.2 lakh ÷ Rs.20)	10,000 (Rs.2 lakh ÷ Rs.20)
EPS ₹ [(A) ÷ (B)]	35	68.6	68

(iv) Calculation of Financial Break-even point
Financial break-even point is the earnings which are equal to the fixed finance charges and preference dividend.
Plan A: Under this, plan there is no interest or preference dividend payment. Hence, the Financial Break-even point will be zero.
Plan B: Under this plan, there is an interest payment of Rs.20,000 and no preference dividend. Hence, the Financial Break-even point will be Rs.20,000 (Interest charges).
Plan C: Under this plan, there is no interest payment but an after tax preference dividend of
Rs.20,000 is paid. Hence, the Financial Break- even point will be before tax earnings of Rs.28,571 (i.e. Rs.20,000 ÷ 0.7)

(v) Computation of indifference point between the plans.
The indifference between two alternative methods of financing is calculated

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by applying the following formula.

$$= \frac{(EBIT-I1)(1-T)}{E_1} = \frac{(EBIT-I2)(1-T)}{E_2}$$

EBIT	=	Earnings before interest and tax.
I1	=	Fixed charges (interest or pref. dividend) under Alternative 1
I2	=	Fixed charges (interest or pref. dividend) under Alternative 2
T	=	Tax rate
E1	=	No. of equity shares in Alternative 1
E2	=	No. of equity shares in Alternative 2

Now, we can calculate indifference point between different plans of financing.

(a) Indifference point where EBIT of Plan A and Plan B is equal.

$$\frac{(EBIT-0)(1-0.3)}{20,000} = \frac{(EBIT-20,000)(1-0.3)}{10,000}$$

0.7 EBIT (10,000) = (0.7 EBIT – 14,000) (20,000)
7,000 EBIT = 14,000 EBIT – 28 crores
EBIT = 40,000

(b) Indifference point where EBIT of Plan A and Plan C is equal

$$\frac{(EBIT-0)(1-0.3)}{20,000} = \frac{(EBIT-20,000)(1-0.3)}{10,000}$$

0.7 EBIT (10,000) = (0.7 EBIT – 20,000) (20,000)
7000 EBIT = 14,000 EBIT – 40 crores
EBIT = 57,142.86

(c) Indifference point where EBIT of Plan B and Plan C are equal

$$\frac{(EBIT-20,000)(1-0.3)}{10,000} = \frac{(EBIT-0)(1-0.3)-20,000}{10,000}$$

(0.7 EBIT – 14,000) (10,000) = (0.7 EBIT – 20,000) (10,000)
7,000 EBIT – 14 crore = 7,000 EBIT - 20 crore
There is no indifference point between the financial plans B and C.

Question 41

EXPLAIN Over-capitalization. STATE its causes and consequences. [PYP 2 Marks Nov'22)

Answer 41

Over-capitalization and its Causes and Consequences

It is a situation where a firm has more capital than it needs or in other words assets are worth less than its issued share capital, and earnings are insufficient to pay dividend and interest.

Causes of Over Capitalization

Over-capitalization arises due to following reasons:

(ix) Raising more money through issue of shares or debentures than company can employ profitably.
(x) Borrowing huge amount at higher rate than rate at which company can earn.

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(xi) Excessive payment for the acquisition of fictitious assets such as goodwill etc.
(xii) Improper provision for depreciation, replacement of assets and distribution of dividends at a higher rate.
(xiii) Wrong estimation of earnings and capitalization.

Consequences of Over-Capitalization

Over-capitalization results in the following consequences:

(v) Considerable reduction in the rate of dividend and interest payments.
(vi) Reduction in the market price of shares.
(vii) Resorting to "window dressing".
(viii) Some companies may opt for reorganization. However, sometimes the matter gets worse and the company may go into liquidation.

Question 42

Aeron We Ltd. is considering two alternative financing plans as follows:

Particulars	Plan – A (₹)	Plan – B (₹)
Equity shares of ₹ 100 each	**90,00,000**	**90,00,000**
Preference Shares of ₹ 100 each	-	**20,00,000**
9% Debentures	**20,00,000**	-
	1,10,00,000	**1,10,00,000**

The indifference point between the plans is ₹7,60,000. Corporate tax rate is 25%. CALCULATE the rate of dividend on preference shares. (MTP 5 Marks March '23)

Answer 42

Computation of Rate of Preference Dividend

$$\frac{(EBIT - Interest)(1-t)}{No.of\ Equity\ Shares\ (N_1)} = \frac{(EBIT(1-t) - Preference\ Dividend}{No.of\ Equity\ Shares\ (N_2)}$$

$$\frac{(7,60,000 - 1,80,000)X(1-0.25)}{90,000\ Shares} = \frac{7,60,000(1-0.25) - Preference\ Dividend}{90,000\ Shares}$$

$$\frac{4,35,000}{90,000\ Shares} = \frac{5,70,000 - Preference\ Dividend}{90,000\ Shares}$$

₹ 4,35,000 = ₹ 5,70,000 – Preference Dividend Preference

Dividend = ₹ 5,70,000 – ₹ 4,35,000 = ₹ 1,35,000

Rate of Dividend = $\frac{Preference\ Dividend}{Preference\ Share\ Capital}$ X 100

= $\frac{1,35,000}{20,00,000}$ X 100 = 6.75%

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Section B

1. **The assumptions of MM hypothesis of capital structure do not include the following:**
   - (a) Capital markets are imperfect
   - (b) Investors have homogeneous expectations
   - (c) All firms can be classified into homogeneous risk classes
   - (d) The dividend-payout ratio is cent percent, and there is no corporate tax

Ans: (a)

2. **Which of the following is irrelevant for optimal capital structure?**
   - (a) Flexibility
   - (b) Solvency
   - (c) Liquidity
   - (d) Control

Ans: (b)

3. **Financial Structure refers to:**
   - (a) All financial resources
   - (b) Short-term funds
   - (c) Long-term funds
   - (d) None of these

Ans: (a)

4. **An EBIT-EPS indifference analysis chart is used for:**
   - (a) Evaluating the effects of business risk on EPS
   - (b) Examining EPS results for alternative financial plans at varying EBIT levels

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(c) Determining the impact of a change in sales on EBIT

(d) Showing the changes in EPS quality over time

Ans: (b)

5. **The term "capital structure" means:**

(a) Long-term debt, preferred stock, and equity shares

(b) Current assets and current liabilities

(c) Net working capital

(d) Shareholder's equity

Ans: (a)

6. **The cost of monitoring management is considered to be a (an):**

(a) Bankruptcy cost

(b) Transaction cost

(c) Agency cost

(d) Institutional cost

Ans:(c)

7. **The traditional approach towards the valuation of a firm assumes:**

(a) That the overall capitalization rate changes in financial leverage.

(b) That there is an optimum capital structure.

(c) That the total risk is not changed with the changes in the capitalstructure.

(d) That the markets are perfect

Ans: (b)

8. **Market values are often used in computing the weighted average cost of capital because:**

(a) This is the simplest way to do the calculation.

(b) This is consistent with the goal of maximizing shareholder value.

(c) This is required by SEBI.

(d) This is a very common mistake.

Ans: (b)

9. **A firm's optimal capital structure:**

(a) Is the debt-equity ratio that results in the minimum possible weighted average cost of capital

(b) 40 percent debt and 60 percent equity

(c) When the debt-equity ratio is 0.50

(d) When Cost of equity is minimum

Ans: (a)

10. **Capital structure of a firm influences the:**

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(a) Risk

(b) Return

(c) Both Risk and Return

(d) Return but not Risk

Ans:(c)

11. Consider the below mentioned statements:

1. A company is considered to be over-capitalised when its actual capitalisation is lower than the proper capitalization as warranted by the earning capacity.

2. Both over-capitalization and under-capitalization are detrimental to the interests of the society.

State True or False:

(a) 1-True, 2-True

(b) 1-False, 2-True

(c) 1-False, 2-False

(d) 1-True, 2-False

Ans: (b)

12. A critical assumption of the Net Operating Income (NOI) approach to valuation is:

(a) That debt and equity levels remain unchanged.

(b) That dividends increase at a constant rate.

(c) That k_O remains constant regardless of changes in leverage.

(d) That interest expense and taxes are included in the calculation.

Ans:(c)

13. Which of the following steps may be adopted to avoid the negative consequences of over-capitalisation?

(a) The shares of the company should be split up. This will reduce dividend per share, though EPS shall remain unchanged.

(b) Issue of Bonus Shares.

(c) Revising upward the par value of shares in exchange of the existing shares held by them.

(d) Reduction in claims of debenture-holders and creditors.

Ans:(d)

<u>Theoretical Questions Answers</u>

Question 1

DESCRIBE Capital Structure.

Answer 1

Capital structure is the combination of capitals from different sources of finance. The

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capital of a company consists of equity share holders' fund, preference share capital and long term external debts. The source and quantum of capital is decided keeping in mind the following factors:

1. **Control**: Capital structure should be designed in such a manner that existing shareholders continue to hold majority stake.
2. **Risk**: Capital structure should be designed in such a manner that financial riskof a company does not increase beyond tolerable limit.
3. **Cost**: Overall cost of capital remains minimum.

Practically, it is difficult to achieve all of the above three goals together, hence, a finance manager has to make a balance among these three objectives.

Question 2

EXPLAIN in brief the assumptions of Modigliani-Miller theory.

Answer 2

The NOI approach is definitional or conceptual and lacks behavioural significance.It does not provide operational justification for irrelevance of capital structure. However, Modigliani-Miller (MM) approach provides behavioural justification for constant overall cost of capital and therefore, total value of the firm.

MM Approach – 1958: without tax:

This approach describes, in a perfect capital market where there is no transaction cost and no taxes, the value and cost of capital of a company remain unchanged irrespective of change in the capital structure. This approach is based on further following additional assumptions:

- Capital markets are perfect. All information is freely available and there are no transaction costs.
- All investors are rational.
- Firms can be grouped into 'Equivalent risk classes' on the basis of their business risk.
- Non-existence of corporate taxes.

Question 3

DESCRIBE Net Operating Income (NOI) theory of capital structure? EXPLAIN the assumptions of Net Operating Income approach theory of capital structure.

Answer 3

NOI means Earnings before interest and tax (EBIT). According to this approach, capital structure decisions of the firm are **irrelevant**.

Any change in the leverage will not lead to any change in the total value of the firm and the market price of shares, as the overall cost of capital is independent of the degree

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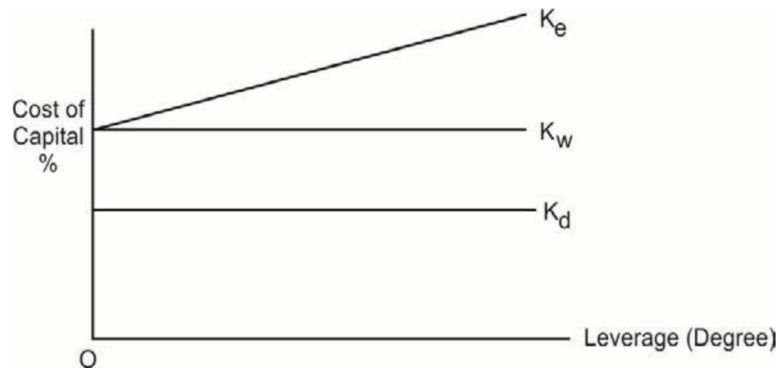
of leverage. As a result, the division between debt and equity is irrelevant.

As per this approach, an increase in the use of debt which is apparently cheaper is offset by an increase in the equity capitalisation rate. This happens because equity investors seek higher compensation as they are opposed to greater risk due to the existence of fixed return securities in the capital structure.



The above diagram shows that K_w (Weighted Average Cost of Capital) and K_d (debt capitalisation rate) are constant and K_e (Cost of equity) increases with leverage.

Question 4

EXPLAIN the principles of "Trading on equity".

Answer 4

Financial leverage or Trading on Equity: The use of long-term fixed interest bearing debt and preference share capital along with equity share capital is called financial leverage or trading on equity. The use of long-term debt increases the earnings per share if the firm yields a return higher than thecost of debt. The earnings per share also increase with the use of preference share capital but due to the fact that interest is allowed to be deducted while computing tax, the leverage impact of debt is much more. However, leverage can operate adversely also if the rate of interest on long-term loan is more than the expected rate of earnings of the firm. Therefore, it needs caution to plan the capital structure of a firm.

Question 5

DISCUSS the concept of Debt-Equity or EBIT-EPS indifference point, while determining the capital structure of a company.

Answer 5

Same as Answer 19.

Question 6

DISCUSS financial break-even and EBIT-EPS indifference analysis

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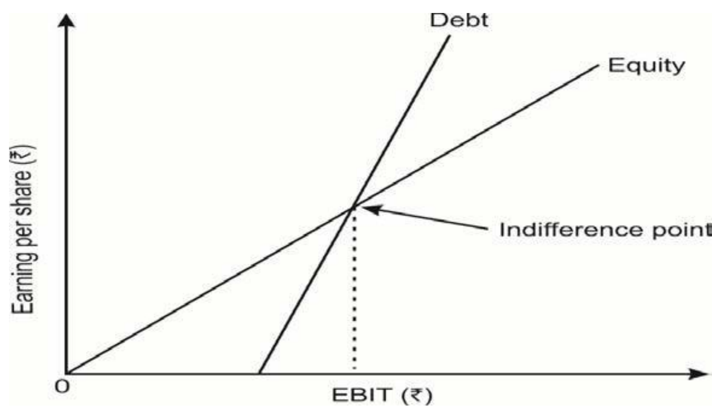
Answer 6



Financial break-even point is the minimum level of EBIT needed to satisfy all the fixed financial charges i.e. interests and preference dividends. It denotes the levelof EBIT for which the company's **EPS equals zero**.

Financial breakeven point (BEP) can be calculated as:

Financial Break-even point = Interest + Preference dividend/(1 - tax rate)

If the EBIT is less than the financial break-even point, then the EPS will be negative but if the expected level of EBIT is more than the break-even point, then more fixed costs financing instruments can be taken in the capital structure, otherwise, equity would be preferred.

EBIT-EPS break-even analysis is used for determining the appropriate amount of debt a company might carry.
Another method of considering the impact of various financing alternatives on earnings per share is to prepare the EBIT chart or the range of Earnings chart. This chart shows the likely EPS at various probable EBIT levels. Thus, under one particular alternative, EPS may be ₹ 2 at a given EBIT level. However, the EPS may go down if another alternative of financing is chosen even though the EBIT remains at the same level. At a given EBIT, earnings per share under various alternatives of financing may be plotted. A straight line representing the EPS at various levels of EBIT under the alternative may be drawn. Wherever this line intersects, it is known as **break- even point**. This point is a useful guide in formulating the capital structure. This is known as EPS equivalency point or indifference point since this shows that, between the two given alternatives of financing (i.e., regardless of leverage in the financial plans), EPS would be the same at the given level of EBIT.

The equivalency or indifference point can also be calculated algebraically in the following manner:

$$\frac{(EBIT - I1)}{E1} = \frac{(EBIT - I2)(1-t)}{E2}$$

Where,		
EBIT	=	Indifference point
E1	=	Number of equity shares in Alternative 1

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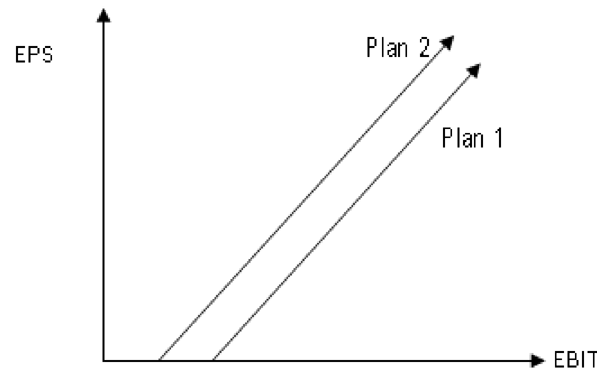
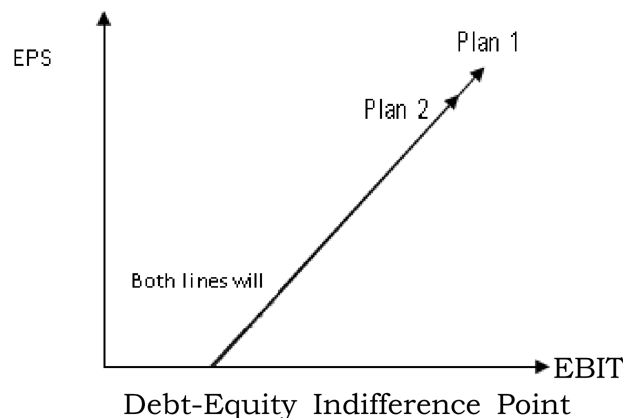
E2	=	Number of equity shares in Alternative 2
I1	=	Interest charges in Alternative 1
I2	=	Interest charges in Alternative 2
T	=	Tax-rate

Just keep in mind that if amount of equity share capital is same under two financial plans, then one of the following two situations will arise:

1. **No indifference point**: If after tax cost of the source other than equity sharesis **not same** under both plans then there will be no indifference point between the two. Because one plan will be better than other at all levels ofEBIT. For example, if two plans have equity shares of ₹ 1,00,000 each. Plan 1has 10% debentures of ₹ 50,000 while plan 2 has 8% Term loan of ₹ 50,000. Then plan 2 will be better than plan 1 at any level of EBIT and there will be no indifference point.



2. **Many indifference points**: If after tax cost of the source other than equityshares is **same** under both plans then each EBIT will be an indifference point.



Debt-Equity Indifference Point

Question 7

Aaina Ltd. is considering a new project which requires a capital investment of₹ 9 crores. Interest on term loan is 12% and Corporate Tax rate is 30%. calculate the point of indifference for the project considering the Debt Equity ratio insisted by the financing agencies being 2 : 1.

Answer 7

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The capital investment can be financed in two ways i.e.

(i) By issuing equity shares only worth ₹ 9 crore or
(ii) By raising capital through taking a term loan of ₹ 6 crores and ₹ 3 crores through issuing equity shares (as the company has to comply with the 2:1 Debt Equity ratio insisted by financing agencies).

In first option interest will be Zero and in second option the interest will be ₹ 72,00,000 Point of Indifference between the above two alternatives =

$$\frac{\text{EBIT}\times(1-\text{t})}{\text{No.of equityshares(N1)}}=\frac{(\text{EBIT}-\text{Interest})\times(1-\text{t})}{\text{No.of equityshares(N2)}}$$

Or, $\frac{\text{EBIT}\times(1-0.30)}{90,00,000\text{shares}}=\frac{(\text{EBIT}-72,00,000)\times(1-0.30)}{30,00,000\text{shares}}$

	0.7 EBIT	=	2.1 EBIT – ₹ 1,51,20,000
	EBIT	=	₹ 1,08,00,000

EBIT at point of Indifference will be ₹ 1.08 crore.

(The face value of the equity shares is assumed as ₹ 10 per share. However, indifference point will be same irrespective of face value per share).

Question 8

Xylo Ltd. is considering two alternative financing plans as follows:

Particulars	Plan – A (₹)	Plan – B (₹)
Equity shares of ₹ 10 each	**8,00,000**	**8,00,000**
Preference Shares of ₹ 100 each	**-**	**4,00,000**
12% Debentures	**4,00,000**	**-**
	12,00,000	**12,00,000**

The indifference point between the plans is ₹ 4,80,000. Corporate tax rate is 30%. CALCULATE the rate of dividend on preference shares.

Answer 8

Computation of Rate of Preference Dividend

$$\frac{(\text{EBIT}-\text{intrest})\times(1-\text{t})}{\text{No.of equityshares(N1)}}=\frac{\text{EBIT}(1-\text{t})-\text{Preference Dividend}}{\text{No.of equityshares(N2)}}$$

Or, $\frac{\text{Rs.}4,80,000-\text{Rs.}48,000\times(1-0.30)}{80,00,000\text{shares}}=\frac{\text{Rs.}4,80,000(1-0.30)-\text{Preference Dividend}}{80,00,000\text{shares}}$

$$\frac{₹\ 3,02,400}{80,00,000\text{ shares}}=\frac{₹\ 3,36,000-\text{Preference Dividend}}{80,00,000\text{ shares}}$$

₹ 3,02,400 = ₹ 3,36,000 – Preference Dividend
Preference Dividend == ₹ 3,36,000 – ₹ 3,02,400 = ₹ 33,600

$$\text{Rate of Dividend}==\frac{\text{Preference Dividend}}{\text{Preference share capital}}\times 100$$

$$=\frac{Rs.33,600}{4,00,000}\times 100=8.4\%$$

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Question 9

Ganesha Limited is setting up a project with a capital outlay of ₹ 60,00,000. It has two alternatives in financing the project cost.
Alternative-I: 100% equity finance by issuing equity shares of ₹ 10 each
Alternative-II: Debt-equity ratio 2:1 (issuing equity shares of ₹ 10 each)
The rate of interest payable on the debts is 18% p.a. The corporate tax rate is 40%.
CALCULATE the indifference point between the two alternative methods of financing.

Answer 9

Calculation of Indifference point between the two alternatives offinancing

Alternative-I

By issue of 6,00,000 equity shares of ₹ 10 each amountingto ₹ 60 lakhs. No financial charges are involved.

Alternative-II

By raising the funds in the following way:Debt = ₹ 40 lakhs

Equity = ₹ 20 lakhs (2,00,000 equity shares of ₹ 10 each)

Interest payable on debt == ₹ 40 lakhs$\times\frac{18}{100}$=₹ 7,20,000

The difference point between the two alternatives is calculated by:

$$\frac{EBIT - I_1(1-t)}{E_1} = \frac{EBIT - I_2(1-t)}{E_2}$$

Where,

EBIT = Earnings before interest and taxes

I_1 = Interest charges in Alternative-I

I_2= Interest charges in Alternative-II

T = Tax rate

E_1= Equity shares in Alternative-I

E_2= Equity shares in Alternative-II

$$\frac{(\text{EBIT}-0)(1-0.40)}{6,00,000} = \frac{(\text{EBIT}-72,00,000)\times(1-0.40)}{2,00,000}$$

$$\frac{\text{EBIT}(0.60)}{3} = \frac{0.60(\text{EBIT}-72,00,000)}{1}$$

EBIT = 3EBIT-21,60,000

- 2 EBIT = -21,60,000

EBIT =$\frac{21,60,000}{2}$

EBIT= ₹ 10,80,000

Therefore, at EBIT of ₹ 10,80,000 earnings per share for the two alternativesis equal.

Question 10

Yoyo Limited presently has ₹ 36,00,000 in debt outstanding bearing an interest

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rate of 10 per cent. It wishes to finance a ₹ 40,00,000 expansion programme and is considering three alternatives: additional debt at 12 per cent interest, preference shares with an 11 per cent dividend, and the issue of equity shares at ₹ 16 per share. The company presently has 8,00,000 shares outstanding and is in a 40 per cent tax bracket.

(a) **If earnings before interest and taxes are presently ₹ 15,00,000, DETERMINE earnings per share for the three alternatives, assuming no immediate increase in profitability.**

(b) **ANALYSE which alternative do you prefer. COMPUTE how much would EBIT need to increase before the next alternative would be best.**

Answer 10

a)

Particulars	**Alternatives**		
	Alternative–I: Takeaddition al Debt	**Alternative-II: Issue 11% Preference Shares**	**Alternative-III: Issue further Equity Shares**
	₹	₹	₹
EBIT	15,00,000	15,00,000	15,00,000
Interest on Debts:			
- on existing debt @10%	(3,60,000)	(3,60,000)	(3,60,000)
- on new debt @ 12%	(4,80,000)	---	---
Profit before taxes	6,60,000	11,40,000	11,40,000
Taxes @ 40%	(2,64,000)	(4,56,000)	(4,56,000)
Profit after taxes	3,96,000	6,84,000	6,84,000
Preference shares dividend	---	(4,40,000)	---
Earnings available to equity Shareholders	3,96,000	2,44,000	6,84,000
Number of shares	8,00,000	8,00,000	10,50,000
Earnings per share	0.495	0.305	0.651

b) For the present EBIT level, equity shares are clearly preferable. EBITwould need to increase by ₹ 2,376 × ₹ 1,500 = ₹ 876 before an indifference point with debt is reached. One would want to be comfortably above this indifference point before a strong case for debt should be made. The lower the probability that actual EBIT will fall below the indifference point, the stronger the case that can be madefor debt, all other things remain the same.

Working Note:

Calculation of indifference point between debt and equity shares (inthousands)-

$$\frac{\text{EBIT} - \text{Rs.}840}{840} = \frac{\text{EBIT} - 360}{1{,}050}$$

EBIT (1,050) – ₹ 840(1,050) = EBIT (800) – ₹ 360 (800)250EBIT = ₹ 5,94,000

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EBIT = ₹ 2,376

Question 11

Alpha Limited requires funds amounting to ₹ 80 lakh for its new project. To raise the funds, the company has following two alternatives:

(i) **To issue Equity Shares of ₹ 100 each (at par) amounting to ₹ 60 lakh and borrow the balance amount at the interest of 12% p.a., or**

(ii) **To issue Equity Shares of ₹ 100 each (at par) and 12% Debentures in equal proportion.**

The Income-tax rate is 30%.

IDENTIFY the point of indifference between the available two modes offinancing and state which option will be beneficial in different situations.

Answer 11

i. Amount = ₹ 80,00,000

Plan I = Equity of ₹ 60,00,000 + Debt of ₹ 20,00,000

Plan II = Equity of ₹ 40,00,000 + 12% Debentures of ₹ 40,00,000

Plan I: Interest Payable on Loan

= 12% × ₹ 20,00,000 = ₹ 2,40,000

Plan II: Interest Payable on Debentures

= 12% × ₹ 40,00,000 = ₹ 4,80,000

Computation of Point of Indifference

$$\frac{EBIT - l_1(1-t)}{E_1} = \frac{EBIT - l_2(1-t)}{E_2}$$

$$\frac{EBIT - Rs. 2{,}40{,}000(1-0.3)}{60{,}000} = \frac{EBIT - Rs. 2{,}80{,}000(1-0.3)}{40{,}000}$$

2 (EBIT – ₹ 2,40,000) = 3 (EBIT – ₹ 4,80,000)

2 EBIT – ₹ 4,80,000 = 3 EBIT – ₹ 14,40,000

2 EBIT – 3 EBIT = - ₹ 14,40,000 + ₹ 4,80,000

EBIT= ₹ 9,60,000

ii. Earnings per share (EPS) under Two Situations for both the Plans

Situation A (EBIT is assumed to be ₹ 9,50,000)		
Particulars	**Plan I**	**Plan II**
EBIT	9,50,000	9,50,000
Less: Interest @ 12%	(2,40,000)	(4,80,000)
EBT	7,10,000	4,70,000
Less: Taxes @ 30%	(2,13,000)	(1,41,000)
EAT	4,97,000	3,29,000
No. of Equity Shares	60,000	40,000
EPS	8.28	8.23

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Comment: In Situation A, when expected EBIT is less than the EBIT at indifference point then, Plan I is more viable as it has higher EPS. The advantage of EPS would be available from the use of equity capital and not debt capital.

Situation B (EBIT is assumed to be ₹ 9,70,000)		
Particulars	**Plan I**	**Plan II**
EBIT	9,70,000	9,70,000
Less: Interest @ 12%	(2,40,000)	(4,80,000)
EBT	7,30,000	4,90,000
Less: Taxes @ 30%	(2,19,000)	(1,47,000)
EAT	5,11,000	3,43,000
No. of Equity Shares	60,000	40,000
EPS	8.52	8.58

Comment: In Situation B, when expected EBIT is more than the EBIT at indifference point then, Plan II is more viable as it has higher EPS. The use of fixed-cost source of funds would be beneficial from the EPSviewpoint. In this case, financial leverage would be favorable.

(**Note:** The problem can also be worked out assuming any other figure of EBIT which is more than ₹ 9,60,000 and any other figure less than ₹ 9,60,000. Alternatively, the answer may also be based on the factors/governing the capital structure like the cost, risk, control, etc. Principles).

Question 12

One-third of the total market value of Sanghmani Limited consists of loan stock, which has a cost of 10 per cent. Another company, Samsui Limited, is identical in every respect to Sanghmani Limited, except that its capital structure is all-equity, and its cost of equity is 16 per cent. According to Modigliani and Miller, if we ignored taxation and tax relief on debt capital, COMPUTE the cost of equity of Sanghmani Limited?

Answer 12

Here we are assuming that MM Approach 1958: Without tax, where capital structure has no relevance with the value of company and accordingly overall cost of capital of both levered as well as unlevered company is same. Therefore, the two companies should have similar WACCs. Because Samsui Limited is all-equity financed, its WACC is the same as its cost of equity finance, i.e. 16 per cent. It follows that Sanghmani Limited should have WACC equal to 16 per cent also.

Therefore, Cost of equity in Sanghmani Ltd. (levered company) will be calculated as follows:

$k_0 = \frac{3}{2} \times k_e + \frac{1}{3} \times k_e$ =16% (i.e. equal to WACC of Samsui Ltd.)

Or, 16%=

$\frac{3}{2} \times k_e + \frac{1}{3} \times 100\%$ or, Ke = 19

Question 13

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The following data relates to two companies belonging to the same risk class:

Particulars A Ltd. B Ltd. Expected Net Operating Income ₹ 18,00,000 ₹ 18,00,000 12% Debt ₹ 54,00,000 -

Equity Capitalization Rate - 18

REQUIRED:

(a) **Determine the total market value, Equity capitalization rate and weighted average cost of capital for each company assuming no taxes as per M.M. Approach.**

(b) **Determine the total market value, Equity capitalization rate and weighted average cost of capital for each company assuming 40% taxes as per M.M. Approach.**

Answer 13

i. Assuming no tax as per MM Approach.

Calculation of Value of Firms 'A Ltd.' and 'B Ltd' according to MM Hypothesis

Market Value of 'B Ltd' [Unlevered(u)]

Total Value of Unlevered Firm (V_u) = [NOI/k_e] = 18,00,000/0.18 = ₹ 1,00,00,000

K_e of Unlevered Firm (given) = 0.18

K_o of Unlevered Firm (Same as above = k_e as there is no debt) = 0.18

Market Value of 'A Ltd' [Levered Firm (I)]

Total Value of Levered Firm (V_L) = V_u + (Debt× Nil)

= ₹ 1,00,00,000 + (54,00,000 × nil)

= ₹1,00,00,000

Computation of Equity Capitalization Rate and Weighted Average Cost of Capital (WACC)

	Particulars	A Ltd.	B Ltd.
A.	Net Operating Income (NOI)	18,00,000	18,00,000
B.	Less: Interest on Debt (I)	6,48,000	-
C.	Earnings of Equity Shareholders (NI)	11,52,000	18,00,000
D	Overall Capitalization Rate (k_o)	0.18	0.18
E	Total Value of Firm (V = NOI/k_o)	1,00,00,000	1,00,00,000
F	Less: Market Value of Debt	54,00,000	-
G	Market Value of Equity (S)	46,00,000	1,00,00,000
H	Equity Capitalization Rate [ke = NI /S]	0.2504	0.18
I	Weighted Average Cost of Capital	0.18	0.18

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	[WACC (k_o)]*k_o = (k_e×S/V) + (k_d×D/V)		

*Computation of WACC A Ltd

Component of Capital	Amount	Weight	Cost of Capital	WACC
Equity	46,00,000	0.46	0.2504	0.1152
Debt	54,00,000	0.54	0.12*	0.0648
Total	1,00,00,000			0.18

*K_d = 12% (since there is no tax)

WACC = 18%

ii. Assuming 40% taxes as per MM Approach

Calculation of Value of Firms 'A Ltd.' and 'B Ltd' according to MM Hypothesis

Market Value of 'B Ltd' [Unlevered(u)]

Total Value of unlevered Firm (V_u) = [NOI (1 - t)/ke] = 18,00,000 (1 – 0.40)] / 0.18= ₹60,00,000

K_e of unlevered Firm (given) = 0.18

K_o of unlevered Firm (Same as above = k_e as there is no debt) = 0.18

Market Value of 'A Ltd' [Levered Firm (I)]

Total Value of Levered Firm (V_L) = V_u + (Debt× Tax)

= ₹ 60,00,000 + (54,00,000 × 0.4) = ₹ 81,60,000

Computation of Weighted Average Cost of Capital (WACC) of 'B Ltd.'

= 18% (i.e. K_e = K_o)

Computation of Equity Capitalization Rate and Weighted Average Cost of Capital (WACC) of A Ltd

Particulars	A Ltd. (₹)
Net Operating Income (NOI)	18,00,000
Less: Interest on Debt (I)	6,48,000
Earnings Before Tax (EBT)	11,52,000
Less: Tax @ 40%	4,60,800
Earnings for equity shareholders (NI)	6,91,200
Total Value of Firm (V) as calculated above	81,60,000
Less: Market Value of Debt	54,00,000
Market Value of Equity (S)	27,60,000
Equity Capitalization Rate [k_e = NI/S]	0.2504
Weighted Average Cost of Capital (k_o)*k_o = (k_e×S/V) + (k_d×D/V)	13.23

*Computation of WACC A Ltd

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Component of Capital	Amount	Weight	Cost of Capital	WACC
Equity	27,60,000	0.338	0.2504	0.0846
Debt	54,00,000	0.662	0.072*	0.0477
Total	81,60,000			0.1323

*Kd= 12% (1- 0.4) = 12% × 0.6 = 7.2%

WACC = 13.23%

Question 14

Leo Ltd. has a net operating income of ₹ 21,60,000 and the total capitalisation of ₹ 120 lakhs. The company is evaluating the options to introduce debt financing in the capital structure and the following information is available at various levels of debt value.

Debt value (₹)	Interest rate (%)	Equity Capitalization rate (%)
0	N.A.	12.00
10,00,000	7.00	12.50
20,00,000	7.00	13.00
30,00,000	7.50	13.50
40,00,000	7.50	14.00
50,00,000	8.00	15.00
60,00,000	8.50	16.00
70,00,000	9.00	17.00
80,00,000	10.00	20.00

You are required to COMPUTE the equity capitalization rate if MM approach is followed. Assume that the firm operates in zero tax regime and calculations to be based on book values.

Answer 14

As per MM approach, cost of the capital (Ko) remains constant, and cost of equity increases linearly with debt.

Value of a Firm = $\frac{NOI}{K_0}$

$\therefore$ 1,20,00,000 = $\frac{21,60,000}{K_0}$

$\therefore$ = $\frac{21,60,000}{1,20,00,000}$ = 18%

Under MM approach , $K_e = K_0 + \frac{D}{E}(K_0 - K_d)$

Statement of equity capitalization under MM approach

Debt Value (₹)	Equity Value (₹)	Debt/ Equity	K_d (%)	K_o (%)	K_o-k_d (%)	$K_e = K_o+(K_o-K_d)$ (D/E) (%)

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-	1,20,00,000	0.0000	NA	18.00	18.00	18.00
10,00,000	1,10,00,000	0.0909	7.00	18.00	11.00	19.00
20,00,000	1,00,00,000	0.2000	7.00	18.00	11.00	20.20
30,00,000	90,00,000	0.3333	7.50	18.00	10.50	21.50
40,00,000	80,00,000	0.5000	7.50	18.00	10.50	23.25
50,00,000	70,00,000	0.7143	8.00	18.00	10.00	25.14
60,00,000	60,00,000	1.0000	8.50	18.00	9.50	27.50
70,00,000	50,00,000	1.4000	9.00	18.00	9.00	30.60
80,00,000	40,00,000	2.0000	10.00	18.00	8.00	34.00

Question 15

Axar Ltd. has a Sales of ₹ 68,00,000 with a Variable cost Ratio of 60%.

The company has fixed cost of ₹16,32,000. The capital of the company comprises of 12% long term debt, ₹ 1,00,000 Preference Shares of ₹ 10 each carrying dividend rate of 10% and 1,50,000 equity shares.

The tax rate applicable for the company is 30%.

At current sales level, DETERMINE the Interest, EPS and amount of debt forthe firm if a 25% decline in Sales will wipe out all the EPS.

Answer 15

Break Even Sales = ₹ 68,00,000×0.75 = ₹ 51,00,000

Income Statement

	Original ₹	**Calculation of Interest at BEP (backward calculation)** ₹	**Now at present level** ₹
Sales	68,00,000	51,00,000	68,00,000
Less: Variable Cost	40,80,000	30,60,000	40,80,000
Contribution	27,20,000	20,40,000	27,20,000

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Less: Fixed Cost	16,32,000	16,32,000	16,32,000
EBIT	10,88,000	4,08,000	10,88,000
Less: Interest (EBIT-PBT)	?	**3,93,714**	**3,93,714**
PBT	?	14,286(10,000/70 %)	6,94,286
Less: Tax @ 30%(or PBT-PAT)	?	4,286	2,08,286
PAT	?	10,000(Nil+10,000)	4,86,000
Less: Preference Dividend	10,000	10,000	10,000
Earnings for Equity share holders	?	**Nil (at BEP)**	4,76,000
Number of Equity Shares	1,50,000	1,50,000	1,50,000
EPS	?	-	3.1733

So Interest = ₹ 3,93,714, EPS = ₹ 3.1733, Amount of debt = 3,93,714/12% = ₹ 32,80,950

Question 16

Ganapati Limited is considering three financing plans. The key information is as follows:

(a) Total investment to be raised is ₹ 2,00,000.

(b) Plans of Financing Proportion:

Plans	Equity	Debt	Preference Shares
A	100%	-	-
B	50%	50%	-
C	50%	-	50%

(c) Cost of debt 8%

Cost of preference shares 8%

(d) Tax rate 50%

(e) Equity shares of the face value of ₹ 10 each will be issued at a premium of ₹ 10 per share.

(f) Expected EBIT is ₹ 80,000.

You are required to DETERMINE for each plan:

(i) Earnings per share (EPS)

(ii) The financial break-even point

(iii) Indicate if any of the plans dominate and compute the EBIT range among the plans for indifference.

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Answer 16

i) **Computation of Earnings per share (EPS)**

Plans	**A** (₹)	**B** (₹)	**C** (₹)
Earnings before interest and tax (EBIT) Less: Interest charges	80,000 ---	80,000 (8,000) (8% × ₹1 lakh)	80,000 ---
Earnings before tax (EBT) Less: Tax (@ 50%) Earnings after tax (EAT) Less: Preference dividend Earnings available for Equity shareholders (A) No. of Equity shares (B) EPS [(A) ÷ (B)]	80,000 (40,000)	72,000 (36,000)	80,000 (40,000)
	40,000 ---	36,000 ---	40,000 (8,000) (8% × ₹1 lakh)
	40,000	36,000	32,000
	10,000 (₹2 lakh ÷ ₹20)	5,000 (₹1 lakh ÷ ₹20)	5,000 (₹1 lakh ÷ ₹20)
	4	7.20	6.40

ii) **Calculation of Financial Break-even point**

Financial break-even point = Interest + Preference Dividend/(1-t)

Plan A: Under this plan there is no interest or preference dividend payment hence, the Financial Break-even point will be zero.

Plan B: Under this plan there is an interest payment of ₹ 8,000 and no preference dividend, hence, the Financial Break-even point will be ₹ 8,000 (Interest charges).

Plan C: Under this plan there is no interest payment but an aftertax preference dividend of ₹ 8,000 is paid. Hence, the Financial Break- even point will be before tax earnings of ₹ 16,000 (i.e. ₹ 8,000÷(1 - 0.5)= ₹ 16,000)

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iii) **Computation of indifference point between the plans**

The indifference between two alternative methods of financing is calculated by applying the following formula:

$$\frac{(EBIT - I_1)(1-T)}{E_1} = \frac{(EBIT - I_2)(1-T)}{E_2}$$

I. **Indifference point where EBIT of Plan A and Plan B is equal.**

$$\frac{(EBIT - 0)(1-0.5)}{10,000} = \frac{(EBIT - 8000)(1-0.5)}{5000}$$

0.5 EBIT (5,000) = (0.5 EBIT – 4,000) (10,000)

0.5 EBIT = EBIT – 8,000

0.5 EBIT = 8,000

EBIT = ₹ 16,000

II. **Indifference point where EBIT of Plan A and Plan C is equal.**

$$\frac{(EBIT - 0)(1-0.5)}{10,000} = \frac{(EBIT - \mathbf{0})(1-0.5) - 8000}{5000}$$

$$= \frac{0.5\,EBIT}{10,000} = = \frac{0.5\,EBIT - 8,000}{5,000}$$

0.25 EBIT = 0.5 EBIT – 8,000

0.25 EBIT = 8,000

EBIT = ₹ 32,000

III. **Indifference point where EBIT of Plan B and Plan C are equal.**

$$\frac{(EBIT - ₹\,\mathbf{8000})(1-0.5)}{\mathbf{5,000}} = \frac{(EBIT - \mathbf{0})(1-0.5) - 8000}{5000}$$

0.5 EBIT – 4,000 = 0.5 EBIT - ₹ 8,000

There is no indifference point between the financial plan B and C.

It can be seen that Financial Plan B dominates Plan C. Since, the financial break-even point of the former is only ₹ 8,000 but in case of latter it is ₹ 16,000. Further EPS of plan B is the highest.

Question 17

The financial advisor of Sun Ltd. is confronted with following two alternative financing plans for raising ₹ 10 lakhs that is needed for plant expansion and modernization

Alternative I: Issue 80% of funds with 14% Debenture [Face value (FV) ₹ 100]at par and redeem at a premium of 10% after 10 years and balance by issuing equity shares at 33 $\frac{1}{3}$ % premium.

Alternative II: Raise 10% of funds required by issuing 8% Irredeemable Debentures [Face value (FV) ₹ 100] at par and the remaining by issuing equity shares at current market price of ₹125.

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Currently, the firm has an Earnings per share (EPS) of ₹ 21

The modernization and expansion programme is expected to increase the firm's Earnings before Interest and Taxation (EBIT) by ₹ 200,000 annually.

The firm's condensed Balance Sheet for the current year is given below:

Balance Sheet as on 31.3.2022

Liabilities	(₹)	Assets	(₹)
Current Liabilities	5,00,000	Current Assets	16,00,000
10% Long Term Loan	15,00,000	Plan & Equipment (Net)	34,00,000
Reserves & Surplus	10,00,000		
Equity Share Capital(FV: ₹ 100 each)	20,00,000		
TOTAL	50,00,000	TOTAL	50,00,000

However, the finance advisor is concerned about the effect that issuing of debt might have on the firm. The average debt ratio for firms in industry is 35%. He believes if this ratio is exceeded, the P/E ratio of the company will be 7 because of the potentially greater risk.

If the firm increases its equity capital by more than 10 %, he expects the P/E ratio of the company will increase to 8.5 irrespective of the debt ratio.

Assume Tax Rate of 25%. Assume target dividend pay-out under each alternative to be 60% for the next year and growth rate to be 10% for the purpose of calculating Cost of Equity.

SUGGEST with reason which alternative is better on the basis of each of the below given criteria:

I. **Earnings per share (EPS) & Market Price per share (MPS)**
II. **Financial Leverage**
III. **Weighted Average Cost of Capital & Marginal Cost of Capital (using Book Value weights)**

Answer 17

Calculation of Equity Share capital and Reserves and surplus:

Alternative 1:

Equity Share capital = Rs. 20,00,000 + $\frac{₹\,2,00,000 \times 100}{133.3333}$ = ₹ 21,50,000

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Reserves = ₹ 10,00,000 + $\frac{₹\ 2,00,000 \times 33.3333}{133.3333}$ = ₹ 10,50,000

Alternative 2 :

Equity Share Capital = ₹ 20,00,000+ $\frac{₹\ 9,00,000 \times 100}{125}$ = ₹ 27,20,000

Reserves = ₹ 10,00,000 + $\frac{₹\ 9,00,000 \times 25}{125}$ = ₹ 11,80,000

Capital Structure Plans

(Amount in ₹)

Capital	**Alternative 1** ₹	**Alternative 2** ₹
Equity Share capital	21,50,000	27,20,000
Reserves and surplus	10,50,000	11,80,000
10% long term debt	15,00,000	15,00,000
14% Debentures	8,00,000	-
8% Irredeemable Debentures	-	1,00,000
Total Capital Employed	55,00,000	55,00,000

Computation of Present Earnings before interest and tax (EBIT)

EPS (₹)	21
No. of equity shares	20,000
Earnings for equity shareholders (I x II) (₹)	4,20,000
Profit Before Tax (III/75%) (₹)[	5,60,000
Interest on long term loan (1500000 x 10%) (₹)	1,50,000
EBIT (IV + V) (₹)	7,10,000

EBIT after expansion = ₹ 7,10,000 + ₹ 2,00,000 = ₹ 9,10,000

<u>Evaluation of Financial Plans on the basis of EPS, MPS and Financial Leverage</u>

(Amount in ₹)

Particulars	**Alternative I**	**Alternate II**
EBIT	9,10,000	9,10,000
Less: Interest: 10% on long term loan	(1,50,000)	(1,50,000)
14% on Debentures	(1,12,000)	Nil
8% on Irredeemable Debentures	Nil.	(8000)

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PBT	6,48,000	7,52,000
Less: Tax @25%	(1,62,000)	(1,88,000)
PAT	4,86,000	5,64,000
No. of equity shares	21,500	27,200
EPS	**22.60**	**20.74**
Applicable P/E ratio (Working Note 1)	7	8.5
MPS (EPS X P/E ratio)	**158.2**	**176.29**
Financial Leverage EBIT/PBT	**1.40**	**1.21**

Working Note 1

	Alternative I	**Alternative II**
Debt:		
₹15,00,000 +₹8,00,000	23,00,000	-
₹15,00,000 +₹1,00,000	-	16,00,000
Total capital Employed (₹)	55,00,000	55,00,000
Debt Ratio (Debt/Capital employed)	=0.4182	=0.2909
	=41.82%	**=29.09%**
Change in Equity: ₹21,50,000-₹20,00,000 ₹27,20,000-₹20,00,000	1,50,000	7,20,000
Percentage change in equity	7.5%	**36%**
Applicable P/E ratio	**7**	**8.5**

Calculation of Cost of equity and various type of debt

	Alternative I	**Alternative II**
A) Cost of equity		
EPS ₹	22.60	20.74
DPS (EPS X 60%) ₹	13.56	12.44
Growth (g)	10%	10%
Po (MPS)	158.2	176.29
Ke= Do (1 + g)/ Po	$\frac{13.56(1.1)}{158.2}$	$\frac{12.44(1.1)}{176.29}$
	=9.43%	=7.76%
B) Cost of Debt:		
10% long term debt	10% + (1-0.25)	10% +(1-0.25)

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	= 7.5%	= 7.5%
14% redeemable debentures	14(1-0.25) + (110-100/10) / 110+100/2	ni l
	= 10.5 + 1 / 10.5	
	= 10.95%	
8% irredeemable debenture	NA	8000
		(1-0.25)/1,00,00
		= 6%

Calculation of Weighted Average cost of capital (WACC)

	Alternative 1			Alternative 2		
Capital	**Weights**	**Cost (%)**	**WACC**	**Weights**	**Cost (%)**	**WACC**
Equity Share Capital	0.3909	9.43	3.69%	0.4945	7.76	3.84%
Reserves and Surplus	0.1909	9.43	1.80%	0.2145	7.76	1.66%
10% Long term Debt	0.2727	7.50	2.05%	0.2727	7.50	2.05%
14% Debenture	0.1455	10.95	1.59%			
8% Irredeemable Debentures	-			0.0182	6	0.11%
			9.12%			**7.66%**

Calculation Marginal Cost of Capital (MACC)

	Alternative 1			Alternative 2		
Capital	**(weight)**	**Cost (%)**	**MACC**	**(weight)**	**Cost (%)**	**MACC**
Equity Share Capital	₹ 1,50,000 (0.15)	9.43	1.41%	₹7,20,000 (0.72)	7.76	5.59 %

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Reserves and Surplus	₹ 50,000 (0.05)	9.43	0.47%	₹1,80,000 (0.18)	7.76	1.40 %
14% Debenture	₹ 8,00,000 (0.80)	10.95	8.76%	-		0.00 %
8% Irredeemable Debentures	-			₹1,00,000 (0.10)	6	0.60 %
Total Capital Employed	₹10,00,000		**10.65 %**	₹10,00,000		**7.58 %**

Summary of solution:

	Alternate I	**Alternate II**
Earning per share (EPS) ₹	22.60	20.74
Market price per share (MPS) ₹	158.20	176.29
Financial leverage	1.4043	1.2101
Weighted Average cost of capital (WACC)	9.12%	7.66%
Marginal cost of capital (MACC)	10.65%	7.58%

Alternative 1 of financing will be preferred under the criteria of EPS, whereas Alternative II of financing will be preferred under the criteria of MPS, Financial leverage, WACC and marginal cost of capital.

Question 18: illustration 1

Rupa Ltd.'s EBIT is ₹ 5,00,000. The company has 10%, ₹ 20 lakh debentures. The equity capitalization rate (Ke) is 16%.

You are required to CALCULATE:

(i) **Market value of equity and value of firm**

(ii) **Overall cost of capital**

Answer 18

(i) **Statement showing Market value of equity and value of firm**

	₹
EBIT	5,00,000
Less: Interest on debentures (10% of ₹ 20,00,000)	(2,00,000)
Earnings available for equity holders i.e. Net Income (NI)	3,00,000

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Equity capitalization rate (Ke)	16%
Market value of equity (S)= $\frac{NI}{k_e} = \left[\frac{30,000}{16} \times 100\right]$	18,75,000
Market value of debt (D)	20,00,000
Total value of firm V = S + D	38,75,000

(ii) **Overall cost of capital =** $\frac{EBIT}{Value\ to\ firm} = \frac{Rs.5,00,000}{Rs.38,75,000}$**=12.90%**

Question 19: illustration

Indra Ltd. has an EBIT of ₹ 1,00,000. The company makes use of both the debt and equity capital. The firm has 10% debentures of ₹ 5,00,000 and the firm's equity capitalization rate is 15%.

You are required to COMPUTE:

(i) **Total value of the firm**

(ii) **Overall cost of capital.**

Answer 19

i. Calculation of total value of the firm

	₹
EBIT	1,00,000
Less: Interest (@10% on ₹ 5,00,000)	50,000
Earnings available for equity holders	50,000
Equity capitalization rate i.e. Ke	15%

Value of equity (S) = $\frac{\text{Earnings available for equity holders}}{k_e}$

$= \frac{50,000}{0.15} =$ ₹ 3,33,333

Value of Debt (D) (given) 5,00,000

Total value of the firm (V) = D + S (5,00,000 +8,33,333 3,33,333)

ii. Overall cost of capital

$=k_e\left(\frac{S}{V}\right) + k_d\left(\frac{D}{V}\right)$

0.50

$0.15\left[\frac{3,33,333}{8,33,333}\right] + 0.10\left[\frac{5,00,000}{8,33,333}\right]$

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$=\frac{1}{8,33,333}(50,000+50,000)=12.00\%$

$\text{OR}, K_0=\frac{EBT}{V}=\frac{1,00,000}{8,33,333}=12.00\%$

Question 20: : illustration

DETERMINE the optimal capital structure of a company from the following information:

Options	Cost of Debt (Kd) in %	Cost of Equity (Ke) in %	Percentage of Debt on total value (Debt +Equity)
1	11.0	13.0	0.0
2	11.0	13.0	0.1
3	11.6	14.0	0.2
4	12.0	15.0	0.3
5	13.0	16.0	0.4
6	15.0	18.0	0.5
7	18.0	20.0	0.6

Answer 20

Note that the ratio given in this question is not debt to equity ratio. Rather it is the debt to total value ratio. Therefore, if the ratio is 0.6, it means that capital employed comprises 60% debt and 40% equity.

$k_0=\frac{k_d \times D + k_{e \times S}}{D+S}$

In this question total of weight is equal to 1 in all cases, hence we need not to divide by it.

1) K0 = 11% x 0 + 13% x 1 = 13.00%

2) K0 = 11% x 0.1 + 13% x 0.9 = 12.80%

3) K0 = 11.6% x 0.2 + 14% x 0.8= 13.52%

4) K0 = 12% x 0.3 + 15% x 0.7 = 14.10%

5) K0 = 13% x 0.4 + 16% x 0.6 = 14.80%

6) K0 = 15% x 0.5 + 18% x 0.5 = 16.50%

7) K0 = 18% x 0.6 + 20% x 0.4 = 18.80%

Decision: 2nd option is the best because it has lowest WACC.

Question 21: illustration

Amita Ltd.'s operating income (EBIT) is ₹ 5,00,000. The firm's cost of debt is 10% and currently the firm employs ₹ 15,00,000 of debt. The overall cost of capital of the firmis 15%.You are required to CALCULATE:

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(i) **Total value of the firm**
(ii) **Cost of equity**

Answer 21

(i) **Statement showing total value of the firm**

	₹
Net operating income (EBIT)	5,00,000
Less: Interest on debentures (10% of ₹ 15,00,000)	(1,50,000)
Earnings available for equity holders	3,50,000
Total cost of capital (K0) (given)	15%
Value of the firm (V) = $k_0 = \frac{EBIT}{K_0} = \frac{₹ 5,00,000}{0.15}$	33,33,333

(ii) **Calculation of cost of equity**

	₹
Market value of debt (D)	15,00,000
Market value of equity (S) = V − D = ₹ 33,33,333 − ₹ 15,00,000	18,33,333

$$=k_E=\frac{\text{Earnings available for equity holder}}{\text{Value of equity(S)}}$$

$$\text{OR, } \frac{\text{EBIT− Interest paid on debt}}{\text{Market value of equity}}=\frac{₹ 3,50,000}{₹18,33,333}$$

$$=k_e\left(\frac{S}{V}\right)+k_d\left(\frac{D}{V}\right)$$

$$=k_0\left(\frac{V}{S}\right)-k_d\left(\frac{D}{S}\right)$$

$$0.15\left[\frac{3,33,333}{18,33,333}\right] - 0.10\left[\frac{5,00,000}{18,33,333}\right]$$

$$0.15\frac{1}{18,33,333}(0.15\times 33,33,333) -(0.15\times 33,33,333)$$

$$\frac{1}{18,33,333}(5,00,000-1,50,000) =19.9\%$$

Question 22: illustration

Alpha Ltd. and Beta Ltd. are identical except for capital structure. Alpha Ltd. has 50 per cent debt and 50 per cent equity, whereas Beta Ltd. has 20 per cent debt and 80 per cent equity (All percentages are in market-value terms). The borrowing rate for both the companies is 8 per cent in a no-tax world, and capital markets are assumed to be perfect.

(a) (i) **If you own 2 per cent of the shares of Alpha Ltd., DETERMINE your return if the company has net operating income of ₹ 3,60,000 and the overall capitalisation rate of the company (K0) is 18 per cent.**

(ii) **CALCULATE the implied required rate of return on equity of Alpha Ltd.**

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(b) **Beta Ltd. has the same net operating income as Alpha Ltd.**
(i) **CALCULATE the implied required rate of return on equity of Beta Ltd.**
(ii) **ANALYSE why does it differ from that of Alpha Ltd.**

Answer 22

(a) Value of the Alpha Ltd. = $\frac{NOI}{K_0} = \frac{3,60,000}{18\%} = 20,00,000$

i. Return on Equity shares of Alpha Ltd.

	₹
Value of the company	20,00,000
Market value of debt (50% × ₹ 20,00,000)	10,00,000
Market value of equity (50% × ₹ 20,00,000)	10,00,000
	₹
Net operating income	3,60,000
Less: Interest on debt (8% × ₹ 10,00,000)	80,000
Earnings available to equity shareholders	2,80,000
Return on 2% equity shares (2% × ₹ 2,80,000)	5,600

ii. Implied required rate of return on equity of Alpha Ltd.

$$= \frac{\text{Earnings available for equity Shareholder}}{\text{Market Value of equity}} = \frac{Rs.2,80,000}{Rs.10,00,000} = 28\%$$

(b)

i. Calculation of Implied rate of return on equity of Beta Ltd.

	₹
Total value of company	20,00,000
Market value of debt (20% × ₹ 20,00,000)	4,00,000
Market value of equity (80% × ₹ 20,00,000)	16,00,000
	₹
Net operating income	3,60,000
Less: Interest on debt (8%× ₹4,00,000)	32,000
Earnings available to shareholders	3,28,000

Implied required rate of return on equity

$$= \frac{\text{Earnings available for equity Shareholder}}{\text{Market Value of equity}} = \frac{Rs.3,28,000}{Rs.16,00,000} = 20.5\%$$

ii. Implied required rate of return on equity of Beta Ltd. is lower than that of Alpha Ltd. because Beta Ltd. uses less debt in its capital structure. As the equity capitalisation is a linear function of the debt-to-equity ratio when we use the net operating income approach, the decline inrequired equity return offsets exactly the disadvantage of not employing so much in the way of "cheaper" debt funds.

Question 23: illustration

(When value of levered firm is more than the value of unlevered firm)

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There are two companies N Ltd. and M Ltd., having same earnings before interest and taxes (EBIT) of ₹ 20,000. M Ltd. is a levered company having a debt of ₹1,00,000 @7% rate of interest. The cost of equity of N Ltd. is 10% and of M Ltd. is 11.50%COMPUTE how arbitrage process will be carried on?

Answer 23

	Company	
	M Ltd.	**N Ltd.**
EBIT (NOI)	₹ 20,000	₹ 20,000
Debt (D)	₹ 1,00,000	--
Ke	11.50%	10%
Kd	7%	--

Value of equity (S)=$\frac{NOI\ intrest}{coat\ of\ equity}$

$=S_M = \frac{20{,}000-7{,}000}{11.50\%}$== ₹ 1,13,043

$=S_N = \frac{20{,}000}{10\%}$= ₹ 2,00,000

Value of Firm (V) == S + D

VM= 1,13,043 + 1,00,000 = ₹ 2,13,043

VN = ₹ 2,00,000

Arbitrage Process:

If you have 10% shares of M Ltd., your value of investment in equity shares is 10% of ₹ 1,13,043 i.e. ₹ 11,304.30 and return will be 10% of (₹20,000 – ₹ 7,000) = ₹ 1,300.

Alternate Strategy will be:

Sell your 10% shares of levered firm for ₹ 11,304.30 and borrow 10% of levered firm's debt i.e. ₹ 10,000 (10% of ₹ 1,00,000) and invest the money i.e. 10% in unlevered firm's stock:

Total resources /Money we have = ₹ 11,304.30 + ₹ 10,000 = ₹ 21,304.3 and you invest 10% of ₹ 2,00,000 = ₹ 20,000

Surplus cash available with you is = ₹ 21,304.3 – ₹ 20,000 = ₹ 1,304.3

Your return = 10% EBIT of unlevered firm – Interest to be paid on borrowed fundsi.e.

= 10% of ₹ 20,000 – 7% of ₹ 10,000 = ₹ 2,000 – ₹ 700 = ₹ 1,300

Now your return remains the same i.e. ₹ 1,300 which you are getting from N Ltd. before investing in M Ltd. but still you have ₹ 1,304.3 excess money available with you. Hence, you are better off by doing arbitrage.

In the above example you have not invested entire amount received from "sale of shares of levered company plus amount borrowed". You maintained same level of earning and reduced investment. Alternatively, you could have invested entire amount in unlevered company. In that case your annual earnings would have increased. An example for the same is as follows:

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Question 24: : illustration

Following data is available in respect of two companies having same business risk: Capital employed = ₹ 2,00,000, EBIT = ₹ 30,000 and K_e = 12.5%

Sources	Levered Company (₹)	Unlevered Company (₹)
Debt (@10%)	1,00,000	Nil
Equity	1,00,000	2,00,000

An investor is holding 15% shares in levered company. CALCULATE the increase in annual earnings of investor if he switches his holding from Levered to Unlevered company.

Answer 24

1. Valuation of firms

Particulars	Levered Firm (₹)	ılevered Firm (₹)
EBIT	30,000	30,000
Less: Interest on debt (10% × ₹ 1,00,000)	10,000	Nil
Earnings available to Equity shareholders	20,000	30,000
K_e	12.5%	12.5%
Value of Equity (S) (Earnings available to Equity shareholders/K_e)	1,60,000	2,40,000
Debt (D)	1,00,000	Nil
Value of Firm (V) = S + D	2,60,000	2,40,000

Value of Levered company is more than that of unlevered company. Therefore, investor will sell his shares in levered company and buy shares in unlevered company. To maintain the level of risk he will borrow proportionate amount and invest that amount also in shares of unlevered company.

2. Investment & Borrowings

₹Sell shares in Levered company (₹ 1,60,000 x 15%) 24,000Borrow money (₹ 1,00,000 x 15%) 15,000

Buy shares in Unlevered company 39,000

3. Change in Return

Income from shares in Unlevered company

(₹ 39,000 x 12.5%) 4,875

Less: Interest on loan (₹ 15,000 x 10%) 1,500

Net Income from unlevered firm 3,375

Less: Income from Levered firm (₹ 24000 x 12.5%) 3,000

Incremental Income due to arbitrage 375

Question 25: : illustration

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(When value of unlevered firm is more than the value of levered firm.)
There are two companies U Ltd. and L Ltd., having same NOI of ₹ 20,000 except that L Ltd. is a levered company having a debt of ₹ 1,00,000 @ 7% and cost of equity ofU Ltd. & L Ltd. are 10% and 18% respectively. COMPUTE how arbitrage process will work.

Answer 25

Particulars	**Company**	
	U Ltd.	**L Ltd.**
NOI (EBIT)	₹ 20,000	₹ 20,000
Debt (D)	–	₹ 1,00,000
Kd	–	7%
Ke	10%	18%
Value of equity capital (S) $\frac{(EBIT - Interestt}{k_e}$	₹ 2,00,000 $\left[\frac{20,000}{0.10}\right]$	₹ 72,222 $\left[\frac{20,000 - 7,000}{0.18}\right]$
Total value of the firm (V) = S + D	₹ 2,00,000	₹ 1,72,222 (₹ 72,222 + ₹1,00,000)

Arbitrage Process:

If you have 10% shares of unlevered firm i.e. investment of 10% of ₹ 2,00,000 = ₹ 20,000 and Return @ 10% on ₹ 20,000. Investment will be 10% of earningsavailable for equity i.e. 10% × ₹ 20,000 = ₹ 2,000.

Alternative strategy will be:

Sell your shares in unlevered firm for ₹ 20,000 and buy 10% shares of levered firm's equity plus debt.

10% equity of levered firm	₹ 7,222
10% debt of levered firm	₹ 10,000
Total investment in levered firm	₹ 17,222

Your resources are ₹ 20,000

Surplus cash available = Surplus – Investment = ₹ 20,000 – ₹ 17,222 = ₹ 2,778
Your return on investment is:

7% on debt of ₹ 10,000	₹ 700
10% on equity i.e. 10% of earnings available for equity holders (10% × ₹ 13,000)	₹ 1,300
Total return	₹ 2,000

In both the cases the return received is ₹ 2,000 and still you have excess cash of ₹2,778.

Hence, you are better off by doing arbitrage i.e. you will start selling unlevered company shares and buy levered company's shares thereby pushing down the value of shares of

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unlevered firm and increasing the value of levered firm till equilibriumis reached.

In the above example we have not invested entire amount received from "sale of shares of Unlevered company". We also have the same level of earning along with reduced investment. Alternatively, we could have invested entire amount in Levered company. In that case annual earnings would have increased. An example for the same is as follows:

Question 26: illustration

Following data is available in respect of two companies having same business risk: Capital employed = ₹ 2,00,000, EBIT = ₹ 30,000

Sources	Levered Company (₹)	Unlevered Company (₹)
Debt (@10%)	1,00,000	Nil
Equity	1,00,000	2,00,000
Ke	20%	12.5%

An investor is holding 15% shares in Unlevered company. CALCULATE the increasein annual earnings of investor if he switches his holding from Unlevered to Levered Company.

Answer 26

1. **Valuation of firms**

Particulars	Levered Firm (₹)	Unlevered Firm (₹)
EBIT	30,000	30,000
Less: Interest on debt (10% × ₹ 1,00,000)	10,000	Nil
Earnings available to Equity shareholders	20,000	30,000
Ke	20%	12.5%
Value of Equity (S) (Earnings available to Equity shareholders/Ke)	1,00,000	2,40,000
Debt (D)	1,00,000	Nil
Value of Firm (V) = S + D	2,00,000	2,40,000

Value of Unlevered company is more than that of Levered company therefore investor will sell his shares in unlevered company and buy shares in levered company. Market value of Debt and Equity of Levered company are in theratio of ₹ 1,00,000 : ₹ 1,00,000 i.e. 1:1. To maintain the level of risk he will lend proportionate amount (50%) and invest balance amount (50%) in shares of Levered company.

2. **Investment & Borrowings**

	Sell shares in Unlevered company (₹ 2,40,000 x 15%)	36,000
	Lend money (₹ 36,000 x 50%)	18,000
	Buy shares in Levered company (₹ 36,000 x 50%)	18,000

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	Total **3. Change in Return**	36,000
		₹
	Income from shares in Levered company(₹ 18,000 x 20%)	3,600
	Interest on money lent (₹ 18,000 x 10%)	1,800
	Total Income after switch over	5,400
	Less: Income from Unlevered firm (₹ 36,000 x 12.5%)	4,500
	Incremental Income due to arbitrage	900

Question 27: : illustration

Blue Ltd., an all equity financed company is considering the repurchase of ₹ 275 lakhs equity shares and to replace it with 15% debentures of the same amount. Current market value of the company is ₹ 1,750 lakhs with its cost of capital of 20%. The company's Earnings before Interest and Taxes (EBIT) are expected to remain
constant in future years. The company also has a policy of distributing its entire earnings as dividend.
Assuming the corporate tax rate as 30%, you are required to CALCULATE the impact on the following on account of the change in the capital structure as per Modigliani and Miller (MM) Approach:
(i) Market value of the company
(ii) Overall Cost of capital
(iii) Cost of equity

Answer :27

Workings:

Market Value of Equity= $\frac{\text{Net income (NI) for equity holders}}{k_e}$

₹ 1,750 lakhs = $\frac{\text{Net income (NI) for equity holders Ke}}{0.20}$

Net Income to equity holders/EAT= ₹ 350 lakhs

Therefore, EBIT= $\frac{EBIT}{(1-t)}$ = $\frac{₹ 350 \text{ laksh}}{(1-0.3)}$ = ₹ 500 lakhs

Income Statement

	All Equity (₹ In lakhs)	**Equity & Debt (₹ In lakhs)**
EBIT (as calculated above)	500	500.00
Interest on ₹ 275 lakhs @ 15%	-	41.25
EBT	500	458.75

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Tax @ 30%	150	137.63
Income available to equity holders	350	321.12

(i) Market value of the company

Market value of levered firm = Value of unlevered firm + Tax Advantage

= ₹ 1,750 lakhs + (₹ 275 lakhs x 0.3)

= ₹ 1,832.5 lakhs

Change in market value of the company = ₹ 1,832.5 lakhs – ₹ 1,750 lakhs

= ₹ 82.50 lakhs

The impact is that the market value of the company has increased by ₹ 82.50 lakhs due to replacement of equity with debt.

(ii) Overall Cost of Capital

Market Value of Equity = Market value of levered firm - Equity repurchased

= ₹ 1,832.50 lakhs – ₹ 275 lakhs = ₹ 1,557.50 lakhs Cost of Equity (K_e) = (Net Income to equity holders / Market value of equity) × 100

= (₹ 321.12 lakhs / ₹ 1,557.50 lakhs) × 100 = 20.62%

Cost of debt (K_d) = I (1 - t) = 15 (1 - 0.3) = 10.50%

Components	Amount (₹ In lakhs)	Cost of Capital %	Weight	WACC (K_o) %
Equity Debt	1,557.50 275.00	20.62 10.50	0.85 0.15	17.53 1.58
	1,832.50		1	19.11

The impact is that the Overall Cost of Capital or K_o has fallen by 0.89% (20% - 19.11%) due to the benefit of tax relief on debt interest payment.

(iii) Cost of Equity

The impact is that cost of equity has risen by 0.62% (20.62% - 20%) due to the presence of financial risk i.e. introduction of debt in capital structure.

Note: Cost of Capital and Cost of equity can also be calculated with the helpof following formulas, though there will be no change in the final answers.

Cost of Capital (K_o) = K_{eu} [1 – (t x L)]

Where,

k_{eu}= Cost of equity in an unlevered company t

T= Tax rate

$L=\frac{Debt}{Debt+equity}$

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So, k_o=0.20 $\left[1-\left(0.3\times\frac{Rs.275\ laksh}{Rs.1,832.5\ laksh}\right)\right]$=

Cost of Equity (Ke) = $k_{eu}+(k_{eu}\text{-}k_d)\frac{Debt(1-t)}{equity}$

Where,

k_{eu}= = Cost of equity in an unlevered company

k_d= Cost of debt

t= Tax rate

So, k_e $=\left[(0.20-0.15)\times\frac{Rs.275laksh(1-0.3)}{Rs.1,557.5laksh}\right]=0.2062\ or 20.62\%$

Question 28: : illustration

Suppose that a firm has an all equity capital structure consisting of 1,00,000 ordinary shares of ₹ 10 per share. The firm wants to raise ₹ 2,50,000 to finance its investments and is considering three alternative methods of financing – (i) to issue 25,000 ordinary shares at ₹ 10 each, (ii) to borrow ₹ 2,50,000 at 8 per cent rate of interest,(iii) to issue 2,500 preference shares of ₹ 100 each at an 8 per cent rate of dividend. If the firm's earnings before interest and taxes after additional investment are₹ 3,12,500 and the tax rate is 50 per cent, FIND the effect on the earnings per share under the three financing alternatives.

Answer 28

EPS under alternative financing plans:

Particulars	**Equity Financing (₹)**	**Debt Financing (₹)**	**Preference Financing (₹)**
EBIT	3,12,500	3,12,500	3,12,500
Less: Interest	0	20,000	0
PBT	3,12,500	2,92,500	3,12,500
Less: Taxes	1,56,250	1,46,250	1,56,250
PAT	1,56,250	1,46,250	1,56,250
Less: Preference dividend	0	0	20,000
Earnings available to ordinary shareholders	1,56,250	1,46,250	136,250
Shares outstanding	1,25,000	1,00,000	1,00,000
EPS	1.25	1.46	1.36

The firm is able to maximize the earnings per share when it uses debt financing. Though the rate of preference dividend is equal to the rate of interest, EPS is highin case of debt financing because interest charges are tax deductible while preference dividends are not. With increasing levels of EBIT, EPS will increase at a faster rate with a high degree of leverage.

We know that market price per share is equal to earning per share multiplied by price earning (PE) ratio. If PE ratio is same for all three plans, then the plan which has highest EPS will also have highest MPS and it will be selected. On the other hand, if PE ratio for equity plan is 10 times, for debt plan it is 8 times and for preference plan it is 7 times then:

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EPS	1.25	1.46	1.36
PE ratio	x10	x8	x7
MPS	12.50	11.68	9.52

Now despite of lower EPS, equity plan will be selected because it has highest MPS.

However, if a company is not able to earn a rate of return on its assets higher than the interest rate (or the preference dividend rate), debt (or preference financing) will havean adverse impact on EPS. Suppose the firm in illustration above has an EBIT of ₹75,000, then EPS under different methods will be as follows:

EPS under alternative financing methods: Unfavourable EBIT:

Particulars	**Equity Financing (₹)**	**Debt Financing (₹)**	**Preference Financing (₹)**
EBIT	75,000	75,000	75,000
Less: Interest	0	20,000	0
PBT	75,000	55,000	75,000
Less: Taxes	37,500	27,500	37,500
PAT	37,500	27,500	37,500
Less: Preference dividend	0	0	20,000
Earnings available to ordinary shareholders	37,500	27,500	17,500
Shares outstanding	1,25,000	1,00,000	1,00,000
EPS	0.30	0.275	0.175

It is obvious that under unfavourable conditions i.e., when the rate of return on the total assets is less than the cost of debt, the earnings per share will fall with the degree of leverage.

Question 29: illustration

Best of Luck Ltd., a profit making company, has a paid-up capital of ₹ 100 lakhs consisting of 10 lakhs ordinary shares of ₹ 10 each. Currently, it is earning an annual pre-tax profit of ₹ 60 lakhs. The company's shares are listed and are quoted in the range of ₹ 50 to ₹ 80. The management wants to diversify production and has approved a project which will cost ₹ 50 lakhs and which is expected to yield a pre-tax income of ₹ 40 lakhs per annum. To raise this additional capital, the following options are under consideration of the management:

(a) **To issue equity share capital for the entire additional amount. It is expected that the new shares (face value of ₹ 10) can be sold at a premium of ₹ 15.**

(b) **To issue 16% non-convertible debentures of ₹ 100 each for the entire amount.**

(c) **To issue equity capital for ₹ 25 lakhs (face value of ₹ 10) and 16% non-convertible debentures for the balance amount. In this case, the company can issue shares at a premium of ₹ 40 each.**

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ADVISE which option is the most suitable to raise the additional capital, keeping in mind that the management wants to maximize the earnings per share to maintain its goodwill. The company is paying income tax at 50%.

Answer 29

Calculation of Earnings per share under the three options:

Particulars	Options		
	Option I: Issue Equity shares only	**Option II: Issue 16% Debentures only**	**Option III: Issue Equity Shares and 16% Debentures of equalamount**
Number of Equity Shares			
- Existing	10,00,000	10,00,000	10,00,000
- Newly issued	2,00,000 $\left[\frac{\text{Rs. }50,00,000}{\text{Rs}(10+15)}\right]$	---	50,000 $\left[\frac{\text{Rs. }25,00,000}{\text{Rs}(10+40)}\right]$
Total	12,00,000	10,00,000	10,50,000
16% Debentures (₹)	---	50,00,000	25,00,000

	₹	₹	₹
Profit Before Interest and Tax:			
Existing pre-tax profit	60,00,000	60,00,000	60,00,000
- From new projects	40,00,000	40,00,000	40,00,000
	1,00,00,000	1,00,00,000	1,00,00,000
Less: Interest on 16% Debentures	---	8,00,000 (16% × ₹50,00,000)	4,00,000 (16% × ₹25,00,000)
Profit Before Tax	1,00,00,000	92,00,000	96,00,000
Less: Tax at 50%	50,00,000	46,00,000	48,00,000
Profit After Tax	50,00,000	46,00,000	48,00,000

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Earnings Per Share (EPS) $\left[\frac{PAT}{No\ of\ shares}\right]$	4.17 $\frac{Rs.\ 50,00,000}{Rs.\ 12,00,000}$	4.60 $\left[\frac{Rs.\ 46,00,000}{Rs.\ 10,00,000}\right]$	4.57 ₹ $\left[\frac{Rs.\ 48,00,000}{Rs.\ 10,50,000}\right]$

Advise: Option II i.e., issue of 16% Debentures is most suitable to maximize the earnings per share.

Question 30: illustration

Shahji Steel Limited requires ₹ 25,00,000 for a new plant. This plant is expected toyield earnings before interest and taxes of ₹ 5,00,000. While deciding about the financial plan, the company considers the objective of maximizing earnings per share.It has three alternatives to finance the project - by raising debt of ₹ 2,50,000 or₹ 10,00,000 or ₹ 15,00,000 and the balance, in each case, by issuing equity shares. The company's share is currently selling at ₹ 150 but is expected to decline to ₹ 125 in case the funds are borrowed in excess of ₹ 10,00,000. The funds can be borrowedat the rate of 10 percent upto ₹ 2,50,000, at 15 percent over ₹ 2,50,000 and upto₹ 10,00,000 and at 20 percent over ₹ 10,00,000. The tax rate applicable to the company is 50 percent. ANALYSE which form of financing should the company choose?

Answer 30

Plan I =Raising Debt of ₹ 2.5 lakh + Equity of ₹ 22.5 lakh
Plan II = Raising Debt of ₹ 10 lakh + Equity of ₹ 15 lakh
Plan III = Raising Debt of ₹ 15 lakh + Equity of ₹ 10 lakh

Calculation of Earnings per share (EPS):

Particulars	**FINANCIAL PLANS**		
	Plan I	**Plan II**	**Plan III**
	₹	**₹**	**₹**
Expected EBIT	5,00,000	5,00,000	5,00,000
Less: Interest [(a)]	(25,000)	(1,37,500)	(2,37,500)
Earnings before taxes	4,75,000	3,62,500	2,62,500
Less: Taxes @ 50%	(2,37,500)	(1,81,250)	(1,31,250)
Earnings after taxes (EAT)	2,37,500	1,81,250	1,31,250
Number of shares [(b)]	15,000	10,000	8,000
Earnings per share (EPS)	15.83	18.13	16.41

Financing Plan II (i.e. Raising debt of ₹ 10 lakh and issue of equity share capital of ₹ 15 lakh) is the option which maximises the earnings per share.

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Working Notes:

(a) Calculation of interest on Debt

Plan		₹	₹
I	(₹ 2,50,000 × 10%)		25,000
II	(₹ 2,50,000 × 10%)	25,000	1,37,500
	(₹ 7,50,000 × 15%)	1,12,500	
III	(₹ 2,50,000 × 10%)	25,000	2,37,500
	(₹ 7,50,000 × 15%)	1,12,500	
	(₹ 5,00,000 ×20%)	1,00,000	

(b) Number of equity shares to be issued

Plan I=$\frac{Rs.22,50,000}{₹\ 150\ (\text{Market price of share})}$=15,000 shares

Plan II=$\frac{Rs.15,00,000}{₹\ 150}$=10,000 shares

Plan III=$\frac{Rs.10,00,000}{₹\ 125}$=8,000 shares

Question 31: illustration

The following data are presented in respect of Quality Automation Ltd.:

	Amount (₹)
Profit before interest and tax	**52,00,000**
Less: Interest on debentures @ 12%	**12,00,000**
Profit before tax	**40,00,000**
Less: Income tax @ 50%	**20,00,000**
Profit After tax	**20,00,000**
No. of equity shares (of ₹ 10 each)	**8,00,000**
EPS	**2.5**
PE Ratio	**10**
Market price per share	**25**

The company is planning to start a new project requiring a total capital outlay of₹ 40,00,000. You are informed that a debt equity ratio (D/D+E) higher than 35%, pushes the K_e up to 12.5%, means reducing the PE ratio to 8 and rises the interest rate on additional amount borrowed to 14%. FIND OUT the probable price of shareif:

(i) the additional funds are raised as a loan.

(ii) the amount is raised by issuing equity shares. (Note: Retained earnings of the company is ₹ 1.2 crore)

Answer 31

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In this question, EBIT after proposed extension is not given. Therefore, we canassume that existing return on capital employed will be maintained.

Working notes:

1. **Return on Capital Employed**$=\frac{EBIT}{\text{Capital EmployeD}}=\frac{Rs.52,00,000}{Rs.3,00,000}=17.33\%$

   Capital Employed

   Capital Employed = Debt + Equity

   $\frac{₹\ 52,00,000}{}$ =17.33%

   ₹ 3,00,00,000

   = ₹ 1,00,00,000 + (₹ 80,00,000 + ₹ 1,20,00,000)

   = ₹ 3,00,00,000

2. **Proposed EBIT** = Proposed Capital Employed x Return on capital employed

   = (₹ 3,00,00,000 + ₹ 40,00,000) x 17.33% = ₹ 58,92,200

   (If you take return on capital employed in full digits then accurate EBIT will be ₹ 58,93,333.)

3. **Debt Equity Ratio**

   $=\frac{DEBT}{DEBT+Equity}$

<u>Option1: Loan option</u>

Debt = ₹ 1,00,00,000 + ₹ 40,00,000 = ₹ 1,40,00,000

Equity = ₹ 2,00,00,000

Debt Equity ratio$=\frac{1.4Cr}{1.4Cr.+2Cr.}$== 41.18%

Debt equity ratio has crossed the limit of 35%, hence, PE ratio in this case willbe 8 times and additional borrowing will be at the rate of 14%.

<u>Option2: Equity option</u>

Debt = ₹ 1,00,00,000

Equity = ₹ 2,00,00,000 + ₹ 40,00,000 = **₹** 2,40,00,000

Debt Equity ratio$=\frac{1.4Cr}{1.Cr.+2.4Cr.}$=29.41%

Debt equity ratio has not crossed the limit of 35% hence PE ratio in this casewill remain at 10 times.

4. Number of equity shares to be issued in case of equity option @ ₹ 25 per share = ₹ 40,00,000 / ₹ 25 = 1,60,000

Calculation of EPS and MPS under two financial options

	Financial Options	
	Option I	**Option II**

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Particulars	14% additional loan of 40,00,000 (₹)	8,00,000 equity shares @ ₹ 10 i.e 1,60,000 equity shares @ ₹ 25 (₹)
Profit before interestand Tax (PBIT)	58,92,200	58,92,200
Less: Interest on old debentures @ 12%	12,00,000	12,00,000
Less: Interest on additional loan (new) @ 14% on ₹ 40,00,000	5,60,000	Nil
Profit before tax	41,32,200	46,92,000
Less: Taxes @ 50%	20,66,100	23,46,100
Earnings for equity shareholders (EAT/Profitafter tax)	20,66,100	23,46,100
Number of Equity Shares	8,00,000	9,60,000
Earnings per Share (EPS)	2.58	2.44
Price/ Earnings ratio	8	10
Market price per share(MPS)	20.66	24.44

Decision: Though loan option has higher EPS but equity option has higherMPS therefore company should raise additional fund through equity option.

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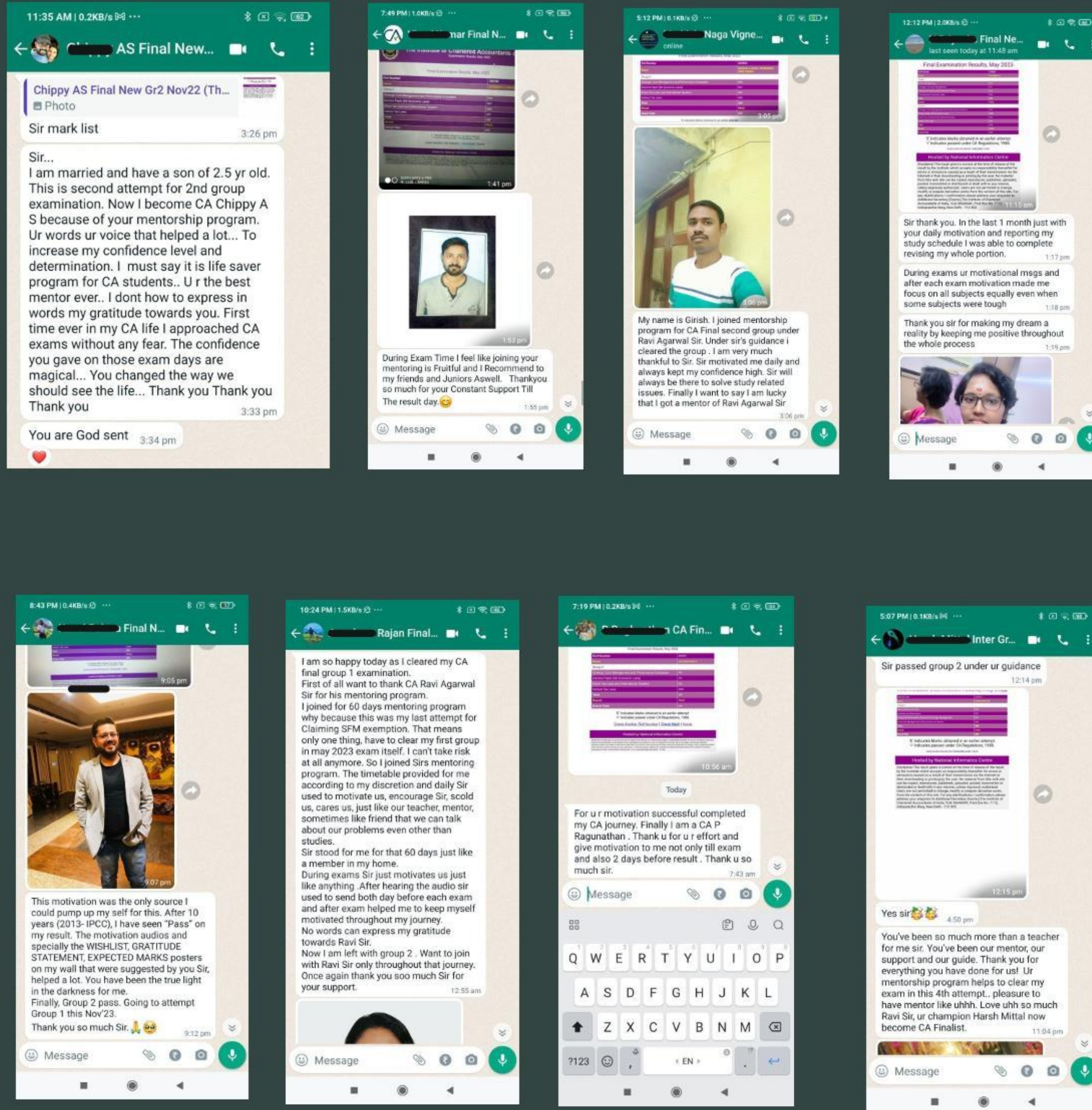

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Chapter 6
Financing Decisions – Leverages

Attempt wise Distribution

Q & A													
Attempts	May' 18	Nov' 18	May' 19	Nov' 19	May '20	Nov' 20	Jan' 21	Jul' 21	Dec' 21	May' 22	Nov' 22	May' 23	Nov' 23
MTP		Q20, Q29	Q5, Q14	Q31		Q8, Q34		Q3, Q37	Q26	Q9,Q21 ,Q36	Q6	Q1, Q35	Q10
PYP	Q30	Q28	Q19	Q4		Q17	Q2	Q39	Q25	Q23	Q15	Q7	
RTP	Q12, Q33	Q18	Q32	Q16		Q38		Q27	Q13	Q40	Q24	Q22	Q11

Section A

Question 1

Following are the selected financial Information of Alt Car Limited for the year ended 31st March 2022:

Financial Leverage	**3**
Interest	**₹ 85,000**
Operating Leverage	**2**
Variable cost as a percentage of sales	**85%**
Income tax rate	**25%**

You are required to PREPARE the Income Statement. (MTP 5 Marks March '23)

Answer 1

(i) Financial Leverage $= \frac{EBIT}{EBIT - Interest}$

Or, $3 = \frac{EBIT}{EBIT - Interest}$

Or, $3 = \frac{EBIT}{EBIT - Interest}$

Or, EBIT = ₹1,27,500

(ii) Operating Leverage $= \frac{Contribution}{EBIT}$

Or, $= \frac{Contribution}{1,27,500} = 2$

Or, Contribution = ₹ 2,55,000

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(iii) Sales = $\frac{Contribution}{\frac{P}{v}Ratio} = \frac{2,55,000}{15\%}$ = Rs. 17,00,000

(iv) Now, Contribution – Fixed cost = EBIT

Or ₹ 2,55,000 – Fixed cost = ₹1,27,500

Or Fixed Cost =₹1,27,500

Income Statement for the year ended 31st March 2022

Particulars	₹
Sales	17,00,000
Less: Variable Cost (85% of Rs.17,00,000)	(14,45,000)
Contribution	2,55,000
Less: Fixed Cost (Contribution - EBIT)	(1,27,500)
Earnings Before Interest and Tax (EBIT)	1,27,500
Less: Interest	(85,000)
Earnings Before Tax (EBT)	42,500
Less: Income Tax @ 25%	(10,625)
Earnings After Tax (EAT or PAT)	31,875

Question 2

The information related to XYZ Company Ltd. for the year ended 31st March, 2020 are as follows:

Equity Share Capital of Rs.100 each	**₹ 50 Lakhs**
12% Bonds of Rs.1000 each	**₹ 30 Lakhs**
Sales	**Rs.84 Lakhs**
Fixed Cost (Excluding Interest)	**Rs.7.5 Lakhs**
Financial Leverage	**1.39**
Profit-Volume Ratio	**25%**
Market Price per Equity Share	**Rs.200**
Income Tax Rate Applicable	**30%**
You are required to compute the following:	

(i) **Operating Leverage**

(ii) **Combined Leverage**

(iii) **Earning per share**

(iv) **Earning Yield (PYP 10 Marks, Jan'21)**

Answer 2

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Workings

1. Profit Volume Ratio = $\frac{\text{Contribution}}{\text{Sales}} \times 100$

   So.25 = $\frac{\text{Contribution}}{\text{Rs.84,00,000}} \times 100$

   Contribution= $\frac{\text{Rs.84,00,000 x 25}}{100}$ = Rs. 21,00,000

2. Financial leverage = $\frac{\text{EBIT}}{\text{EBT}}$

   Or, 1.39 = $\frac{\text{Rs.13,50,000 (as calculated above)}}{\text{EBT}}$

   EBT= ₹ 9,71,223

3. Income Statement

Particulars	(RS.)
Sales	84,00,000
Less: Variable Cost (Sales - Contribution)	(63,00,000)
Contribution	21,00,000
Less: Fixed Cost	(7,50,000)
EBIT	13,50,000
Less: Interest (EBIT - EBT)	(3,78,777)
EBT	9,71,223
Less: Tax @ 30%	(2,91,367)
Profit after Tax (PAT)	6,79,856

(i) Operating Leverage = $\frac{\text{Contribution}}{\text{Earnings before interest and tax (EBI)}}$

= $\frac{\text{Rs.21,00,000}}{\text{Rs.13,50,000}}$=1.556 (approx.)

(ii) Combined Leverage = Operating Leverage x Financial Leverage

= 1.556 x 1.39 = 2.163 (approx.)

Or , = $\frac{\text{Contribition}}{\text{EBT}} = \frac{\text{Rs.21,00,000}}{\text{Rs.9,71,223}}$ = 2.162 (approx.)

(iii) Earnings per Share (EPS)

EPS = $\frac{\text{PAT}}{\text{No of Shares}} = \frac{\text{Rs.6,79,856}}{\text{50,000}}$ = Rs.13.597

(iv) Earning Yield

$\frac{\text{EPS}}{\text{Market price}} \times 100 = \frac{\text{Rs.13597}}{\text{Rs.200}}$ =6.80% (approx.)

Note: The question has been solved considering Financial Leverage given in the question as the base for calculating total interest expense including the interest of 12% Bonds of ₹ 30 Lakhs. The question can also be solved in other alternative

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ways.

Question 3

Following data of MT Ltd. under Situations 1, 2 and 3 and Financial Plan A and B is given:

Installed Capacity (units)	**3,600**
Actual Production and Sales (units)	**2,400**
Selling price per unit (Rs.)	**30**
Variable cost per unit (Rs.)	**20**
Fixed Costs (Rs.): Situation 1	**3,000**
Situation 2	**6,000**
Situation 3	**9,000**

Capital Structure :

Particulars	**Financial Plan**	
	A	**B**
Equity Debt **Cost of Debt**	**Rs. 15,000** **Rs. 15,000** **12%**	**Rs. 22,500** **Rs. 7,500** **12%**

Required:

(i) **CALCULATE the operating leverage and financial leverage.**

(ii) **FIND out the combinations of operating and financial leverage which give the highest value and the least value. (MTP 10 Marks, April'21)**

Answer 3

(i) Operating Leverage

	Situation 1	**Situation 2**	**Situation 3**
	(Rs.)	**(Rs.)**	**(Rs.)**
Sales (S)			
2,400 units @ Rs. 30 per unit	72,000	72,000	72,000
Less: Variable Cost (VC) @ Rs. 20 per unit	48,000	48,000	48,000
Contribution (C)	24,000	24,000	24,000
Less: Fixed Cost (FC)	3,000	6,000	9,000
EBIT	21,000	18,000	15,000
Operating Leverage = $\frac{C}{EBIT}$	$\frac{Rs. 24{,}000}{Ra. 21{,}000}$ =1.14	$\frac{Rs. 24{,}000}{Ra. 18{,}000}$ =1.33	$\frac{Rs. 24{,}000}{Ra. 15{,}000}$ =1.60

Financial Leverage

	Financial Plan	
	A (Rs.)	**B (Rs.)**
Situation 1		
EBIT	21,000	21,000

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Less: Interest on debt (Rs. 15,000 x 12%);(Rs. 7,500 x 12%)	1,800	900
EBT	19,200	20,100
Financial Leverage = EBIT /EBT	$\frac{Rs. 21000}{Ra. 19,200}$ = 1.09	$\frac{Rs. 21,000}{Ra. 20,100}$ =1.04
Situation 2		
EBIT	18,000	18,000
Less: Interest on debt	1,800	900
EBT	16,200	17,100
Financial Leverage = EBIT /EBT	$\frac{Rs. 18,000}{Ra. 16,200}$ =1.11	$\frac{Rs. 18000}{Ra. 17,100}$ =1.05
Situation 3		
EBIT	15,000	15,000
Less: Interest on debt	1,800	900
EBT	13,200	14,100
Financial Leverage = $\frac{EBIT}{EBT}$	$\frac{Rs. 15,000}{Ra. 13,200}$ = 1.14	$\frac{Rs. 15,000}{Rs. 14.100}$ =1.06

Combined Leverages

CL = OL x FL

	Financial Plan	
	A (Rs.)	B (Rs.)
(a) Situation 1	1.14 x 1.09 = 1.24	1.14 x 1.04 = 1.19
(b) Situation 2	1.33 x 1.11 = 1.48	1.33 x 1.05 = 1.40
(c) Situation 3	1.60 x 1.14 = 1.82	1.60 x 1.06 = 1.70

The above calculations suggest that the highest value is in Situation 3 financed by Financial Plan A and the lowest value is in the Situation 1 financed by Financial l Plan B.

Question 4

The Balance Sheet of Gita Shree Ltd. is given below:

Liabilities		**(Rs.)**
Shareholders' fund		
Equity share capital of Rs.10	**Rs.1,80,000**	

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each		
Retained earnings	**Rs.60,000**	**2,40,000**
Non-current liabilities 10% debt		**2,40,000**
Current liabilities		**1,20,000**
		6,00,000
Assets		
Fixed Assets		**4,50,000**
Current Assets		**1,50,000**
		6,00,000

The company's total asset turnover ratio is 4. Its fixed operating cost is Rs.2,00,000 and its variable operating cost ratio is 60%. The income tax rate is 30%.

Calculate:

(i)

(a) **Degree of Operating leverage.**

(b) **Degree of Financial leverage.**

(c) **Degree of Combined leverage.**

(ii) **Find out EBIT if EPS is (a) Rs.1 (b) Rs.2 and (c) Rs. 0. (PYP 10 Marks, Nov'19)**

Answer 4

Working Notes:

Total Assets = Rs.6,00,000

Total Asset Turnover Ratio i.e.= $\frac{\text{Total Sales}}{\text{Total Assets}}$ = 4

Hence, Total Sales = Rs.6,00,000 ×4 = Rs.24,00,000

Computation of Profits after Tax (PAT)

Particulars	**(₹)**
Sales	24,00,000
Less: Variable operating cost @ 60%	14,40,000
Contribution	9,60,000
Less: Fixed operating cost (other than Interest)	2,00,000
EBIT (Earning before interest and tax)	7,60,000
Less: Interest on debt (10% □ 2,40,000)	24,000
EBT (Earning before tax)	7,36,000
Less: Tax 30%	2,20,800
EAT (Earning after tax)	5,15,200

(i)

a. Degree of Operating Leverage

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Degree of Operating leverage = $\frac{\text{Contribution}}{\text{EBIT}}$ = $\frac{\text{Rs.9,60,000}}{\text{Rs.7,60,000}}$= 1.263 (approx.)

b. Degree of Financial Leverage

Degree of Financial Leverage=$\frac{EBIT}{EBT}=\frac{\text{Rs.9,60,000}}{\text{Rs.7,60,000}}$= 1.033 (approx.)

c. Degree of Combined Leverage

Degree of Combined Leverage=$\frac{\text{Contribution}}{\text{EBIT}}=\frac{\text{EBIT}}{\text{EBT}}=\frac{\text{Contribution}}{\text{EBT}}$

$=\frac{\text{Rs.9,60,000}}{\text{Rs.7,60,000}} = 1.304 \text{ (approx.)}$

Or

Degree of Combined Leverage =Degree of Operating Leverage X Degree of Financial Leverage

=1.263 ×1.033 = 1.304 (approx.)

(ii) (a) If EPS is Re. 1

EPS= $\frac{\text{EBIT} - \text{Interest})(1 - \text{tax})}{\text{Noof equity shares}}$

= Or, $1 = \frac{(\text{EBIT} - \text{Rs.24,000})\ (1 - 0.30)}{18000}$

Or, EBIT = Rs. 49,714 (approx.)

(b) If EPS is Rs.2

2 = (EBIT- Rs. 24,000) (1-0.30) / 18,000

Or, EBIT = Rs.75,429 (approx.)

(c) If EPS is ₹ 0

0 = (EBIT- Rs. 24,000) (1-0.30) / 18,000

Or, EBIT = Rs. 24,000

Alternatively, if EPS is 0 (zero), EBIT will be equal to interest on debt i.e. Rs. 24,000.

Question 5

EXPLAIN the difference between Business risk and Financial risk [MTP 4 Marks, March'19]

Answer 5

Business Risk and Financial Risk

Business risk refers to the risk associated with the firm's operations. It is an unavoidable risk because of the environment in which the firm has to operate and the business risk is represented by the variability of earnings before interest and tax (EBIT). The variability in turn is influenced by revenues and expenses. Revenues and expenses are affected by demand of firm's products, variations in prices and proportion of fixed cost in total cost.

Whereas, Financial risk refers to the additional risk placed on firm's shareholders

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as a result of debt use in financing. Companies that issue more debt instruments would have higher financial risk than companies financed mostly by equity. Financial risk can be measured by ratios such as firm's financial leverage multiplier, total debt to assets ratio etc.

Question 6

Following information is provided relating to SVB Ltd.:
Sales price ₹ 21 per unit
Variable cost₹ 13.50 per unit
Break-even point 30,000 units
You are required to CALCULATE operating leverage at sales volume 37,500 units and 45,000 units. (MTP 5 Marks Sep'22)

Answer 6

Computation of Operating Leverage (OL)

Selling Price = ₹ 21 per unit Variable Cost = ₹ 13.50 per unit

Fixed Cost = BEP × (Selling price – Variable cost) = 30,000 × (21 – 13.50) = 30,000 × 7.5 = 2,25,000

Particulars	For 37,500 units (₹)	For 45,000 units (₹)
Sales (@ ₹ 21 /unit)	7,87,500	9,45,000
Less: Variable Cost (@ 13.50 /unit)	5,06,250	6,07,500
Contribution	2,81,250	3,37,500
Less: Fixed Cost	2,25,000	2,25,000
Earnings before Interest and tax (EBIT)	56,250	1,12,500
Operating Leverage $\left[\frac{Contribution}{EBIT}\right]$	$\frac{2,81,250}{56,250}$	$\frac{3,37,500}{(1,12,500)}$
Operating Leverage	5 times	3 times

Question 7

Following information is given for X Ltd.:

Total contribution (₹)	**4,25,000**
Operating leverage	**3.125**
15% Preference shares (₹ 100 each)	**1,000**
Number of equity shares	**2,500**
Tax rate	**50%**

Calculate EPS of X Ltd., if 40% decrease in sales will result EPS to zero. (PYP 5 Marks May '23)

Answer 7

i) Operating Leverage (OL) = $\frac{Conribution}{EBIT}$ or, 3.125 = $\frac{4,25,000}{EBIT}$ or EBIT = ₹ 1,36,000

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ii) Degree of Combined Leverage (CL) = $\frac{\%\ Change\ in\ EPS}{\%\ Change\ in\ Sales} = \frac{100}{40} = 2.5$

iii) Combined Leverage = OL × FL = 3.125 × FL

So, Financial Leverage = 2.5 /3.125 = 0.8

iv) Financial Leverage = $\frac{EBIT}{EBT} = \frac{1,36,000}{EBT} = 0.8$

So, EBT = $\frac{1,36,000}{0.80}$ = ₹ 1,70,000

Calculation of EPS of X Ltd

Particulars	**(₹)**
EBT	1,70,000
Less: Tax (50%)	85,000
EAT	85,000
Preference Dividend	15,000
Net Earnings for Equity Shareholders	70,000
Number of equity shares	2,500
EPS	28

Question 8

Following Balance Sheet and Income Statement have been obtained from the books of accounts of Benaca Pvt. Ltd.

Balance Sheet as on March 31st 2020

Liabilities	**Amount (₹)**	**Assets**	**Amount (₹)**
Equity Capital (₹10 per share)	**80,00,000**	**Net Fixed Assets**	**1,00,00,000**
10% Debt	**60,00,000**	**Current Assets**	**90,00,000**
Retained Earnings	**35,00,000**		
Current Liabilities	**15,00,000**		
	1,90,00,000		**1,90,00,000**

Income Statement for the year ending March 31st 2020

Particulars	**Amount (₹)**
Sales	**34,00,000**
Less: Operating expenses (including ₹ 6,00,000 depreciation)	**(12,00,000)**
EBIT	**22,00,000**
Less: Interest	**(6,00,000)**
Earnings before tax	**16,00,000**

The tax rate applicable to the company is 35 percent.

(i) **DETERMINE the degree of operating, financial and combined leverages at the current sales level, if all operating expenses, other than depreciation, are**

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variable costs.

(ii) **If total assets remain at the same level, but sales (i) increase by 20 percent and (ii) decrease by 20 percent, COMPUTE the earnings per share at the new sales level? (MTP 8 Marks,Oct'20)**

Answer 8

(i) Degree of operating, financial and combined leverages at the current sales level-

$$DOL = \frac{\text{Contribution}}{\text{EBIT}}$$

$$= \frac{\text{Rs.34,00,000} - \text{Rs.6,00,000}}{\text{RS.22,00,000}} = 1.27$$

$$DFL = \frac{\text{EBIT}}{\text{EBT}} = \frac{\text{Rs.22,00,000}}{\text{RS.16,00,000}} = 1.375$$

DCL = DOL × DFL = 1.27 × 1.38 = 1.75

(ii) Earnings per share at the new sales level
(Amount in ₹)

Particulars	Increase by 20%	Decrease by 20%
Sales level	40,80,000	27,20,000
Less: Variable expenses	7,20,000	4,80,000
Less: Fixed cost	6,00,000	6,00,000
Earnings before interest and taxes	27,60,000	16,40,000
Less: Interest	6,00,000	6,00,000
Earnings before taxes	21,60,000	10,40,000
Less: Taxes @35%	7,56,000	3,64,000
Earnings after taxes (EAT)	14,04,000	6,76,000
Number of equity shares	8,00,000	8,00,000
EPS	1.76	0.85

Working Notes:

Variable Costs = ₹ 6,00,000 (total cost - depreciation)

Variable Costs at:

(i) Sales level, ₹ 40,80,000 = ₹ 7,20,000 (increase by 20%)
(ii) Sales level, ₹ 27,20,000 = ₹ 4,80,000 (decrease by 20%)

Question 9

Operating risk is associated with cost structure, whereas financial risk is associated with capital structure of a business concern." Critically EXAMINE this statement. (MTP 3 Marks April 22)

Answer 9

"Operating risk is associated with cost structure whereas financial risk is associated with capital structure of a business concern".

Operating risk refers to the risk associated with the firm's operations. It is represented

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by the variability of earnings before interest and tax (EBIT). The variability in turn is influenced by revenues and expenses, which are affected by demand of firm's products, variations in prices and proportion of fixed cost in total cost. If there is no fixed cost, there would be no operating risk. Whereas financial risk refers to the additional risk placed on firm's shareholders as a result of debt and preference shares used in the capital structure of the concern. Companies that issue more debt instruments would have higher financial risk than companies financed mostly by equity.

Question 10: illustration

Following are the selected financial information of A Ltd. and B Ltd. for the year ended March 31st, 2021:

	A Ltd.	B Ltd.
Variable Cost Ratio	60%	50%
Interest	₹ 20,000	₹ 1,00,000
Operating Leverage	5	2
Financial Leverage	3	2
Tax Rate	30%	30%

You are required to FIND out:

(i) **EBIT**

(ii) **Sales**

(iii) **Fixed Cost**

(iv) **Identify the company which is better placed with reasons based on leverages. (MTP 10 Marks Sep '23)**

Answer 10

Company A

(i) Financial Leverage $= \frac{EBIT}{EBT i.e. ebit - INTREST}$

So, $3 = \frac{EBIT}{EBIT - 20,000}$

Or, 3 (EBIT – 20,000) = EBIT

Or, 2 EBIT = 60,000

Or, EBIT = 30,000

(ii) Operating Leverage $= \frac{Contribution}{EBIT}$ Or, $5 = \frac{contribution}{Rs.30,000}$

Or, Contribution = ₹ 1, 50,000

Sale $= \frac{\text{Contribution}}{\text{P/V Ratio (1−variable cost ratio)}} = \frac{₹ 1,50,000}{40\%} ==$ ₹ 3,75,000

(iii) Fixed Cost = Contribution – EBIT

= ₹ 1, 50,000 – 30,000

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Or, Fixed cost = ₹ 1,20,000

Company B

i. Financial Leverage= $\frac{EBIT}{EBT i.e. ebit - INTREST}$

So, 2= $\frac{EBIT}{EBIT - 1,00,000}$

Or, 2 (EBIT – 1,00,000) = EBIT
Or, 2 EBIT -2,00,000 = EBIT
Or, EBIT = ₹ 2,00,000

ii. Operating Leverage $= \frac{Contribution}{EBIT}$ $Or, \ 5 = \frac{contribution}{Rs.2,00,000}$

Or, Contribution = ₹ 4,00,000

Sale= $\frac{\text{Contribution}}{\text{P/V Ratio (1-variable cost ratio)}} = \frac{₹ 4,00,000}{50\%}$ == ₹ 8,00,000

iii. Fixed Cost= Contribution – EBIT
= ₹ 4, 00,000 – ₹ 2,00,000
Or, Fixed cost = ₹ 2,00,000

Income Statements of Company A and Company B

	Company A (₹)	Company B (₹)
Sales	3,75,000	8,00,000
Less: Variable cost	2,25,000	4,00,000
Contribution	1,50,000	4,00,000
Less: Fixed Cost	1,20,000	2,00,000
Earnings before interest and tax (EBIT)	30,000	2,00,000
Less: Interest	20,000	1,00,000
Earnings before tax (EBT)	10,000	1,00,000
Less: Tax @ 30%	3,000	30,000
Earnings after tax (EAT)	7,000	70,000

Comment based on Leverage

Comment based on leverage – Company B is better than company A of the following reasons:

- Capacity of Company B to meet interest liability is better than that of companies A (from EBIT/Interest ratio)

$$\left[A \frac{30,000}{20,000} = 1.5, B \frac{2,00,000}{1,00,000} = 2\right]$$

- Company B has the least financial risk as the total risk (business and financial) of company B is lower (combined leverage of Company A – 15 and Company B- 4)

Question 11

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The capital structure of ABC Ltd. for the year ended 31st March 2022 consisted as follows:

Particulars	Amount in ₹
Equity share capital (face value ₹ 100 each)	20,00,000
10% debentures (₹ 100 each)	20,00,000

During the year 2021-22, sales decreased to 1,00,000 units as compared to 1,20,000 units in the previous year. However, the selling price stood at ₹ 15 per unit and variable cost at ₹ 10 per unit for both the years. The fixed expenses were at ₹ 2,00,000 p.a. and the income tax rate is 30%.

You are required to CALCULATE the following:

(a) **The degree of financial leverage at 1,20,000 units and 1,00,000 units.**

(b) **The degree of operating leverage at 1,20,000 units and 1,00,000 units.**

(c) **The percentage change in EPS. (RTP Nov '23)**

Answer 11

Sales in units	1,20,000	1,00,000
	(₹)	(₹)
Sales Value	18,00,000	15,00,000
Variable Cost	(12,00,000)	(10,00,000)
Contribution	6,00,000	5,00,000

Fixed expenses	(2,00,000)	(2,00,000)
EBIT	4,00,000	3,00,000
Debenture Interest	(2,00,000)	(2,00,000)
EBT	2,00,000	1,00,000
Tax @ 30%	(60,000)	(30,000)
Profit after tax (PAT)	1,40,000	70,000
(i) Financial Leverage= $\frac{EBIT}{EBT}$	$= \frac{4,00,000}{2,00,000} = 2$	$= \frac{3,00,000}{1,00,000} = 3$
(ii) Operating leverage = $\frac{\text{Contribution}}{EBIT}$	$= \frac{6,00,000}{4,00,000} = 1.50$	$= \frac{5,00,000}{3,00,000} = 1.67$
(iii) Earnings per share (EPS)	$\frac{1,40,000}{20,000} =$ ₹ 7	$\frac{70,000}{20,000} =$ ₹ 3.5
Decrease in EPS	= ₹ 7 – ₹ 3.5 = ₹ 3.5	

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% decrease in EPS	$\frac{3.5}{7}$= x 100 = 50%

Question 12

CALCULATE the operating leverage, financial leverage and combined leverage from the following data under Situation I and II and Financial Plan A and B:

Installed Capacity	**4,000 units**
Actual Production and Sales	**75% of the Capacity**
Selling Price	**₹30 per unit**
Variable Cost	**₹15 per unit**

Fixed Cost:

Under Situation I	**₹ 15,000**
Under Situation-II	**₹ 20,000**

Capital Structure:

	Financial Plan	
	A (₹)	**B (₹)**
Equity	**10,000**	**15,000**
Debt (Rate of Interest at 20%)	**10,000**	**5,000**
	20,000	**20,000**

(RTP May '18)

Answer 12

(i) Operating leverages:

Particulars	**Situation-I (₹)**	**Situation-II (₹)**
Sales (S) (3,000 units @ ₹ 30/- per unit)	90,000	90,000
Less: Variable Cost (VC) @ ₹15 per unit	(45,000)	(45,000)
Contribution (C)	45,000	45,000
Less: Fixed Cost (FC)	15,000	20,000
EBIT	30,000	25,000
Operating Leverage $\left(\frac{C}{EBIT}\right)$	$\frac{45,000}{30,000}$	$\frac{45,000}{25,000}$
	= 1.5	= 1.8

(ii) Financial Leverages:

	A (₹)	**B (₹)**
Situation I:		
EBIT	30,000	30,000
Less: Interest on debt	(2,000)	(1,000)

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EBT	28,000	29,000
Financial Leverage $\left(\frac{EBIT}{EBT}\right)$	30,000 / 28,000	30,000 / 29,000
	= 1.07	= 1.03
Situation-II:		
EBIT	25,000	25,000
Less: Interest on debt	(2,000)	(1,000)
EBT	23,000	24,000
Financial Leverage $\left(\frac{EBIT}{EBT}\right)$	25,000 / 23,000	25,000 / 24,000
	= 1.09	= 1.04

(iii) Combined Leverages:

		A (₹)	B (₹)
(a)	Situation I	1.5 × 1.07 = 1.61	1.5 × 1.03 = 1.55
(b)	Situation II	1.8 × 1.09 = 1.96	1.8 × 1.04 = 1.87

Question 13

The following particulars relating to Navya Ltd. for the year ended 31st March 2021 is given:

Output	**1,00,000 units at normal capacity**
Selling price per unit	**₹ 40**
Variable cost per unit	**₹ 20**
Fixed cost	**₹ 10,00,000**

The capital structure of the company as on 31st March, 2021 is as follows:

Particulars	**₹**
Equity share capital (1,00,000 shares of ₹ 10 each)	**10,00,000**
Reserves and surplus	**5,00,000**
7% debentures	**10,00,000**
Current liabilities	**5,00,000**
Total	**30,00,000**

Navya Ltd. has decided to undertake an expansion project to use the market potential, that will involve ₹ 10 lakhs. The company expects an increase in output by 50%. Fixed cost will be increased by ₹ 5,00,000 and variable cost per unit will be decreased by 10%. The additional output can be sold at the existing selling price without any adverse impact on the market.

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The following alternative schemes for financing the proposed expansion programme are planned:

(iii) **Entirely by equity shares of ₹ 10 each at par.**

(iv) **₹ 5 lakh by issue of equity shares of ₹ 10 each and the balance by issue of 6% debentures of ₹ 100 each at par.**

(v) **Entirely by 6% debentures of ₹ 100 each at par.**

FIND out which of the above-mentioned alternatives would you recommend for Navya Ltd. with reference to the risk and return involved, assuming a corporate tax of 40%. (RTP Nov '21)

Answer 13

Statement showing Profitability of Alternative Schemes for Financing (₹ in '00,000)

Particulars	Existing	Alternative Schemes		
		(i)	(ii)	(iii)
Equity Share capital (existing)	10	10	10	10
New issues	-	10	5	-
	10	20	15	10
7% debentures	10	10	10	10
6% debentures	-	-	5	10
	20	30	30	30
Debenture interest (7%)	0.7	0.7	0.7	0.7
Debenture interest (6%)	-	-	0.3	0.6
	0.7	0.7	1.0	1.3
Output (units in lakh)	1	1.5	1.5	1.5
Contribution per. unit (₹) (Selling price - Variable Cost)	20	22	22	22
Contribution (₹ lakh)	20	33	33	33
Less: Fixed cost	10	15	15	15
EBIT	10	18	18	18
Less: Interest (as calculated above)	0.7	0.7	1.0	1.3
EBT	9.3	17.3	17	16.7
Less: Tax (40%)	3.72	6.92	6.8	6.68
EAT	5.58	10.38	10.20	10.02
Operating Leverage (Contribution /EBIT)	2.00	1.83	1.83	1.83
Financial Leverage (EBIT/EBT)	1.08	1.04	1.06	1.08
Combined Leverage (Contribution/EBT)	2.15	1.91	1.94	1.98

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EPS (EAT/No. of shares) (₹)	5.58	5.19	6.80	10.02
Risk	-	Lowest	Lower than option (3)	Highest
Return	-	Lowest	Lower than option (3)	Highest

From the above figures, we can see that the Operating Leverage is same in all alternatives though Financial Leverage differs. Alternative (iii) uses the maximum amount of debt and result into the highest degree of financial leverage, followed by alternative (ii). Accordingly, risk of the company will be maximum in these options. Corresponding to this scheme, however, maximum EPS (i.e., ₹ 10.02 per share) will be also in option (iii).

So, if Navya Ltd. is ready to take a high degree of risk, then alternative (iii) is strongly recommended. In case of opting for less risk, alternative (ii) is the next best option with a reduced EPS of ₹ 6.80 per share. In case of alternative (i), EPS is even lower than the existing option, hence not recommended.

Question 14

The capital structure of Anshu Ltd. as at 31.3.2019 consisted of ordinary share capital of Rs. 5,00,000 (face value Rs. 100 each) and 10% debentures of Rs. 5,00,000 (Rs. 100 each). In the year ended with March 2019, sales decreased from 60,000 units to 50,000 units. During this year and in the previous year, the selling price was Rs. 12 per unit; variable cost stood at Rs. 8 per unit and fixed expenses were at Rs. 1,00,000 p.a. The income tax rate was 30%.

You are required to CALCULATE the following:

(i) **The percentage of decrease in earnings per share.**

(ii) **The degree of operating leverage at 60,000 units and 50,000 units.**

(iii) **The degree of financial leverage at 60,000 units and 50,000 units.(MTP 6 Marks ,April '19)**

Answer 14

Sales in units	**60,000 Rs.**	**50,000 Rs.**
Sales Value	7,20,000	6,00,000
Variable Cost	(4,80,000)	(4,00,000)
Contribution	2,40,000	2,00,000
Fixed expenses	1,00,000	1,00,000
EBIT	1,40,000	1,00,000
Debenture Interest	(50,000)	(50,000)
EBT	90,000	50,000
Tax @ 30%	(27,000)	(15,000)
Profit after tax (PAT)	63,000	35,000

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(i) Earning per share (EPS) = $\frac{63,000}{5000}$= Rs.12.6

$\frac{35,000}{5,000}$=Rs.7

=Decrease in EPS = 12.6 – 7 = 5.6

% decrease in EPS = $\frac{5.6}{12.6} \times 100$=44.44%

(ii) operating leverage = $\frac{\text{Contribution}}{\text{EBIT}} = \frac{2,40,000}{1,40,0000} = \frac{2,00,000}{1,00,000}$ = 1.71

(iii) Financial Leverage = $\frac{EBIT}{EBT}$ = $\frac{1,40,000}{90,0000} = \frac{1,00,000}{50,000}$ = 1.56

Question 15

The following information is available for SS Ltd.

Profit volume (PV) ratio	**30%**
Operating leverage	**2.00**
Financial leverage	**1.50**
Loan	**₹ 1,25,000**
Post-tax interest rate	**5.6%**
Tax rate	**30%**
Market Price per share (MPS)	**₹ 140**
Price Earnings Ratio (PER)	**10**

You are required to:

(1) **Prepare the Profit-Loss statement of SS Ltd. and**

(2) **Find out the number of equity shares. (PYP 10 Marks Nov '22)**

Answer 15

(1) Preparation of Profit – Loss Statement Working Notes:

1. Post tax interest 5.60%
   Tax rate 30%

Pre tax interest rate = (5.6/70) x8%
100

Loan amount ₹ 1,25,000
Interest amount = 1,25,000 x 8% ₹ 10,000

Financial Leverage (FL) = $\left[\frac{EBIT}{EBT}\right] = \left[\frac{EBIT}{EBIT-Interest}\right] = \left[\frac{EBIT}{EBIT-10,000}\right]$

$1.5 = \left[\frac{EBIT}{EBIT-10,000}\right]$

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1.5 EBIT -15000 = EBIT

1.5 EBIT – EBIT = 15,000 0.5 EBIT = 15,000

∴ EBIT = ₹ 30,000

EBT = EBIT – Interest = 30,000 – 10,000 = ₹ 20,000

2. Operating Leverage (OL) = $\frac{Contribution}{EBIT}$

$$2 = \frac{Contribution}{30,000}$$

Contribution = Rs. 60,000

3. *Fixed* Cost = Contribution – Profit

= 60,000-30,000 = Rs. 30,000

4. Sales = $\frac{Contribution}{PV\ Ratio} = \frac{60,000}{30\%}$ = Rs. 2,00,000

5. If PV ratio is 30%, then the variable cost is 70% on sales.

∴ Variable cost = 2,00,000 x 70% = ₹ 1,40,000

Profit – Loss Statement

Particulars	**₹**
Sales	2,00,000
Less: Variable cost	1,40,000
Contribution	60000
Less: Fixed cost	30,000
EBIT	30,000
Less: Interest	10,000
EBT	20,000
Less: Tax @ 30%	6,000
EAT	14,000

(2) Calculation of no. of Equity shares Market Price per Share (MPS) = ₹140 Price Earnings Ratio (PER) = 10 WKT,

EPS = $\frac{MPS}{PER} = \frac{140}{10}$ = Rs. 14

Total earnings (EAT) = ₹ 14,000

∴ No. of Equity Shares = 14,000 / 14 = 1000

Question 16

The following summarizes the percentage changes in operating income, percentage changes in revenues, and betas for four listed firms.

Firm	Change in revenue	Change in operating income	Beta

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A Ltd.	35%	22%	1.00
B Ltd.	24%	35%	1.65
C Ltd.	29%	26%	1.15
D Ltd.	32%	30%	1.20

Required:

(i) **CALCULATE the degree of operating leverage for each of these firms. Comment also.**

(ii) **Use the operating leverage to EXPLAIN why these firms have different beta. (RTP Nov '19)**

Answer 16

(i) Degree of operating leverage = $\frac{\%\ Change\ in\ Operating\ income}{\%\ Change\ in\ Revenues}$

A Ltd. = 0.22 / 0.35 = 0.63

B Ltd. = 0.35 / 0.24 = 1.46

C Ltd. = 0.26 / 0.29 = 0.90

D Ltd. = 0.30 / 0.32 = 0.94

It is level specific.

(ii) High operating leverage leads to high beta. So when operating leverage is lowest i.e. 0.63, Beta is minimum (1) and when operating leverage is maximum i.e. 1.46, beta is highest i.e. 1.65

Question 17

The following data is available for Stone Ltd.:

(Rs.)

Sales	**5,00,000**
(-) Variable cost @ 40%	**2,00,000**
Contribution	**3,00,000**
(-) Fixed cost	**2,00,000**
EBIT	**1,00,000**
(-) Interest	**25,000**
Profit before tax	**75,000**

Using the concept of leverage, find out

(i) **The percentage change in taxable income if EBIT increases by 10%.**

(ii) **The percentage change in EBIT if sales increases by 10%.**

(iii) **The percentage change in taxable income if sales increases by 10%. Also verify the results in each of the above case. (PYP 10 Marks, Nov'20)**

Answer 17

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(i) Degree of Financial Leverage = $\frac{\text{EBIT}}{\text{EBT}} = \frac{\text{RS.1,00,000}}{\text{Rs.75,000}}$ = 1.333 times

So, If EBIT increases by 10% then Taxable Income (EBT) will be increased by 1.333 × 10
= 13.33% (approx.)

Verification

Particulars	Amount (₹)
New EBIT after 10% increase (Rs.1,00,000 + 10%)	1,10,000
Less: Interest	25,000
Earnings before Tax after change (EBT)	85,000

Increase in Earnings before Tax = Rs.85,000 - Rs.75,000 = Rs. 10,000

So, percentage change in Taxable Income (EBT)=$\frac{\text{Rs.10,000}}{\text{Rs.75,000}}\times 100$ = 13.333%, hence verified

(ii) Degree of Operating Leverage = $\frac{\text{Contribution}}{\text{EBIT}} = \frac{\text{Rs.3,00,000}}{\text{Rs.1,00,000}}$ = 3 times

So, if sale is increased by 10% then EBIT will be increased by 3 × 10 = 30%

Verification

Particulars	Amount (₹)
New Sales after 10% increase (Rs.5,00,000 + 10%)	5,50,000
Less: Variable cost (40% of ₹ 5,50,000)	2,20,000
Contribution	3,30,000
Less: Fixed costs	2,00,000
Earnings before interest and tax after change (EBIT)	1,30,000

Increase in Earnings before interest and tax (EBIT) = Rs.1,30,000 - Rs.1,00,000 = ₹ 30,000

So, percentage change in EBIT = $\frac{\text{Rs.30,000}}{\text{Rs.1,00,000}}\times 100$ =30%, hence verified.

(iii) Degree of Combined Leverage = $\frac{\text{Contribution}}{\text{EBT}} = \frac{\text{Rs.3,00,000}}{\text{Rs.75,0000}}$ = 4 times

So, if sale is increased by 10% then Taxable Income (EBT) will be increased by 4 × 10
= 40%

Verification

Particulars	Amount (₹)
New Sales after 10% increase (Rs.5,00,000 + 10%)	5,50,000

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Less: Variable cost (40% of ₹ 5,50,000)	2,20,000
Contribution	3,30,000
Less: Fixed costs	2,00,000
Earnings before interest and tax (EBIT)	1,30,000
Less: Interest	25,000
Earnings before tax after change (EBT)	1,05,000

Increase in Earnings before tax (EBT) = Rs.1,05,000 - Rs.75,000 = ₹ 30,000

So, percentage change in Taxable Income (EBT)= $\frac{Rs.30,000}{Rs.75,0000}\times 100=$ 40%, hence verified

Question 18

A firm has sales of ₹ 75,00,000 variable cost is 56% and fixed cost is₹ 6,00,000. It has a debt of ₹ 45,00,000 at 9% and equity of ₹ 55,00,000. You are required to INTERPRET:

(iii) **The firm's ROI?**

(iv) **Does it have favorable financial leverage?**

(v) **If the firm belongs to an industry whose capital turnover is 3, does it have a high or low capital turnover?**

(vi) **The operating, financial and combined leverages of the firm?**

(vii) **If the sales is increased by 10% by what percentage EBIT will increase?**

(viii) **At what level of sales the EBT of the firm will be equal to zero?**

(ix) **If EBIT increases by 20%, by what percentage EBT will increase? (RTP Nov '18)**

Answer 1s8

Income Statement

Particulars	**Amount (₹)**
Sales	75,00,000
Less: Variable cost (56% of 75,00,000)	(42,00,000)
Contribution	33,00,000
Less: Fixed costs	(6,00,000)
Earnings before interest and tax (EBIT)	27,00,000
Less: Interest on debt (@ 9% on ₹ 45 lakhs)	(4,05,000)
Earnings before tax (EBT)	22,95,000

(i) ROI = $\frac{EBIT}{Capital\ employed}\times 100 = \frac{EBIT}{Equity+Debt}\times 100$

$= \frac{27,00,000}{55,00,000+45,00,000}\times 100 = 27\%$

(ROI is calculated on Capital Employed)

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(ii) ROI = 27% and Interest on debt is 9%, hence, it has a favourable financial leverage.

(iii) Capital Turnover = $\frac{Net\ Sales}{Capital}$

Or = $\frac{Net\ Sales}{Capital} = \frac{Rs.75,00,000}{Rs.1,00,00,000} = 0.75$

Which is very low as compared to industry average of 3.

(iv) Calculation of Operating, Financial and Combined leverages

(a) Operating Leverage = $\frac{Contribution}{EBIT} = \frac{Rs.33,00,000}{Rs.27,00,000} = 1.22$ (approx)

(b) Financial Leverage = $\frac{EBIT}{EBIT} = \frac{Rs.27,00,000}{Rs.22,95,000} = 1.18$ (approx)

(c) Combined Leverage = $\frac{Contribution}{EBIT} = \frac{Rs.33,00,000}{Rs.22,95,000} = 1.44$ (approx)

Or = Operating Leverage × Financial Leverage = 1.22 × 1.18 = 1.44 (approx)

(i) Operating leverage is 1.22. So if sales is increased by 10%. EBIT will be increased by 1.22 × 10 i.e. 12.20% (approx)

(ii) Since the combined Leverage is 1.44, sales have to drop by 100/1.44 i.e. 69.44% to bring EBT to Zero

Accordingly, New Sales = ₹ 75,00,000 × (1-0.6944)

= ₹ 75,00,000 × 0.3056

= ₹ 22,92,000 (approx)

Hence at ₹22,92,000 sales level EBT of the firm will be equal to Zero.

(iii) Financial leverage is 1.18. So, if EBIT increases by 20% then EBT will increase by 1.18 × 20 = 23.6% (approx)

Question 19

The capital structure of the Shiva Ltd. consists of equity share capital of Rs.20,00,000 (Share ofRs.100 per value) and Rs.20,00,000 of 10% Debentures, sales increased by 20% from 2,00,000 units to 2,40,000 units, the selling price is Rs.10 per unit; variable costs amount to Rs.6 per unit and fixed expenses amount to Rs.4,00,000. The income tax rate is assumed to be 50%.

(a) **You are required to calculate the following:**

(i) **The percentage increase in earnings per share;**

(ii) **Financial leverage at 2,00,000 units and 2,40,000 units.**

(iii) **Operating leverage at 2,00,000 units and 2,40,000 units.**

(b) **Comment on the behavior of operating and Financial leverages in relation to**

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increase in production from 2,00,000 units to 2,40,000 units. (PYP 10 Marks, May'19)

Answer 19

a)

Sales in units	**2,00,000**	**2,40,000**
	(₹)	**(₹)**
Sales Value @ Rs.10 Per Unit	**20,00,000**	24,00,000
Variable Cost @ Rs.6 per unit	**(12,00,000)**	(14,40,000)
Contribution	**8,00,000**	9,60,000
Fixed expenses	**(4,00,000)**	(4,00,000)
EBIT	**4,00,000**	5,60,000
Debenture Interest	(2,00,000)	(2,00,000)
EBT	2,00,000	3,60,000
Tax @ 50%	(1,00,000)	(1,80,000)
Profit after tax (PAT)	1,00,000	1,80,000
No of Share	20,000	20,000
Earnings per share (EPS)	5	9
(I)The percentage Increase in EPS	$= \frac{4}{5} \times 100$ = 80%×100 = 80%	
(ii) Financial Leverage $= \frac{EBIT}{EBT}$	$\frac{Rs.4,00,000}{Rs.2,00,000} = 2$	$\frac{Rs.5,60,000}{Rs.3,60,000} = 1.56$
(iii) Operating leverage$= \frac{Contribution}{EBT}$	$\frac{Rs.8,00,000}{Rs.4,00,000} = 2$	$\frac{Rs.9,60,000}{Rs.5,60,000} = 1.71$

b) When production is increased from 2,00,000 units to 2,40,000 units both financial leverage and operating leverages reduced from 2 to 1.56 and 1.71 respectively. Reduction in financial leverage and operating leverages signifies reduction in business risk and financial risk.

Question 20

NSG Ltd. has a sale of Rs.75,00,000, variable cost of Rs.42,00,000 and fixed cost of Rs.6,00,000. The Present capital structure of NSG is as follows:

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Equity Shares	**Rs. 55,00,000**
Debt (12%)	**Rs. 45,00,000**
Total	**Rs. 1,00,00,000**

(vi) **DETERMINE the ROCE of NSG Ltd.**
(vii) **Does NSG have a favourable financial leverage? ANALYSE.**
(viii) **If the industry average of asset turnover is 3, does it have a high or low asset leverage?**

DETERMINE
(ix) **COMPUTE the leverages of NSG?**
(x) **DETERMINE, at what level of sales, will the EBT be zero? (MTP 5 Marks,Oct'18)**

Answer 20

i) ROCE$\frac{\text{EBIT}}{\text{Captial employed}} = \frac{\text{Rs 27,00,000}}{\text{Rs.1,00,00,000}} \times 100 = 27\%$

Workings:

(I) Calculation of EBT:	Rs.
Sales	75,00,000
Less: Variable costs	42,00,000
Contribution	33,00,000
Less: Fixed costs	6,00,000
EBIT	27,00,000
Less: Interest (12 % of Rs. 45,00,000)	5,40,000
EBT	21,60,000

Capital employed = Debt + Equity Shares = Rs. 1,00,00,000.
Since ROCE (27%) is higher than the interest payable on debt (12%). NSG has a favourable financial leverage.
Capital employed = Total assets = Rs. 1,00,00,000 Net sales = Rs.75,00,000
Therefore, turnover ratio=$\frac{\text{Rs 75,00,000}}{\text{Rs.1,00,00,000}}$=0.7

The industry average is 3 against NSG's ratio of 0.75. Hence NSG Ltd. has very low asset leverage.

Operating leverage=$\frac{\text{Contribution}}{\text{EBIT}} = \frac{\text{Rs.33,00,000}}{\text{Rs.27,00,000}}$=1.22

Financial Leverage=$\frac{\text{EBIT}}{\text{EBIT}} = \frac{\text{Rs.27,00,000}}{\text{Rs.21,60,000}}$=1.25

Combined leverage=$\frac{\text{Contribution}}{\text{EBIT}} = \frac{\text{Rs.33,00,000}}{\text{Rs.21,60,000}}$=1.53

OR

DCL = DOL × DFL= 1.22 × 1.25 = 1.53

For EBT to become zero, a 100% reduction in the EBT is required. As the combined leverage is 1.53, sales have to drop approx. by 100/1.53 = 65.36%. Hence, the new sales will be:

Rs. 75,00,000 × (1 – 0.6536) = Rs. 25,98,000 (approx.)

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Question 21

From the given details, PREPARE Income Statement for Alpha Ltd. and Beta Ltd. (MTP 5 Marks April 22)

Particulars	Alpha Ltd.	Beta Ltd.
Operating Leverage	1.875	1.800
Financial Leverage	1.600	1.250
PV Ratio	60%	50%
Profit after tax	₹ 3,00,000	₹ 2,40,000
Tax rate	40%	40%

Answer 21

Particulars	Alpha Ltd. (₹)	Beta Ltd. (₹)	
Sales	25,00,000	18,00,000	**(Bal. fig.)**
Less: Variable Cost	10,00,000	9,00,000	
Contribution	15,00,000	9,00,000	
Less: Fixed Cost	7,00,000	4,00,000	(Bal. fig.)
EBIT	8,00,000	5,00,000	
Less: Interest	3,00,000	1,00,000	(Bal. fig.)
PBT	5,00,000	4,00,000	
Less: Tax (40%)	2,00,000	1,60,000	
PAT	3,00,000	2,40,000	

Working Note:

Particulars	Alpha Ltd.	Beta Ltd.
PAT	₹ 3,00,000	₹ 2,40,000
Tax Rate (t)	40%	40%
∴PBT = PAT/(I-t)	3,00,000/ 1-0.4 = 5,00,000	2,40,000 / 1-0.4 = 4,00,000
Finance Leverage	1.60	1.25
∴EBIT = PBT × FL	5,00,000 × 1.6 = 8,00,000	4,00,000 × 1.25 = 5,00,000
Operating Leverage	1.875	1.800
∴Contribution = EBIT × OL	8,00,000 × 1.875 = 15,00,000	5,00,000 × 1.8 = 9,00,000
PV ratio	60%	50%
∴ Sales = Contribution / PV ratio	15,00,000 / .60=	9,00,000 / .50=

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	25,00,000	18,00,000

Question 22

The selected financial data for A, B and C companies for the current year ended 31st March are as follows:

Particulars	A	B	C
Variable Expenses as a % of sales	60	50	40
Interest	₹ 1,00,000	₹ 4,00,000	₹ 6,00,000
Degree of Operating Leverage	4:1	3:1	2.5:1
Degree of Financial Leverage	3:1	5:1	2.5:1
Income Tax Rate	30%	30%	30%

(a) **PREPARE income statement for A, B and C companies**

(b) **COMMENT on the financial position and structure of these companies (RTP May'23)**

Answer 22

Income Statement of companies A, B and C

Particulars	A	B	C
Sales	₹15,00,000	₹30,00,000	₹41,66,667
Less: Variable Expenses	₹9,00,000	₹15,00,000	₹16,66,667
Contribution	₹6,00,000	₹15,00,000	₹25,00,000
Less: Fixed Cost	₹4,50,000	₹10,00,000	₹15,00,000
EBIT	₹1,50,000	₹5,00,000	₹10,00,000
Less: Interest	₹1,00,000	₹4,00,000	₹6,00,000
PBT	₹50,000	₹1,00,000	₹4,00,000
Less: Tax @ 30%	₹15,000	₹30,000	₹1,20,000
PAT	₹35,000	₹70,000	₹2,80,000

Working Notes:

(i) Degree of Financial Leverage $= \frac{EBIT}{EBIT - Interest}$

DFL x (EBIT – Int) = EBIT

DFL x EBIT – Int x DFL= EBIT

DFL x EBIT – EBIT =Int x DFL

EBIT(DFL – 1) = Int x DFL

EBIT = $\frac{int \times DFL}{DFL - 1}$

For A,

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$EBIT_A = \frac{Rs.1,00,000 \times 3}{3-1}$

$EBIT_A$ = Rs. 150000

For B,

$EBIT_B = \frac{Rs.4,00,000 \times 5}{5-1}$

$EBIT_B$ = Rs. 500000

For C,

$EBIT_C = \frac{Rs.6,00,000 \times 2.5}{2.5-1}$

$EBIT_C$ = Rs. 10,00,000

(ii) DOL = $\frac{Contribution}{EBIT}$

Contribution = DOL x EBIT

$Contribution_A$ = 4 x ₹1,50,000

$Contribution_A$ = ₹6,00,000

$Contribution_B$ = 3 x ₹5,00,000

$Contribution_B$ = ₹15,00,000

$Contribution_C$ = 2.5 x ₹10,00,000

$Contribution_c$ = ₹25,00,000

(iii) Fixed Cost = Contribution – EBIT

$Fixed\ Cost_A$ = ₹6,00,000 – ₹1,50,000 = ₹4,50,000

$Fixed\ Cost_B$=₹15,00,000 – ₹5,00,000 = ₹10,00,000

$Fixed\ Cost_c$= ₹25,00,000 – ₹10,00,000 = ₹15,00,000

(iv) Contribution= Sales – VC

VC= Sales – Contribution

Sales x VC Ratio= Sales – Contribution

Contribution= Sales – Sales x VC Ratio

Contribution=Sales(1-VCR)

Sales = $\frac{\text{Contribution}}{1-VCR}$

$Sales_A$ = ₹6,00,000/(1-0.6) = ₹15,00,000

$Sales_B$= ₹15,00,000/(1-0.5) = ₹30,00,000

$Sales_C$ = ₹25,00,000/(1-0.4) = ₹41,66,667

Of all the companies, A has the highest degree of Operating Leverage, B has highest degree of Financial Leverage and C is equally leveraged on both Operating and Financial fronts. If we consider combined leverage companies will have the leverages of 12, 15 and 6.25 (by multiplying both operating and financial leverages). This means A is undertaking a higher degree of operating risk while B is undertaking a higher degree of financial risk.

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Question 23

Details of a company for the year ended 31st March, 2022 are given below:

Sales	**₹ 86 lakhs**
Profit Volume (P/V) Ratio	**35%**
Fixed Cost excluding interest expenses	**₹ 10 lakhs**
10% Debt	**₹ 55 lakhs**
Equity Share Capital of ₹ 10 each	**₹ 75 lakhs**
Income Tax Rate	**40%**

Required:

(i) **Determine company's Return on Capital Employed (Pre-tax) and EPS.**

(ii) **Does the company have a favourable financial leverage?**

(iii) **Calculate operating and combined leverages of the company.**

(iv) **Calculate percentage change in EBIT, if sales increases by 10%.**

(v) **At what level of sales, the Earning before Tax (EBT) of the company will be equal to zero? (PYP 10 Marks May'22)**

Answer 23

Income Statement

Particulars	**Amount (₹)**
Sales	86,00,000
Less: Variable cost (65% of 86,00,000)	55,90,000
Contribution (35% of 86,00,000)	30,10,000
Less: Fixed costs	10,00,000
Earnings before interest and tax (EBIT)	20,10,000
Less: Interest on debt (@ 10% on ₹ 55 lakhs)	5,50,000
Earnings before tax (EBT)	14,60,000
Tax (40%)	5,84,000
PAT	8,76,000

(i) ROCE (Pre-tax) $= \frac{EBIT}{\text{Capital employed}} \times \mathbf{100} = \frac{EBIT}{\text{Equity+Debt}} \times \mathbf{100}$

$$\frac{₹20,10,000}{₹\ (75,00,000+55,00,000)} \times \mathbf{100} == 15.46\%$$

EPS (PAT/No. of equity shares) 1.168 or ₹ 1.17

(ii) ROCE is 15.46% and Interest on debt is 10%. Hence, it has a favourable financial leverage.

(iii) Calculation of Operating, Financial and Combined leverages:

$$\text{Operating Leverage} = \frac{Contribution}{EBIT} = \frac{₹\ 30,10,000}{₹20,10,000} = 1.497 \text{ (approx.)}$$

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Financial Leverage $= \frac{EBIT}{EBIT} = \frac{₹\,20,10,000}{₹14,60,000} =$ 1.377 (approx.)

Combined Leverage $= \frac{Contribution}{EBIT} = \frac{₹\,30,10,000}{₹14,60,000}$ = 2.062 (approx.)

Or, = Operating Leverage × Financial Leverage = 1.497 × 1.377 = 2.06 (approx.)

(iv) Operating leverage is 1.497. So, if sales are increased by 10%.
EBIT will be increased by 1.497 × 10% i.e. 14.97% (approx.)

(v) Since the combined Leverage is 2.062, sales have to drop by 100/2.062 i.e. 48.50% to bring EBT to Zero.

Accordingly, New Sales = ₹ 86,00,000 × (1 - 0.4850)
= ₹ 86,00,000 × 0.515
= ₹ 44,29,000 (approx.)

Hence, at ₹ 44,29,000 sales level, EBT of the firm will be equal to Zero.

Question 24

Debu Ltd. currently has an equity share capital of ₹ 1,30,00,000 consisting of 13,00,000 Equity shares. The company is going through a major expansion plan requiring to raise funds to the tune of ₹ 78,00,000. To finance the expansion, the management has following plans:

Plan-I : Issue 7,80,000 Equity shares of ₹ 10 each.

Plan-II: Issue 5,20,000 Equity shares of ₹ 10 each and the balance through long-term borrowing at 12% interest p.a.

Plan-III: Issue 3,90,000 Equity shares of ₹ 10 each and 39,000, 9% Debentures of ₹ 100 each.

Plan-IV: Issue 3,90,000 Equity shares of ₹ 10 each and the balance through 6% preference shares.

EBIT of the company is expected to be ₹ 52,00,000 p.a. Considering corporate tax rate @ 40%, you are required to-

(i) **CALCULATE EPS in each of the above plans.**

(ii) **ASCERTAIN financial leverage in each plan and comment. (RTP Nov'22)**

Answer 24

Sources of Capital	Plan I	Plan II	Plan III	Plan IV
Present Equity Shares	13,00,000	13,00,000	13,00,000	13,00,000
New Issue	7,80,000	5,20,000	3,90,000	3,90,000
Equity share capital (₹)	2,08,00,000	1,82,00,000	1,69,00,000	1,69,00,000
No. of Equity shares	20,80,000	18,20,000	16,90,000	16,90,000
12% Long term loan (₹)	-	26,00,000	-	-
9% Debentures (₹)	-	-	39,00,000	-
6% Preference Shares (₹)	-	-	-	39,00,000

Computation of EPS and Financial Leverage

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Sources of Capital	Plan I	Plan II	Plan III	Plan IV
EBIT (₹)	52,00,000	52,00,000	52,00,000	52,00,000
Less: Interest on 12% Loan (₹)	-	3,12,000	-	-
Less: Interest on 9% debentures (₹)	-	-	3,51,000	-
EBT (₹)	52,00,000	48,88,000	48,49,000	52,00,000
Less: Tax@ 40%	20,80,000	19,55,200	19,39,600	20,80,000
EAT (₹)	31,20,000	29,32,800	29,09,400	31,20,000
Less: Preference Dividends (₹)	-	-	-	2,34,000
(a) Net Earnings available for equity shares (₹)	31,20,000	29,32,800	29,09,400	28,86,000
(b) No. of equity shares	20,80,000	18,20,000	16,90,000	16,90,000
(c) EPS (a b) (₹)	1.50	1.61	1.72	1.71
Financial leverage=$\frac{EBIT}{EBT}$	1.00	1.06	1.07	1.08*

* Financial Leverage in the case of Preference dividend=$\left[\frac{EBIT}{(EBIT-Intrest)-(\frac{Dp}{(1-t)}}\right]$

$=\left[\frac{52,00,000}{(52,00,000-0)-(\frac{2,34,000}{(1-40)}}\right]=\frac{52,00,000}{48,10,000}=1.08$

Question 25

Information of A Ltd. is given below:

- **Earnings after tax: 5% on sales**
- **Income tax rate: 50%**
- **Degree of Operating Leverage: 4 times**
- **10% Debenture in capital structure: ₹ 3 lakhs**
- **Variable costs: ₹ 6 lakhs Required:**

(i) **From the given data complete following statement:**

Sales	**XXXX**
Less: Variable costs	**₹ 6,00,000**
Contribution	**XXXX**
Less: Fixed costs	**XXXX**
EBIT	**XXXX**
Less: Interest expenses	**XXXX**
EBT	**XXXX**
Less: Income tax	**XXXX**

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EAT	XXXX

(ii) **Calculate Financial Leverage and Combined Leverage.**

(iii) **Calculate the percentage change in earning per share, if sales increased by 5%. (PYP 10 Marks Dec '21)**

Answer 25

(i) **Working Notes**

Earning after tax (EAT)is 5% of sales Income tax is 50%

So, EBT is 10% of Sales

Since Interest Expenses is ₹ 30,000

EBIT = 10% of Sales + ₹30,000 .... (Equation i)

Now Degree of operating leverage = 4

So, $\frac{Contribution}{EBIT}$ = 4

Or, Contribution = 4 EBIT

Or, Sales – Variable Cost = 4 EBIT

Or, Sales – ₹ 6,00,000 = 4 EBIT ....(Equation ii)

Replacing the value of EBIT of equation (i) in Equation (ii) We get, Sales – ₹ 6,00,000 = 4 (10% of Sales + ₹ 30,000) Or, Sales – ₹ 6,00,000 = 40% of Sales + ₹ 1,20,000

Or, 60% of Sales = ₹ 7,20,000

So, Sales = $\frac{Rs.7,20,000}{60\%}$ =₹ 12,00,000

Contribution = Sales – Variable Cost = ₹ 12,00,000 – ₹ 6,00,000 =₹ 6,00,000

EBIT = $\frac{Rs.6,00,000}{4}$ = ₹ 1,50,000

Fixed Cost = Contribution – EBIT = ₹ 6,00,000 – ₹ 1,50,000 = ₹ 4,50,000

EBT = EBIT – Interest = ₹ 1,50,000 – ₹ 30,000 = ₹ 1,20,000

EAT = 50% of ₹ 1,20,000 = ₹ 60,000

Income Statement

Particulars	(₹)
Sales	12,00,000
Less: Variable cost	6,00,000
Contribution	6,00,000
Less: Fixed cost	4,50,000
EBIT	1,50,000

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Less: Interest	30,000
EBT	1,20,000
Less: Tax (50%)	60,000
EAT	60,000

(ii) Financial Leverage = $\frac{EBIT}{EBT} = \frac{1,50,000}{1,20,000}$ = 1.25 times

Combined Leverage = Operating Leverage X Financial Leverage
= 4 X1.25 = 5 times

Or,

Combined Leverage = $\frac{Contribution}{EBIT} \times \frac{EBIT}{EBT}$

Combined Leverage = $\frac{Contribution}{EBIT} = \frac{Rs.6,00,000}{Rs.1,20,000}$ = 5 times

(iii) Percentage Change in Earnings per Share

Combined Leverage = $\frac{\%\ Change\ in\ EPS}{\%\ Change\ in\ Sales} = 5 = \frac{\%\ Change\ in\ EPS}{5\%}$

∴ % Change in EPS = 25%

Hence, if sales increased by 5 %, EPS will be increased by 25 %.

Question 26

The following details of PQR Limited for the year ended 31st March, 2021 are given below:

Operating leverage	**1.4**
Combined leverage	**2.8**
Fixed Cost (Excluding interest)	**₹ 2.10 lakhs**
Sales	**₹ 40.00 lakhs**
10% Debentures of ₹ 100 each	**₹ 25.00 lakhs**
Equity Share Capital of ₹ 10 each	**₹ 20.00 lakhs**
Income tax rate	**30 per cent**

REQUIRED:

(i) **Calculate Financial leverage**

(ii) **Calculate P/V ratio and Earning per Share (EPS)**

(iii) **If the company belongs to an industry, whose assets turnover is 1. 6, does it have a high or low assets turnover?**

(iv) **At what level of sales, the Earning before Tax (EBT) of the company will be equal to zero? In the question, assume that 10% Debentures and Share Capital consists of total liabilities (MTP 8 Marks, Oct'21)**

Answer 26

(i) **Financial leverage**

Combined Leverage = Operating Leverage x Financial Leverage

So, financial leverage = Combined Leverage/Operating Leverage

= 2.8/1.4 = 2

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(ii) **P/V Ratio and EPS**

Operating Leverage= $\frac{\text{Contribution}}{\text{Contribution} - \text{FixedCost}}$

$1.4 = \frac{\text{Contribution}}{\text{Contribution} - 2,10,000}$

1.4 Contribution – 2,94,000 = Contribution
0.4 Contribution = 2,94,000 Contribution = 7,35,000

Now, P/V Ratio = $\frac{Contribution}{Sales}$ x100 = $\frac{7,35,000}{40,00,00} \times 100 = 18.375\%$

EPS = $\frac{\text{Profit after tax (PAT)}}{\text{No.of equity shares}}$

(iii) **Earning before tax (EBT)** = Contribution – Fixed Cost – Interest
= 7,35,000 – 2,10,000 – 2,50,000
= 2,75,000
Profit after tax = EBT – Tax @ 30%
= 2,75,000 – 82,500
= 1,92,500
EPS= $\frac{1,92,5,00}{20,00,00}$ = 0.9625

Asset Turnover

Total Assets = Equity Share Capital + Debentures = ₹ 20 lakhs + ₹ 25 lakhs = ₹ 45 lakhs

Asset Turnover $\frac{\text{Sales}}{\text{Total Assets}} = \frac{40,00,000}{45,00,000} = 0.89$

0.89 < 1.6, means lower than industry turnover.

(iv) EBT zero means 100% reduction in EBT. Since combined leverage is 2.8, sales have to be dropped by 100/2.8 = 35.71%. Hence new sales will be
40,00,000 x (100% - 35.71%) = 25,71,600

Question 27

Following information has been extracted from the accounts of newly incorporated Textyl Pvt. Ltd. for the Financial Year 2020-21:

Sales	**₹ 15,00,000**
P/V ratio	**70%**
Operating Leverage	**1.4 times**
Financial Leverage	**1.25 times**

Using the concept of leverage, find out and verify in each case:

(iii) The percentage change in taxable income if sales increase by 15%.

(iv) The percentage change in EBIT if sales decrease by 10%.

(v) The percentage change in taxable income if EBIT increase by 15%.

(RTP May '21)

Answer 27

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Workings:

1. Contribution = Sales x P/V ratio
   = ₹ 15,00,000 x 70% = ₹ 10,50,000

2. Operating Leverage = $\frac{Contribution}{Earnings\ before\ interest\ and\ tax(EBI)}$

   Or, 1.4 = $\frac{Rs.10,50,000}{EBIT}$

   EBIT = Rs. 7,50,000

3. Financial Leverage = $\frac{EBIT}{EBT}$

   Or, 1.25 = $\frac{Rs.7,50,000}{EBT}$

   EBT = Rs. 6,00,000

4. Fixed Cost = Contribution – EBIT
   = ₹ 10,50,000 – ₹ 7,50,000 = ₹ 3,00,000

5. Interest = EBIT – EBT
   = ₹ 7,50,000 – ₹ 6,00,000 = ₹ 1,50,000

6. Income Statement

Particulars	Amount (₹)
Sales	15,00,000
Less: Variable cost (30% of ₹ 15,00,000)	4,50,000
Contribution (70% of ₹ 15,00,000)	10,50,000
Less: Fixed costs	3,00,000
Earnings before interest and tax (EBIT)	7,50,000
Less: Interest	1,50,000
Earnings before tax (EBT)	6,00,000

(i) Combined Leverage = $\frac{\text{Contribution}}{\text{EBT}} = \frac{\text{Rs.10,50,000}}{\text{Rs.6,00,000}}$ = 1.75 times

Or, Combined Leverage = Operating Leverage x Financial Leverage
= 1.4 x 1.25 = **1.75 times**

So, if sales is increased by 15% then taxable income (EBT) will be increased by 1.75
× 15% = **26.25%**

Verification

Particulars	Amount (₹)
New Sales after 15% increase (₹ 15,00,000 + 15% of	17,25,000

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₹ 15,00,000)	
Less: Variable cost (30% of ₹ 17,25,000)	5,17,500
Contribution (70% of ₹ 17,25,000)	12,07,500
Less: Fixed costs	3,00,000
Earnings before interest and tax (EBIT)	9,07,500
Less: Interest	1,50,000
Earnings before tax after change (EBT)	7,57,500

Increase in Earnings before tax (EBT) = ₹ 7,57,500 - ₹ 6,00,000 = ₹ 1,57,500

So, percentage change in Taxable Income (EBT) = $\frac{Rs.1,57,500}{Rs.6,00,000}$ × 100 =26.25%, hence verified.

(ii) Degree of Operating Leverage (Given) = **1.4 times**

So, if sales is decreased by 10% then EBIT will be decreased by 1.4 × 10% = **14%**

Verification

Particulars	**Amount (₹)**
New Sales after 10% decrease (₹ 15,00,000 - 10% of ₹ 15,00,000)	13,50,000
Less: Variable cost (30% of ₹ 13,50,000)	4,05,000
Contribution (70% of ₹ 13,50,000)	9,45,000
Less: Fixed costs	3,00,000
Earnings before interest and tax after change (EBIT)	6,45,000

Decrease in Earnings before interest and tax (EBIT) = ₹ 7,50,000 - ₹ 6,45,000 = ₹ 1,05,000

So, percentage change in EBIT = $\frac{Rs.1,05,000}{Rs.7,50,000}$ × 100 = 14%, hence verified.

(iii) Degree of Financial Leverage (Given) = **1.25 times**

So, if EBIT increases by 15% then Taxable Income (EBT) will be increased by 1.25 × 15% = **18.75%**

Verification

Particulars	**Amount (₹)**
New EBIT after 15% increase (₹ 7,50,000 + 15% of ₹ 7,50,000)	8,62,500

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Less: Interest	1,50,000
Earnings before Tax after change (EBT)	7,12,500

Increase in Earnings before tax = ₹ 7,12,500 - ₹ 6,00,000 = ₹ 1,12,500

So, percentage change in Taxable Income (EBT) = $\frac{Rs.1,12,500}{Rs.6,00,000}$ × 100 =18.75%, hence verified

Question 28

Following is the Balance Sheet of Sony Ltd. as on 31st March, 2018:

Liabilities	Amount in ₹
Shareholder's Fund	
Equity Share Capital (Rs.10 each)	**25,00,000**
Reserve and Surplus	**5,00,000**
Non-Current Liabilities (12 Debentures)	**50,00,000**
Current Liabilities	**20,00,000**
Total	**1,00,00,000**
Assets	**Amount in ₹**
Non-Current Assets	**60,00,000**
Current Assets	**40,00,000**
Total	**1,00,00,000**

Additional Information:

(i) **Variable Cost is 60% of Sales.**

(ii) **Fixed Cost p.a. excluding interest Rs.20,00,000.**

(iii) **Total Asset Turnover Ratio is 5 times.**

(iv) **Income Tax Rate 25% You are required *to:***

(1) **Prepare Income Statement**

(2) **Calculate the following and comment:**

(a) **Operating Leverage**

(b) **Financial Leverage**

(c) **Combined Leverage (PYP 10 Marks, Nov'18)**

Answer 28

Work-ins:
Total Assets= Rs.1 crore

Total Asset Turnover Ratio i.e.= $\frac{Total\ Sales}{\text{Total Assets}}$ = 5

Hence, Total Sales = Rs.1 Crore ×5 = ₹ 5 crore

(1) Income Statement

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	(Rs.in crore)
Sales	5
Less: Variable cost @ 60%	3
Contribution	2
Less: Fixed cost (other than Interest)	0 .2
EBIT (Earnings before interest and tax)	1.8
Less: Interest on debentures (12% ×50 lakhs)	0 .06
EBT (Earning before tax)	1.74
Less: Tax 25%	0.435
EAT (Earning after tax)	1.305

(2)

a) Operating Leverage

Operating leverage $= \frac{Contribution}{EBIT} = \frac{2}{1.8} = 1.11$

It indicates fixed cost in cost structure. It indicates sensitivity of earnings before interest and tax (EBIT) to change in sales at a particular level.

b) Financial Leverage

Financial Leverage$= \frac{EBIT}{EBT} = \frac{1.8}{1.74} = 1.03$

The financial leverage is very comfortable since the debt service obligation is small vis-à-vis EBIT.

c) Combined Leverage

Combined Leverage

$\frac{Contribution}{EBIT} \times \frac{EBIT}{EBT} = 1.11 \times 1.03 = 1.15$

Or

$\frac{Contribution}{EBIT} = \frac{2}{1.74} = 1.15$

The combined leverage studies the choice of fixed cost in cost structure and choice of debt in capital structure. It studies how sensitive the change in EPS is vis-à-vis change in sales.

The leverages- operating, financial and combined are measures of risk.

Question 29

From the following, PREPARE Income Statement of Company A and B.

Company	A	B
Financial leverage	3:1	4:1
Interest	Rs.20,000	Rs.30,000
Operating leverage	4:1	5:1

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Variable Cost as a Percentage to Sales	**$66\frac{2}{3}$ %**	**75%**
Income tax Rate	**45%**	**45%**

(MTP 10 Marks, Aug'18)

Answer 29

Working Notes: Company A

Financial leverage$=\frac{EBT}{EBT}=\frac{3}{1}=$ OR EBT = 3 × EBT (1)

Again EBIT – Interest = EBT
Or, EBIT- 20,000 = EBT (2)
Taking (1) and (2) we get
3 EBT- 20,000 = EBT
Or, 2 EBT = 20,000 or EBT = Rs.10,000
Hence EBIT = 3EBT = Rs.30,000

Again, we have operating leverage$=\frac{Contribution}{EBIT}=\frac{4}{1}$

Again, we have operating leverage

EBIT	Rs. 30,000, hence we get
Contribution	4 × EBIT = Rs.1,20,000

Now variable cost = $66\frac{2}{3}$% on sales

Contribution=100−**$66\frac{2}{3}$**% i.e. $33\frac{1}{3}$%

Hence, sales$=\frac{1,20,000}{33\frac{1}{3}\%}$=Rs.3,60,000

Same way EBIT, EBT, contribution and sales for company B can be worked out.

Company B

Financial leverage $=\frac{EBIT}{EBT}=\frac{4}{1}=$ or EBIT = 4 EBT (3)

Again EBIT – Interest = EBT or EBIT – 30,000 = EBT (4)

Taking (3) and (4) we get, 4EBT- 30,000 = EBT

Or, 3EBT = 30,000 Or, EBT=10,000 Hence, EBIT = 4 × EBT= 40,000

Again, we have operating leverage = $\frac{Contribution}{EBIT}$

EBIT= 40,000; Hence we get contribution = 5 × EBIT = 2,00,000

Now variable cost =75% on sales

Contribution = 100- 75% i.e. 25% on sales

Hence Sales $=\frac{2,00,000}{25\%}$ = Rs. 8,00,000

Income Statement

	A (Rs.)	**B (Rs.)**

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Sales	3,60,000	8,00,000
Less: Variable Cost	2,40,000	6,00,000
Contribution	1,20,000	2,00,000
Less: Fixed Cost (bal. Fig)	90,000	1,60,000
EBIT	30,000	40,000
Less: Interest	20,000	30,000
EBT	10,000	10,000
Less: Tax 45%	4,500	4,500
EAT	5,500	5,500

Question 30

The following data have been extracted from the books of LM Ltd: Sales - ₹100 lakhs

Interest Payable per annum - Rs.10 lakhs Operating leverage - 1.2

Combined leverage - 2.16 You are required to calculate:

(i) **The financial leverage,**

(ii) **Fixed cost and**

(iii) **P/V ratio (PYP 5 Marks, May'18)**

Answer 30

i. **Calculation of Financial Leverage:**

Combined Leverage (CL) = Operating Leverage (OL) ×Financial Leverage (FL) 2.16= 1.2×FL

FL = 1.8

ii. **Calculation of Fixed cost:**

Financial Leverage = $\frac{EBIT}{\text{EBT i.e EBIT} - \text{Intrest}}$

1.8

= $\frac{EBIT}{\text{EBIT} - 10{,}00{,}000}$

1.8 (EBIT – 10,00,000) = EBIT

1.8 EBIT - 18,00,000 = EBIT

EBIT= $\frac{18{,}00{,}000}{0.8}$=Rs.22,50,000

Further, Operating Leverage=$\frac{Contribution}{EBIT}$

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$=1.2=\frac{Contribution}{Rs.22,50,000}$

Contribution = Rs.27,00,000 Fixed Cost = Contribution – EBIT

= Rs.27, 00,000 – Rs.22,50,000

Fixed cost = Rs.4,50,000

iii. Calculation of P/V ratio:

$$P/V\ ratio = \frac{Contribution(C)}{Sales(S)} \times 100 = \frac{27,00,000}{100.00.000} \times 100 = 27\%$$

Question 31

B LLP. has the following balance sheet and Income statement information:

Balance Sheet as on March 31st 2019

Liabilities	(Rs.)	Assets	(Rs.)
Partners' Capital	80,00,000	Net Fixed Assets	1,00,00,000
Term Loan	60,00,000	Inventories	45,00,000
Retained Earnings	35,00,000	Trade Receivables	40,50,000
Trade Payables	15,00,000	Cash & Bank	4,50,000
	1,90,00,000		1,90,00,000

Income Statement for the year ending March 31st 2019

	(Rs.)
Sales	34,00,000
Operating expenses (including Rs. 6,00,000 depreciation)	12,00,000
EBIT	22,00,000
Less: Interest	6,00,000
Earnings before tax	16,00,000
Less: Taxes	5,60,000
Net Earnings (EAT)	10,40,000

COMPUTE the degree of operating, financial and combined leverages at the current sales level, if all operating expenses, other than depreciation, are variable costs.[MTP 3 Marks Oct'19]

Answer 31

Computation of Degree of Operating (DOL), Financial (DFL) and Combined leverages (DCL).

$$DOL = \frac{Rs.34,00,000 - Rs.6,00,000}{Rs.22,00,000} = 1.27$$

$$DFL = \frac{Rs.22,00,000}{Rs.16,00,000} = 1.38$$

DCL = DOL X DFL = 1.27 X 1.38 = 1.75

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Question 32

A company had the following balance sheet as on 31st March, 2021:

Liabilities	Rs in Crores	Assets	Rs. in Crores
Equity Share Capital (75 lakhs Shares of Rs.10 each)	**7.50**	**Building**	**12.50**
Reserves and Surplus	**1.50**	**Machinery**	**6.25**
15% Debentures	**15.00**	**Current Assets**	
Current Liabilities	**6.00**	**Stock**	**3.00**
		Debtors	**3.25**
		Bank Balance	**5.00**
	30.00		**30.00**

The additional information given is as under:

Fixed cost per annum (excluding interest)	**Rs.6 crores**
Variable operating cost ratio	**60%**
Total assets turnover ratio	**2.5**
Income-tax rate	**40%**

Calculate the following and comment:

(i) **Earnings per share**

(ii) **Operating Leverage**

(iii) **Financial Leverage**

(iv) **Combined Leverage (RTP May '19)**

Answer 32

Total Assets = ₹ 30 crores

Total Asset Turnover Ratio = 2.5

Hence, Total Sales = 30 ×2.5 = Rs.75 crores

Computation of Profit after Tax (PAT)

Particulars	**(Rs.in crores)**
Sales	75.00
Less: Variable Operating Cost @ 60%	45.00

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Contribution	30.00
Less: Fixed Cost (other than Interest)	6.00
EBIT/PBIT	24.00
Less: Interest on Debentures (15% X 15)	2.25
EBT/PBT	21.75
Less: Tax @ 40%	8.70
EAT/ PAT	13.05

(i) Earnings per Share

$$EPS = \frac{PAT}{\text{Number of Equity Shares}} = \frac{13.05}{0.75} = Rs.17.40$$

Number of Equity Shares

It indicates the amount the company earns per share. Investors use this as a guide while valuing the share and making investment decisions. It is also an indicator used in comparing firms within an industry or industry segment.

(ii) Operating Leverage

$$\text{Operating Leverage} = \frac{\text{Contribution}}{\text{EBIT}} = \frac{30}{24} = 1.25$$

It indicates the choice of technology and fixed cost in cost structure. It is level specific. When firm operates beyond operating break-even level, then operating leverage is low. It indicates sensitivity of earnings before interest and tax (EBIT) to change in sales at a particular level.

(iii) Financial Leverage

$$\text{Financial Leverage} = \frac{EBIT}{PBT} = \frac{24}{21.75} = 1.103$$

The financial leverage is very comfortable since the debt service obligation is small vis -à- vis EBIT.

(iv) Combined Leverage

$$\text{Combined Leverage} = \frac{\text{Contribution}}{PBT} = \frac{30}{21.75} = 1.379$$

Or,

= Operating Leverage × Financial Leverage

= 1.25 × 1.103 = 1.379

The combined leverage studies the choice of fixed cost in cost structure and choice of debt in capital structure. It studies how sensitive the change in EPS is vis-à-vis change in sales. The leverages operating, financial and combined are used as measurement of risk.

Question 33

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“Financial Leverage is a double-edged sword” DISCUSS (RTP May ’18)

Answer 33

On one hand when cost of ‘fixed cost fund’ is less than the return on investment financial leverage will help to increase return on equity and EPS. The firm will also benefit from the saving of tax on interest on debts etc. However, when cost of debt will be more than the return it will affect return of equity and EPS unfavorably and as a result firm can be under financial distress. This is why financial leverage is known as “double edged sword”.

Effect on EPS and ROE:

When, ROI > Interest – Favourable – Advantage When, ROI < Interest – Unfavourable – Disadvantage

When, ROI = Interest – Neutral – Neither advantage nor disadvantage.

Question 34

The data relating to two companies are as given below:

	Company A	**Company B**
Equity Capital	**Rs.6,00,00,000**	**Rs.3,50,00,000**
15% Debentures	**Rs.40,00,000**	**Rs.65,00,000**
Output (units) per annum	**6,00,000**	**1,50,000**
Selling price/ unit	**Rs.60**	**Rs.500**
Fixed Costs per annum	**Rs.70,00,000**	**Rs.1,40,00,000**
Variable Cost per unit	**Rs.30**	**Rs.275**

You are required to CALCULATE the Operating leverage, Financial leverage and Combined leverage of the two Companies. (MTP 5 Marks ‘May’20)

Answer 34

Computation of Operating leverage, Financial leverage and Combined leverage of two companies

	Company A	**Company B**
Output units per annum	6,00,000	1,50,000
	(Rs.)	**(Rs.)**
Selling price / unit	60	500
Sales revenue	3,60,00,000 (6,00,000 units X Rs.60)	7,50,00,000 (1,50,000 units X Rs.500)
Less: Variable costs	1,80,00,000 (6,00,000 units X Rs.30)	4,12,50,000 (1,50,000 units X Rs.275)
Contribution (C)	1,80,00,000	3,37,50,000
Less: Fixed costs	70,00,000	1,40,00,000
EBIT (Earnings before Interest and tax)	1,10,00,000	1,97,50,000
Less: Interest @ 15% on debentures	6,00,000	9,75,000
PBT	1,04,00,000	1,87,75,000

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Operating Leverage = Contribution / EBIT	1.64 (Rs.1,80,00,000 ÷ 1,10,00,000)	1.71 (Rs.3,37,50,000 ÷ Rs. 1,97,50,000)
Financial Leverage = EBIT/ PBT	1.06 (Rs.1,10,00,000 ÷ Rs.1,04,00,000)	1.05 (Rs.1,97,50,000 ÷ Rs. 1,87,75,000)
Combined Leverage = DOL X DFL	1.74 (1.64 X 1.06)	1.80 (1.71 X 1.05)

Question 35

Manchow Limited and Noodles Limited are generating same level of Operating Income. The margin of safety for Manchow Ltd is 0.4 and for Noodles Limited it is 1.25 times of Manchow Ltd. The Interest expense of Manchow Limited is ₹ 22,50,000 and it is 40% lower for Noodles Limited. Financial Leverages of Manchow Limited and Noodles Limited are 3 and 2 respectively. Profit Volume Ratio for both companies stand as 40% and 50% respectively. Assuming a tax rate of 30%, PREPARE income statement for both companies (MTP 5 Marks April '23)

Answer 35

Particulars	Manchow Ltd (₹)	Noodle Ltd (₹)
Sales	2,10,93,750	1,08,00,000
Less: Variable Cost	1,26,56,250	54,00,000
Contribution	84,37,500	54,00,000
Less: Fixed Cost	50,62,500	27,00,000
EBIT	33,75,000	27,00,000
Less: Interest	22,50,000	13,50,000
EBT	11,25,000	13,50,000
Less: Tax	3,37,500	4,05,000
PAT	7,87,500	9,45,000

Workings:

(i) **Margin of Safety**

For Manchow Ltd= 0.4

For Noodles Ltd= 0.4 x 1.25 = 0.5

(ii) **Interest Expense**

For Manchow Ltd = ₹ 22,50,000

For Noodles Ltd = ₹ 22,50,000 x 60%= ₹ 13,50,000

(iii) **For Manchow Ltd:**

Financial Leverage = 3

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$$\frac{EBIT}{EBT} = \frac{EBIT}{EBIT - Interest} = 3$$

$$\frac{EBIT}{EBIT - 22{,}50{,}000} = 3$$

EBIT = 3 EBIT- 67,50,000

67,50,000 = 2 EBIT

EBIT = 33,75,000

For Noodles Ltd:

Financial Leverage = 2

$$\frac{EBIT}{EBT} = \frac{EBIT}{EBIT - Interest} = 2$$

$$\frac{EBIT}{EBIT - 22{,}50{,}000} = 2$$

EBIT = 2 EBIT-27,00,000 EBIT =27,00,000

(iv) Contribution:

For Manchow Ltd

Operating Leverage = 1/ Margin of Safety
= 1/0.4 = 2.5
Operating Leverage = Contribution/EBIT
2.5 = Contribution/33,75,000 Contribution = 84,37,500

For Noodles Ltd

Operating Leverage = 1/ Margin of Safety
= 1/0.5 = 2
Operating Leverage = Contribution/EBIT
2 = Contribution/27,00,000 Contribution = 54,00,000

(v) Sales:

For Manchow Ltd

P/V Ratio	= 40%
P/V Ratio	= Contribution/Sales
0.4	= 84,37,500/Sales
Sales	= 2,10,93,750

For Noodles Ltd

P/V Ratio	= 50%
P/V Ratio	= Contribution/Sales
0.5	= 54,00,000/Sales
Sales	= 1,08,00,000

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Question 36

The capital structure of Roshan Ltd. for the year ended 31st March, 2022 consisted as follows:

Particulars	Amount (₹' 000)
Equity share capital (face value ₹ 100 each)	1,50,000
10% debentures (₹ 100 each)	1,50,000

During the year 2021-22, sales of the company decreased to 15,00,000 units as compared to 18,00,000 units in the previous year. However, the selling price stood at ₹ 120 per unit and variable cost at ₹ 80 per unit for both the years. The fixed expenses were at ₹ 3 crore p.a. and the income tax rate is 30%.

You are required to CALCULATE the following:

(iii) **The degree of financial leverage at 18,00,000 units and 15,00,000 units.**

(iv) **The degree of operating leverage at 18,00,000 units and 15,00,000 units.**

(v) **The percentage change in EPS. (MTP 5 Marks March 22 & Oct '23)**

Answer 36

Income Statement with required calculations

Particulars	Previous Year	Current Year
Sales (in units)	18,00,000	15,00,000
No. of shares	15,00,000	15,00,000
	(₹' 000)	(₹' 000)
Sales Value	2,16,000	1,80,000
Variable Cost	(1,44,000)	(1,20,000)
Contribution	72,000	60,000
Fixed expenses	(30,000)	(30,000)
EBIT	42,000	30,000
Debenture Interest	(15,000)	(15,000)
EBT	27,000	15,000
Tax @ 30%	(8,100)	(4,500)
Profit after tax (PAT)	18,900	10,500
(i) Financial Leverage $= \frac{EBIT}{EBT}$	$= \frac{Rs.42,000}{Rs.27,000}$ = 1.56	$\frac{Rs. 30,000}{Rs\ 15,000}$ = 2
(ii) Operating leverage $= \frac{Contribution}{EBIT}$	$\frac{Rs. 72,000}{Rs\ 42,000}$	$\frac{Rs. 60,000}{Rs\ 30,000}$

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	= 1.71	= 2
(iii) Earnings per share (EPS) $= \frac{PAT}{No.of\ Shares}$	$\frac{Rs.18,900}{Rs.1,500}$ = ₹ 12.6	$= \frac{Rs.10,500}{Rs.1,500}$ = ₹ 7
Decrease in EPS	= ₹ 12.6 – ₹ 7 = ₹ 5.6 % decrease in EPS 5.6 / 12.6 = 100 = 44.44%	

Question 37

Following information are related to four firms of the same industry:

Firm	Change in Revenue	Change in Operating Income	Change in Earning per Share
P	25%	23%	30%
Q	27%	30%	26%
R	24%	36%	20%
S	20%	30%	20%

For all the firms, FIND OUT:

(iii) **Degree of operating leverage, and**

(iv) **Degree of combined leverage. (MTP 5 Marks, March 21)**

Answer 37

Calculation of Degree of Operating leverage and Degree of Combined leverage

Firm	Degree of Operating Leverage (DOL) $= \frac{\text{\% change in Operating Income}}{\text{\% change in Revenue}}$	Degree of Combined Leverage (DCL) $= \frac{\text{\% change in EPS}}{\text{\% change in Revenue}}$
P	$= \frac{23\%}{25\%} = 0.92$	$= \frac{30\%}{35\%} = 1.2$
Q	$= \frac{30\%}{27\%} = 1.11$	$\frac{26\%}{27\%} = 0.96$
R	$\frac{36\%}{24\%} = 1.50$	$\frac{20\%}{24\%} = 0.83$
S	$\frac{30\%}{20\%} = 1.50$	$\frac{20\%}{20\%} = 1.00$

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Question 38

The following information is related to YZ Company Ltd. for the year ended 31st March, 20X8:

Equity share capital (of ₹ 10 each)	**₹ 50 lakhs**
12% Bonds of ₹ 1,000 each	**₹ 37 lakhs**
Sales	**₹ 84 lakhs**
Fixed cost (excluding interest)	**₹ 6.96 lakhs**
Financial leverage	**1.49**
Profit-volume Ratio	**27.55%**
Income Tax Applicable	**40%**

You are required to CALCULATE:

(i) **Operating Leverage;**

(ii) **Combined leverage; and**

(iii) **Earnings per share.**

(Show calculations up to two decimal points) (MTP 5 Marks Mar'18, RTP May '20)

Answer 38

Computation of Profits after Tax (PAT)

Particulars	Amount (₹)
Sales	84,00,000
Contribution (Sales × P/V ratio)	23,14,200
Less: Fixed cost (excluding Interest)	(6,96,000)
EBIT (Earnings before interest and tax)	16,18,200
Less: Interest on debentures (12% □ ₹37 lakhs)	(4,44,000)
Less: Other fixed Interest (balancing figure)	(88,160)*
EBT (Earnings before tax)	10,86,040
Less: Tax @ 40%	4,34,416
PAT (Profit after tax)	6,51,624

(i) Operating Leverage:= $\frac{\text{Contribution}}{\text{EBIT}} = \frac{23,14,200}{16,18,200} = 1.43$

(ii) **Combined Leverage:= Operating Leverage × Financial Leverage**

= 1.43 ×1.49 = 2.13

Or,

Combined Leverage= $\frac{\text{Contribution}}{\text{EBIT}} \times \frac{\text{EBIT}}{\text{EBT}}$

Or, Combined Leverage= $\frac{\text{Contribution}}{\text{EBIT}} = \frac{\text{Rs.}23,14,200}{\text{Rs}10,86,040} = 2.13$

Financial Leverage= $\frac{\text{EBIT}}{\text{EBT}} = \frac{\text{Rs.}16,18,200}{\text{EBT}} = 1.49$

So, EBT= $\frac{\text{Rs.}16,18,200}{1.49}$ =₹10,86,040

Accordingly, other fixed interest

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(iii) **Earnings per share (EPS):=** $\frac{\text{PAT}}{\text{No.of sharesoutstandinG}} = \frac{\text{RA.6,51,624}}{\text{5,00,000Equity Shares}} =$ **Rs. 1.30**

Question 39

A company had the following balance sheet as on 31st March, 2021:

Liabilities	Rs in Crores	Assets	Rs. in Crores
Equity Share Capital (75 lakhs Shares of Rs.10 each)	7.50	Building	12.50
Reserves and Surplus	1.50	Machinery	6.25
15% Debentures	15.00	Current Assets	
Current Liabilities	6.00	Stock	3.00
		Debtors	3.25
		Bank Balance	5.00
	30.00		30.00

The additional information given is as under:

Fixed cost per annum (excluding interest)	**Rs.6 crores**
Variable operating cost ratio	**60%**
Total assets turnover ratio	**2.5**
Income-tax rate	**40%**

Calculate the following and comment:

(v) **Earnings per share**

(vi) **Operating Leverage**

(vii) **Financial Leverage**

(viii) **Combined Leverage (PYP 10 Marks, July'21)**

Answer 39

Total Assets = ₹ 30 crores

Total Asset Turnover Ratio = 2.5

Hence, Total Sales = 30 ×2.5 = Rs.75 crores

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Computation of Profit after Tax (PAT)

Particulars	(Rs.in crores)
Sales	75.00
Less: Variable Operating Cost @ 60%	45.00
Contribution	30.00
Less: Fixed Cost (other than Interest)	6.00
EBIT/PBIT	24.00
Less: Interest on Debentures (15% X 15)	2.25
EBT/PBT	21.75
Less: Tax @ 40%	8.70
EAT/ PAT	13.05

(v) Earnings per Share

$$EPS = \frac{PAT}{\text{Number of Equity Shares}} = \frac{13.05}{0.75} = Rs.17.40$$

Number of Equity Shares

It indicates the amount the company earns per share. Investors use this as a guide while valuing the share and making investment decisions. It is also an indicator used in comparing firms within an industry or industry segment.

(vi) Operating Leverage

$$\text{Operating Leverage} = \frac{\text{Contribution}}{\text{EBIT}} = \frac{30}{24} = 1.25$$

It indicates the choice of technology and fixed cost in cost structure. It is level specific. When firm operates beyond operating break-even level, then operating leverage is low. It indicates sensitivity of earnings before interest and tax (EBIT) to change in sales at a particular level.

(vii) Financial Leverage

$$\text{Financial Leverage} = \frac{\text{EBIT}}{\text{PBT}} = \frac{24}{21.75} = 1.103$$

The financial leverage is very comfortable since the debt service obligation is small vis -à- vis EBIT.

(viii) Combined Leverage

$$\text{Combined Leverage} = \frac{\text{Contribution}}{\text{PBT}} = \frac{30}{21.75} = 1.379$$

Or,

$= \text{Operating Leverage} \times \text{Financial Leverage}$

$= 1.25 \times 1.103 = 1.379$

The combined leverage studies the choice of fixed cost in cost structure and choice

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of debt in capital structure. It studies how sensitive the change in EPS is vis-à-vis change in sales. The leverages operating, financial and combined are used as measurement of risk.

Question 40

EXPLAIN the difference between Business risk and Financial risk [MTP 4 Marks, Sep '23]

Answer 40

Business Risk and Financial Risk

Business risk refers to the risk associated with the firm's operations. It is an unavoidable risk because of the environment in which the firm has to operate and the business risk is represented by the variability of earnings before interest and tax (EBIT). The variability in turn is influenced by revenues and expenses. Revenues and expenses are affected by demand of firm's products, variations in prices and proportion of fixed cost in total cost. Whereas, Financial risk refers to the additional risk placed on firm's shareholders as a result of debt use in financing. Companies that issue more debt instruments would have higher financial risk than companies financed mostly by equity. Financial risk can be measured by ratios such as firm's financial leverage multiplier, total debt to assets ratio etc

Question 41

Manchow Limited and Noodles Limited are generating same level of Operating Income. The margin of safety for Manchow Ltd is 0.4 and for Noodles Limited it is 1.25 times of Manchow Ltd. The Interest expense of Manchow Limited is ₹ 22,50,000 and it is 40% lower for Noodles Limited. Financial Leverages of Manchow Limited and Noodles Limited are 3 and 2 respectively. Profit Volume Ratio for both companies stand as 40% and 50% respectively. Assuming a tax rate of 30%, PREPARE income statement for both companies (RTP May 22)

Answer 41

Particulars	**Manchow Ltd (₹)**	**Noodle Ltd (₹)**
Sales	2,10,93,750	1,08,00,000
Less: Variable Cost	1,26,56,250	54,00,000
Contribution	84,37,500	54,00,000
Less: Fixed Cost	50,62,500	27,00,000
EBIT	33,75,000	27,00,000
Less: Interest	22,50,000	13,50,000
EBT	11,25,000	13,50,000
Less: Tax	3,37,500	4,05,000
PAT	7,87,500	9,45,000

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Workings:

(vi) **Margin of Safety**

For Manchow Ltd= 0.4

For Noodles Ltd= 0.4 x 1.25 = 0.5

(vii) **Interest Expense**

For Manchow Ltd = ₹ 22,50,000

For Noodles Ltd = ₹ 22,50,000 x 60%= ₹ 13,50,000

(viii) **For Manchow Ltd:**

Financial Leverage = 3

$$\frac{EBIT}{EBT} = \frac{EBIT}{EBIT - Interest} = 3$$

$$\frac{EBIT}{EBIT - 22{,}50{,}000} = 3$$

EBIT = 3 EBIT- 67,50,000

67,50,000 = 2 EBIT

EBIT = 33,75,000

For Noodles Ltd:

Financial Leverage = 2

$$\frac{EBIT}{EBT} = \frac{EBIT}{EBIT - Interest} = 2$$

$$\frac{EBIT}{EBIT - 22{,}50{,}000} = 2$$

EBIT = 2 EBIT-27,00,000 EBIT =27,00,000

(ix) **Contribution:**

For Manchow Ltd

Operating Leverage = 1/ Margin of Safety
= 1/0.4 = 2.5
Operating Leverage = Contribution/EBIT
2.5 = Contribution/33,75,000 Contribution = 84,37,500

For Noodles Ltd

Operating Leverage = 1/ Margin of Safety
= 1/0.5 = 2
Operating Leverage = Contribution/EBIT
2 = Contribution/27,00,000 Contribution = 54,00,000

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(x) Sales:

For Manchow Ltd

P/V Ratio = 40%
P/V Ratio = Contribution/Sales
0.4 = 84,37,500/Sales
Sales = 2,10,93,750

For Noodles Ltd

P/V Ratio = 50%

P/V Ratio = Contribution/Sales

0.5 = 54,00,000/Sales

Sales = 1,08,00,000

Section B

1. Given7

Operating fixed costs	₹ 20,000
Sales	₹ 1,00,000
P/ V ratio	40%

The operating leverage is:

(a) 2.00

(b) 2.50

(c) 2.67

(d) 2.47

Ans: (a)

2. If EBIT is ₹ 15,00,000, interest is ₹ 2,50,000, corporate tax is 40%, degree of financial leverage is;

(a) 1:11

(b) 1.20

(c) 1.31

(d) 1.41

Ans: (b)

3. If DOL is 1.24 and DFL is 1.99, DCL would be:

(a) 2.14

(b) 2.18

(c) 2.31

(d) 2.47

Ans: (d)

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4. Operating Leverage is calculated as:

(a) Contribution ÷ EBIT

(b) EBIT ÷ PBT

(c) EBIT ÷ Interest

(d) EBIT ÷ Tax

Ans: (a)

5. Financial Leverage is calculated as:

(a) EBIT ÷ Contribution

(b) EBIT ÷ PBT

(c) EBIT ÷ Sales

(d) EBIT ÷ Variables Cost

Ans: (b)

6. Which of the following is correct?

(a) CL = OL + FL

(b) CL = OL – FL

(c) OL = OL × FL

(d) OL = OL ÷ FL

Ans: (c)

7. Which of the following indicates business risk?

(a) Operating leverage

(b) Financial leverage

(c) Combined leverage

(d) Total leverage

Ans: (a)

8. Degree of combined leverage is the fraction of:

(a) Percentage change in EBIT on Percentage change in Sales.

(b) Percentage change in EPS on Percentage change in Sales.

(c) Percentage change in Sales on Percentage change in EPS.

(d) Percentage change in EPS on Percentage change in EBIT.

Ans: (b)

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9. From the following information, calculate combined leverage:

Sales₹ 20,00,000

Variable Cost 40%

Fixed Cost ₹ 10,00,000

Borrowings ₹ 10,00,000 @ 8% p.a.

(a) 10 times

(b) 6 times

(c) 1.667 times

(d) 0.10 times

Ans: (a)

10. Operating leverage is a function of which of the following factors?

(a) Amount of variable cost.

(b) Variable contribution margin.

(c) Volume of purchases.

(d) Amount of semi-variable cost.

Ans: (b)

11. Financial leverage may be defined as:

(a) Use of funds with a product cost in order to increase earnings per share.

(b) Use of funds with a contribution cost in order to increase earnings before interest and taxes.

(c) Use of funds with a fixed cost in order to increase earnings per share.

(d) Use of funds with a fixed cost in order to increase earnings before interest and taxes.

Ans: (c)

12. If Margin of Safety is 0.25 and there is 8% increase in output, then EBIT will be:

(a) Decrease by 2%

(b) Increase by 32%

(c) Increase by 2%

(d) Decrease by 32%

Ans: (b)

13. If degree of financial leverage is 3 and there is 15% increase in Earning per share (EPS), then EBIT will be:

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(a) Decrease by 15%

(b) Increase by 45%

(c) Decrease by 45%

(d) Increase by 5%

Ans: (d)

14. When EBIT is much higher than Financial break-even point, then degree of financial leverage will be slightly:

(a) Less than 1

(b) Equals to 1

(c) More than 1

(d) Equals to 0

Ans: (c)

15. Firm with high operating leverage will have:

(a) Higher breakeven point

(b) Lower business risk

(c) Higher margin of safety

(d) All of above

Ans: (a)

16. When sales is at breakeven point, the degree of operating leverage will be:

(a) Zero

(b) Infinite

(c) One

(d) None of above

Ans: (b)

17. If degree of combined leverage is 3 and margin of safety is 0.50, then degree of financial leverage is:

(a) 6.00

(b) 3.00

(c) 0.50

(d) 1.50

Ans: (d)

<u>Theoretical Questions Answers</u>

Question 1

DIFFERENTIATE between Business risk and Financial risk.

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Answer 1

Objective of financial management is to **maximize wealth**. Here, wealth means market value. Value is directly related to performance of company and inversely related to expectation of investors. In turn, expectation of investor is dependent on risk of the company. Therefore, to maximize value, company should try to manageits risk. This risk may be business risk, financial risk or both as defined below:

Business Risk: It refers to the risk associated with the firm's operations. It is the uncertainty about the future operating income (EBIT) i.e., how well can the operating income be predicted?

Financial Risk: It refers to the additional risk placed on the firm's shareholders because of use of debt i.e., the additional risk, a shareholder bears when a company uses debt in addition to equity financing. Companies that issue more debt instruments would have higher financial risk than companies financed mostly or entirely by equity.

Question 2

Operating risk is associated with cost structure, whereas financial risk is associated with capital structure of a business concern." Critically EXAMINE this statement.

Answer 2

Same as Answer 18.

Question 3

EXPLAIN the concept of "Double edged sword" in Financial leverage analysis?

Answer 3

When the cost of 'fixed cost fund' is less than the return on investment, financial leverage will help to increase return on equity and EPS. The firm will also benefitfrom the saving of tax on interest on debts etc. However, when cost of debt will be more than the return it will affect return of equity and EPS unfavourably and as a result firm can be under financial distress. Therefore, financial leverage is also known as "**double edged sword**".

Effect on EPS and ROE:

When, ROI > Interest – Favourable – Advantage When, ROI < Interest – Unfavourable

– Disadvantage

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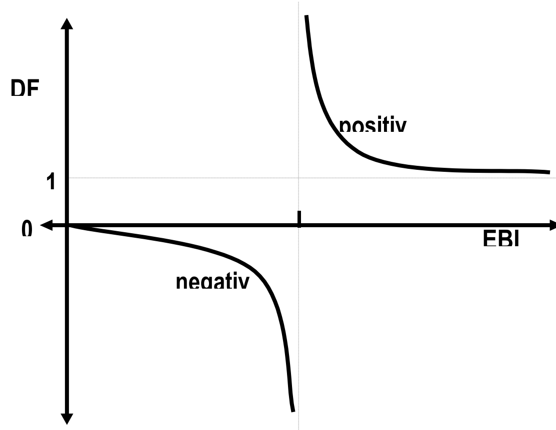
When, ROI = Interest – Neutral – Neither advantage nor disadvantage.



Note: DFL can never be between zero and one. It can be zero or less or it can beone or more.

*Financial BEP is the level of EBIT at which earning per share is zero. If a company has not issued preference shares, then Financial BEP is simply equal to amount of Interest. When EBIT is much higher than Financial BEP, DFL will be slightly more than one. With decrease in EBIT, DFL will increase. At Financial BEP, DFL will be infinite. When EBIT is slightly less than Financial BEP, DFL will be negative infinite. With further reduction in EBIT, DFL will move towards zero. At zero EBIT, DFL will also be zero

Practical Questions Answers

Question 4

From the following information extracted from the books of accounts of Imax Ltd., CALCULATE percentage change in earnings per share, if sales increase by 10% and Fixed Operating cost is ₹ 1,57,500.

Particulars	Amount in (₹)
EBIT (Earnings before Interest and Tax)	31,50,000
Earnings before Tax (EBT)	14,00,000

Answer 4

1. **Operating Leverage (OL)**

$$= \frac{\text{Contribution}}{\text{EBIT}} = \frac{\text{EBIT + Fixed Cost}}{= \quad \text{EBIT}} = \frac{₹\,31,50,000 + ₹\,1,57,500}{₹\,31,50,000} = 1.05$$

Financial Leverage (FL)

$$= \frac{\text{EBIT}}{\text{EBIT}}\ \frac{₹\,31,50,000}{₹\,14,00,000} = 2.25$$

Combined Leverage (CL)

= 1.05 × 2.25 = 2.3625

Percentage Change in Earnings per share

DCL=

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$=\frac{\%\text{ change in EPS}}{\%\text{ change in sales}} = 2.3625 =$

$= \frac{\%\text{change in EPS}}{10\%}$

$\therefore$% change in EPS = 23.625%

Hence, if sales increases by 10%, EPS will be increased by 23.625%.

Question 5

Consider the following information for Mega Ltd.:

Production level	**2,500 units**
Contribution per unit	**₹ 150**
Operating leverage	**6**
Combined leverage	**24**
Tax rate	**30%**

Required:

COMPUTE its earnings after tax.

Answer 5

Workings:

1. **Operating Leverage**

$= \frac{Contribution}{EBIT} = \frac{₹\ 150 \times 2{,}500}{EBIT} = \frac{₹\ 3{,}75{,}000}{EBIT} = 6$

$\therefore$ EBIT$= \frac{Rs.3{,}75{,}000}{6}$= ₹ 62,500

2. **Operating Leverage (OL)** × Financial Leverage (FL)= Combined Leverage (CL) 6 ×Financial Leverage = 24

$\therefore$Financial Leverage = 4

Also, Financial Leverage$= \frac{EBIT}{EBIT}$ = 4

$\therefore$ EBT$= \frac{EBIT}{4} = \frac{62{,}500}{4}$= ₹ 15,625

Computation of Earnings after tax

Earnings after Tax (EAT) = EBT (1 − t) = ₹ 15,625 (1 − 0.30) = ₹ 15,625 × 0.70

$\therefore$Earnings after Tax (EAT) = ₹ 10,938

Question 6

From the following information, prepare Income Statement of Company A & B:

Particulars	**Company A**	**Company B**
Margin of safety	0.20	0.25
Interest	₹ 3,000	₹ 2,000
Profit volume ratio	25%	33.33%
Financial Leverage	4	3
Tax rate	45%	45%

Answer 6

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Income Statement

Particulars	**mpany A(₹)**	**mpany B(₹)**
Sales	80,000	36,000
Less: Variable Cost	60,000	24,000
Contribution	20,000	12,000
Less: Fixed Cost	16,000	9,000
EBIT	4,000	3,000
Less: Interest	3,000	2,000
EBT	1,000	1,000
Tax (45%)	450	450
EAT	550	550

Workings:

(i) Company A

Financial Leverage= EBIT/(EBIT- Interest)

4= EBIT/(EBIT- ₹ 3,000)

4EBIT – ₹ 12,000= EBIT

3EBIT= ₹ 12,000

EBIT= ₹ 4,000

Company B

Financial Leverage= EBIT/(EBIT - Interest)

3 = EBIT/(EBIT – ₹ 2,000)

3EBIT – ₹ 6000= EBIT

2EBIT= ₹ 6,000

EBIT= ₹ 3,000

(ii) Company A

Operating Leverage= 1/Margin of Safety

= 1/0.20= 5

Operating Leverage= Contribution/EBIT

5= Contribution/₹ 4,000 Contribution= ₹ 20,000

Company B

Operating Leverage= 1/Margin of Safety

= 1/0.25= 4

Operating Leverage= Contribution/EBIT

4= Contribution/₹ 3,000 Contribution= ₹ 12,000

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(iii) Company A

Profit Volume Ratio= 25%(Given)

Profit Volume Ratio= Contribution/Sales □ 100

25%= ₹ 20,000/Sales

Sales= ₹ 20,000/25%Sales= ₹

80,000

Company B

Profit Volume Ratio= 33.33% Therefore,

Sales= ₹ 12,000/33.33%

Sales= ₹ 36,000

Question 7

The capital structure of PS Ltd. for the year ended 31st March 2021 consistedas follows:

Particulars	Amount in (₹)
Equity share capital (face value ₹ 100 each)	10,00,000
10% debentures (₹ 100 each)	10,00,000

During the year 2020-21, sales decreased to 1,00,000 units as compared to 1,20,000 units in the previous year. However, the selling price stood at ₹ 12 per unit and variable cost at ₹ 8 per unit for both the years. The fixed expenses were at ₹ 2,00,000 p.a. and the income tax rate is 30%.

You are required to CALCULATE the following:

(i) The degree of financial leverage at 1,20,000 units and 1,00,000 units.

(ii) The degree of operating leverage at 1,20,000 units and 1,00,000 units.

(iii) The percentage change in EPS.

Answer 7

Income Statement with required calculations

Particulars	(₹)	(₹)
Sales in units	1,20,000	1,00,000
Sales Value	14,40,000	12,00,000
Variable Cost	(9,60,000)	(8,00,000)
Contribution	4,80,000	4,00,000
Fixed expenses	(2,00,000)	(2,00,000)
EBIT	2,80,000	2,00,000
Debenture Interest	(1,00,000)	(1,00,000)

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EBT	1,80,000	1,00,000
Tax @ 30%	(54,000)	(30,000)
Profit after tax (PAT)	1,26,000	70,000
No. of shares	10,000	10,000
(i) Financial Leverage $\frac{EBIT}{EBIT}$	$=\frac{Rs.2,80,000}{Rs.1,80,000}=1.56$	$\frac{Rs2,00,000}{Rs1,00,000}=2$
(ii) Operating leverage	$\frac{Rs.4,80,000}{Rs.2,80,000}=1.71$	$\frac{Rs.4,00,000}{Rs.2,00,000}=2$
= Contribution		
(iii) Earnings per share (EPS)	$\frac{Rs.1.26,000}{Rs10,000}$=Rs.12.6	$\frac{Rs.70,000}{Rs.10,000}$=Rs7
= PAT		
No. of shares		
Decrease in EPS	= ₹ 12.6 – ₹ 7 = ₹ 5.6	
	% decrease in EPS $=\frac{5.6}{12.6}\times 100$ = 44.44%	

Question 8

The Sale revenue of TM excellence Ltd. @ ₹ 20 Per unit of output is ₹ 20 lakhs and Contribution is ₹ 10 lakhs. At the present level of output, the DOL of the company is 2.5. The company does not have any Preference Shares. The number of Equity Shares are 1 lakh. Applicable corporate Income Tax rate is 50% and the rate of interest on Debt Capital is 16% p.a. CALCULATE the EPS (at sales revenue of ₹ 20 lakhs) and amount of Debt Capital of the company if a 25% decline in Sales will wipe out EPS.

Answer 8

i. Calculation of Fixed Cost

DOI=$\frac{\text{Contribution}}{\text{Contribution}-\text{fixed cost}}$= or 2.5 =$\frac{Rs.10,00,000}{EBIT}$ or EBIT= ₹ 4,00,000

EBIT = Contribution – Fixed Cost
4,00,000= 10,00,000 – Fixed Cost

Fixed Cost = 10,00,000 - 4,00,000 = ₹ 6,00,000

ii. Calculation of Degree of Combined Leverage (DCL)

Question says that 25% change in sales will wipe out EPS. Here, wipe out means it will reduce EPS by 100%.

DCI=$\frac{\text{Percentage Change in EPS}}{\text{Percentage Change in Sales}}=\frac{100\%}{25\%}$ = 4

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iii. Calculation of Degree of Financial Leverage (DFL)

DCL = DOL × DFL

4 = 2.5×DFLSo,

So, DFL= 1.6

iv. Calculation of Interest and amount of Debt

DFI=$\frac{EBIT}{EBIT-Int}$ or 16=$\frac{₹\ 4,00,000}{₹\ 4,00,000-\text{Int}}$

Or, Int = ₹ 1,50,000

Debt × Interest rate = Amount of Interest

Debt ×16%= ₹ 1,50,000

Debt = ₹ 9,37,500

v. Calculation of Earnings per share (EPS)

EPS=$\frac{(EBIT-Int)(1-t)}{N} = \frac{(₹\ 4,00,000 - ₹\ 1,50,000))0.5}{1,00,000}$=Rs.1.25

Question 9

Betatronics Ltd. has the following balance sheet and income statement information:

Balance Sheet as on March 31st 2021

Liabilities	(₹)	Assets	(₹)
Equity capital (₹ 10 per share)	8,00,000	Net fixed assets	10,00,000
10% Debt	6,00,000	Current assets	9,00,000
Retained earnings	3,50,000		
Current liabilities	1,50,000		
	19,00,000		19,00,000

Income Statement for the year ending March 31st 2021

Particulars	(₹)
Sales	3,40,000
Operating expenses (including ₹ 60,000 depreciation)	1,20,000
EBIT	2,20,000
Less: Interest	60,000
Earnings before tax	1,60,000
Less: Taxes	56,000
Net Earnings (EAT)	1,04,000

(a) **DETERMINE the degree of operating, financial and combined leverages atthe current sales level, if all operating expenses, other than depreciation, are variable costs.**

(b) **If total assets remain at the same level, but sales (i) increase by 20 percentand (ii) decrease by 20 percent, COMPUTE the**

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earnings per share at the new sales level?

Answer 9

a) Calculation of Degree of Operating (DOL), Financial (DFL) and Combined leverages (DCL).

$$DOL = \frac{₹\ 3,40,000 - ₹\ 60,000}{₹\ 2,20,000} = 1.27$$

$$DFL = \frac{₹\ 2,20,000}{₹\ 1,60,000} = 1.38$$

DCL= DOL × DFL = 1.27 × 1.38 = 1.75

Earnings per share at the new sales level

	(i) Increase by 20%	(ii) Decrease by 20%
	(₹)	(₹)
Sales level	4,08,000	2,72,000
Less: Variable expenses	72,000	48,000
Less: Fixed cost	60,000	60,000
Earnings before interest and taxes	2,76,000	1,64,000
Less: Interest	60,000	60,000
Earnings before taxes	2,16,000	1,04,000
Less: Taxes	75,600	36,400
Earnings after taxes (EAT)	1,40,400	67,600
Number of equity shares	80,000	80,000
EPS	1.76	0.85

Working Notes:

(i) Variable Costs = ₹ 60,000 (total cost depreciation)

(ii) Variable Costs at:

(a) Sales level of ₹ 4,08,000 = ₹ 72,000 (increase by 20%)

(b) Sales level of ₹ 2,72,000 = ₹ 48,000 (decrease by 20%)

Question 10

A company had the following Balance Sheet as on 31stMarch, 2021:

Liabilities	**Amount in crores (₹)**	**Assets**	**Amount in crores (₹)**
Equity Share Capital (50 lakhs shares of ₹ 10 each)	5	Fixed Assets (Net)	12.5
Reserves and Surplus	1	Current Assets	7.5

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15% Debentures	10		
Current Liabilities	4		
	20		20

The additional information given is as under:

Fixed cost per annum (excluding interest)	₹ 4 crores
Variable operating cost ratio	65%
Total assets turnover ratio	2.5
Income Tax rate	30%

Required:

CALCULATE the following and comment:

(i) Earnings Per Share

(ii) Operating Leverage

(iii) Financial Leverage

(iv) Combined Leverage

Answer 10

Workings:

Total Assets= ₹ 20 crores Total Asset Turnover Ratio = 2.5

Hence, Total Sales= 20 × 2.5 = ₹ 50 crores

Computation of Profit after Tax (PAT)

	(₹) in crores
Sales	50.00
Less: Variable Operating Cost @ 65%	32.50
Contribution	17.50
Less: Fixed Cost (other than Interest)	4.00
EBIT	13.50
Less: Interest on Debentures (15% □ ₹ 10 crores)	1.50
PBT	12.00
Less: Tax @ 30%	3.60
PAT	8.40

(i) Earnings per Share

$$\text{EPS}=\frac{₹\ 8.40\ \text{crores}}{\text{Number of Equity Shares}}=\frac{₹\ 8.40\ \text{crores}}{50,00,000}== ₹\ 16.80$$

It indicates the amount; the company earns per share. Investors use this as a guide while valuing the share and making investment decisions. It is also an indicator used in comparing firms within an industry or industry segment.

(ii) Operating Leverage

$$\text{Operating Leverage}=\frac{contribution}{EBIT}=\frac{₹\ 17.50\ \text{crores}}{₹\ 13.50\text{Crores}}= 1.296$$

It indicates the choice of technology and fixed cost in cost structure. It is level specific. When firm operates beyond operating break-even level, then operating

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leverage is low. It indicates sensitivity of earnings before interest and tax (EBIT) to change in sales at a particular level.

(iii) Financial Leverage

Financial Leverage=$\frac{EBIT}{PBT} = \frac{₹\ 13.50\ crores}{₹\ 1200\ crores}$== 1.125

The financial leverage is very comfortable since the debt service obligation is small vis-à-vis EBIT.

(iv) Combined Leverage

Combined Leverage =$\frac{contribution}{EBIT} = \frac{EBIT}{PBT} =$

Or,

Operating Leverage × Financial Leverage

= 1.296 × 1.125 = 1.458

The combined leverage studies the choice of fixed cost in cost structure and choice of debt in capital structure. It studies how sensitive the change in EPS is vis-à-vis change in sales. The leverages, operating, financial and combined are used as measurement of risk.

Question 11

CALCULATE the operating leverage, financial leverage and combined leverage from the following data under Situation I and II and Financial Plan A and B:

Installed Capacity	**4,000 units**
Actual Production and Sales	**75% of the Capacity**
Selling Price	**₹ 30 Per Unit**
Variable Cost	**₹ 15 Per Unit**

Fixed Cost:

Under Situation-I	**₹ 15,000**
Under Situation-II	**₹ 20,000**

Capital Structure:

	Financial Plan	
	A (₹)	**B (₹)**
Equity	**10,000**	**15,000**
Debt (Rate of Interest at 20%)	**10,000**	**5,000**
	20,000	**20,000**

Answer 11

i. Operating Leverage (OL)

	Situation-I	**Situation-II**

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	(₹)	(₹)
Sales (3000 units @ ₹ 30 per unit)	90,000	90,000
Less: Variable Cost (@ ₹ 15 per unit)	45,000	45,000
Contribution (C)	45,000	45,000
Less: Fixed Cost	15,000	20,000
EBIT	30,000	25,000
Operating Leverage (OL) $=\frac{C}{EBIT}$	$\frac{₹\ 45,000}{₹\ 30,000}$=1.5	$\frac{₹\ 45,000}{₹\ 25,000}$=1.8

(ii) **Financial Leverage (FL)**

	A (₹)	B (₹)
Situation I		
EBIT	30,000	30,000
Less: Interest on debt	2,000	1,000
EBT	28,000	29,000
Financial Leverage (FL) = $\frac{EBIT}{EBT}$	= $\frac{₹\ 30,000}{₹\ 28,000}$=1.7	=$\frac{₹\ 30,000}{₹\ 29,000}$=1.03 4

	A (₹)	B (₹)
Situation-II		
EBIT	25,000	25,000
Less: Interest on debt	2,000	1,000
EBT	23,000	24,000
Financial Leverage (FL) = $\frac{EBIT}{EBT}$	$\frac{₹\ 25,000}{₹\ 23,000}$== 1.09	$\frac{₹\ 25,000}{₹\ 24,000}$== 1.04

(iii) **Combined Leverage (CL)**

	A	B
Situation-I		
CL = FL x OL	1.5×1.07 = 1.61	1.5 × 1.034 = 1.55
Situation-II		
CL = FL x OL	1.8 × 1.09 = 1.96	1.8 × 1.04 =

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		1.872

Question 12

The following particulars relating to Navya Ltd. for the year ended 31st March 2021 is given:

Output	1,00,000 units at normal capacity
Selling price per unit	Rs.40
Variable cost per unit	Rs 20
Fixed cost	Rs 10,00,000

The capital structure of the company as on 31st March, 2021 is as follows:

Particulars	Rs
Equity share capital (1,00,000 shares of ₹ 10 each)	10,00,000
Reserves and surplus	5,00,000
7% debentures	10,00,000
Current liabilities	5,00,000
Total	30,00,000

Navya Ltd. has decided to undertake an expansion project to use the market potential, that will involve ₹ 10 lakhs. The company expects an increase in output by 50%. Fixed cost will be increased by ₹ 5,00,000 and variable cost per unit will be decreased by 10%. The additional output can be sold at the existing selling price without any adverse impact on the market.

The following alternative schemes for financing the proposed expansion programme are planned:

(i) **Entirely by equity shares of ₹ 10 each at par.**

(ii) **Rs 5 lakh by issue of equity shares of ₹ 10 each and the balance by issue of 6% debentures of ₹ 100 each at par.**

(iii) **Entirely by 6% debentures of ₹ 100 each at par.**

FIND out which of the above-mentioned alternatives would you recommend for Navya Ltd. with reference to the risk and return involved, assuming a corporate tax of 40%.

Answer 12

1. **Statement showing Profitability of Alternative Schemes for Financing**

(Rs. in '00,000)

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Particulars	Existing	Alternative Schemes		
		(i)	(ii)	(iii)
Equity Share capital (existing)	10	10	10	10
New issues	-	10	5	-
	10	**20**	**15**	**10**
7% debentures	10	10	10	10
6% debentures	-	-	5	10
	20	**30**	**30**	**30**
Debenture interest (7%)	0.7	0.7	0.7	0.7
Debenture interest (6%)	-	-	0.3	0.6
	0.7	0.7	1.0	1.3
Output (units in lakh)	1	1.5	1.5	1.5
Contribution per. unit (Rs) (Selling price - Variable Cost)	20	22	22	22
Contribution (Rs lakh)	20	33	33	33
Less: Fixed cost	10	15	15	15
EBIT	10	18	18	18
Less: Interest (as calculated above)	0.7	0.7	1.0	1.3
EBT	9.3	17.3	17	16.7
Less: Tax (40%)	3.72	6.92	6.8	6.68
EAT	5.58	10.38	10.20	10.02
Operating Leverage (Contribution /EBIT)	2.00	1.83	1.83	1.83
Financial Leverage (EBIT/EBT)	1.08	1.04	1.06	1.08
Combined Leverage (Contribution/EBT)	2.15	1.91	1.94	1.98
EPS (EAT/No. of shares) (Rs)	5.58	5.19	6.80	10.02

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Risk	-	Lowest	Lower than option (3)	Highest
Return	-	Lowest	Lower than option (3)	Highest

From the above figures, we can see that the Operating Leverage is same in all alternatives though Financial Leverage differs. Alternative (iii) uses the maximum amount of debt and result into the highest degree of financialleverage, followed by alternative (ii). Accordingly, risk of the company will be maximum in these options. Corresponding to this scheme, however, maximum EPS (i.e., ₹ 10.02 per share) will be also in option (iii).So, if Navya Ltd. is ready to take a high degree of risk, then alternative (iii) is strongly recommended. In case of opting for less risk, alternative (ii) is thenext best option with a reduced EPS of ₹ 6.80 per share. In case of alternative (i), EPS is even lower than the existing option, hence not recommended.

Question 13

The following details of a company for the year ended 31st March, 2021 are given below:

Operating leverage	**2:1**
Combined leverage	**2.5:1**
Fixed Cost excluding interest	**₹ 3.4 lakhs**
Sales	**₹ 50 lakhs**
8% Debentures of ₹ 100 each	**₹ 30.25 lakhs**
Equity Share Capital of ₹ 10 each	**34 lakhs**
Income Tax Rate	**30%**

CALCULATE:

(i) **Financial Leverage**

(ii) **P/V ratio and Earning per Share (EPS)**

(iii) **If the company belongs to an industry, whose assets turnover is 1.5, does it have a high or low assets turnover?**

(iv) **At what level of sales, the Earning before Tax (EBT) of the company will be equal to zero?**

Answer 13

i. **Financial leverage**

Combined Leverage= Operating Leverage (OL) × Financial Leverage (FL)

2.5 = 2× FL

Or, FL= 1.25

Financial Leverage= 1.25

ii. **P/V Ratio and Earning per share (EPS)**

Operating leverage= $\frac{contribution\ (c)}{contribution\ fexed\ \ cost(FC)}$

$2 = \frac{c}{C - 3,40,000}$

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Or, C= 2 (C – 3,40,000)

Or, C= 2C – 6,80,000

Or, Contribution = ₹ 6,80,000

Now, P/V ratio=$\frac{contribution\ (c)}{sales(s)} \times 100 = \frac{6,80,000}{50,00,000} \times 100 = 13.6\%$

Therefore, P/V Ratio = 13.6%

EBT= Sales – Variable Cost – Fixed Cost – Interest

= ₹50,00,000 – ₹50,00,000 (1-0.136) – ₹3,40,000 – (8% × ₹30,25,000)

= ₹ 50,00,000 – ₹ 43,20,000 – ₹ 3,40,000 – ₹ 2,42,000 = ₹ 98,000

PAT= EBT(1-T) = ₹ 98,000(1-0.3) = ₹ 68,600

EPS=$\frac{\text{Profit after tax}}{\text{No.of equity Sahres}} = EPS \frac{₹\ 68,600}{3,40,000\text{Shares}}$=₹ 0.202

iii. Assets turnover

Assets turnover=$\frac{sales}{Total\ Assets} = \frac{₹\ 50,00,000}{₹\ 34,00,000 + ₹\ 30,25,000}$= 0 .78

0.78 < 1.5 means lower than industry turnover.

*Total Asset = Equity share capital + 8% Debentures

iv. EBT zero means 100% reduction in EBT. Since combined leverage is 2.5, sales have to be dropped by 100/2.5 = 40%. Hence new sales will be
₹ 50,00,000 × (100 – 40) % = ₹ 30,00,000.

Therefore, at ₹ 30,00,000 level of sales, the Earnings before Tax (EBT) of the company will be zero.

Alternatively

Required sales when EBT is zero=

$$\frac{\text{Fixed Cost + Interest + desired Profit}}{PV\ ratio} = \frac{₹\ 3,40,000\ +\ ₹\ 2,42,000\ +\ \text{zero}}{13.60\%} = \frac{Rs.5,82,000}{13.60\%}$$

= ₹ 42,79,412

[Note: The question can also be solved by first calculating EBIT with the help of Financial Leverage. Accordingly answer to the requirement (ii) and (iv) will also vary]

Question 14

You are given the following information of 5 firms of the same industry:

Name of the Firm	Change in Revenue	Change in Operating Income	Change in Earning per share
M	28%	26%	32%

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N	**27%**	**34%**	**26%**
P	**25%**	**38%**	**23%**
Q	**23%**	**43%**	**27%**
R	**25%**	**40%**	**28%**

You are required to CALCULATE for all firms:

(i) **Degree of operating leverage and**

(ii) **Degree of combined leverage.**

Answer 14

Calculation of Degree of Operating leverage and Degree of Combined leverage

Firm	Degree of Operating Leverage (DOL) $= \frac{\text{\% change in Operating Income}}{\text{\% change in Revenue}}$	Degree of Combined Leverage (DCL) $\frac{\text{\% change in EPS}}{\text{\% change in Revenue}}$
M	$\frac{26\%}{28\%} = 0.929$	$\frac{32\%}{28\%} = 1.143$
N	$\frac{34\%}{27\%} = 1.259$	$\frac{26\%}{27\%} = 0.963$
P	$\frac{38\%}{25\%} = 1.520$	$\frac{23\%}{25\%} = 0.920$
Q	$\frac{43\%}{23\%} = 1.870$	$\frac{27\%}{23\%} = 1.174$
R	$\frac{40\%}{25\%} = 1.60$	$\frac{28\%}{25\%} = 1.120$

Question 15

The following data have been extracted from the books of LM Ltd:
Sales - ₹ 100 lakhs
Interest Payable per annum - ₹ 10 lakhs

Operating leverage - 1.2

Combined leverage - 2.16

You are required to calculate:

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(i) The financial leverage,

(ii) Fixed cost and

(iii) P/V ratio

Answer 15

i) Calculation of Financial Leverage:

Combined Leverage (CL) = Operating Leverage (OL) Financial Leverage (FL)

$2.16 = 1.2 \times FL$

$FL = 1.8$

ii) Calculation of Fixed cost:

$$\text{Financial Leverage} = \frac{EBIT}{EBT\ i.e\ EIBT - Interest}$$

$$1.8 = \frac{EBIT}{EBIT - 10,00,000}$$

1.8 (EBIT – 10,00,000) = EBIT

1.8 EBIT - 18,00,000 = EBIT

$$EBIT = \frac{18,00,000}{0.8} = ₹\ 22,50,000$$

$$\text{Further, Operating Leverage} = \frac{Contribution}{EBIT}$$

$$1.2 = \frac{Contribution}{₹\ 22,50,000}$$

$$Contribution = ₹\ 27,00,000$$

$$Fixed\ cost = Contribution - EBIT$$

= ₹ 27,00,000 - ₹ 22,50,000

Fixed cost = ₹ 4,50,000

iii) Calculation of P/V ratio:

$$\frac{Contribution\ (c)}{Sales\ (S)} \times 100 = \frac{27,00,000}{100,00,000} \times 100 = 27\ \%$$

Question 16: illustration

A Company produces and sells 10,000 shirts. The selling price per shirt is ₹ 500. Variable cost is ₹ 200 per shirt and fixed operating cost is ₹ 25,00,000.

(a) CALCULATE operating leverage.

(b) If sales are up by 10%, then COMPUTE the impact on EBIT?

Answer 16

(a) Statement of Profitability

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	₹
Sales Revenue (10,000 × 500)	50,00,000
Less: Variable Cost (10,000 × 200)	20,00,000
Contribution	30,00,000
Less: Fixed Cost	25,00,000
EBIT	5,00,000

Operating Leverage= $\frac{contribution}{EBIT}$ = $\frac{₹\ 30\ lakhs}{₹\ 5\ lakhs}$ = 6 times

Operating Leverage (OL)=

$= \frac{\%\ changein\ EBIT}{\%\ changing\ sale}$

$6 = \frac{X/5,00,000}{5,00,000/50,00,000}$

X=Rs.3,00,000

∴EBIT = ₹ 3,00,000/₹ 5,00,000 = 60%

Question 17: illustration

CALCULATE the operating leverage for each of the four firms A, B, C and D from the following price and cost data:

	Firms			
	A (₹)	**B(₹)**	**C(₹)**	**D(₹)**
Sale price per unit	**20**	**32**	**50**	**70**
Variable cost per unit	**6**	**16**	**20**	**50**
Fixed operating cost	**60,000**	**40,000**	**1,00,000**	**Nil**

What calculations can you draw with respect to levels of fixed cost and the degree of operating leverage result? EXPLAIN. Assume number of units sold is 5,000.

Answer 17

	Firms			
	A (₹)	B (₹)	C (₹)	D (₹)
Sales (units)	5,000	5,000	5,000	5,000
Sales revenue (Units × sale price per unit)	1,00,000	1,60,000	2,50,000	3,50,000
Less: Variable cost	(30,000)	(80,000)	(1,00,000)	(2,50,000)
(Units × variable cost per unit)				
Less: Fixed operating costs	(60,000)	(40,000)	(1,00,000)	Nil
EBIT	10,000	40,000	50,000	1,00,000

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$$DOL = \frac{= \text{Current sales (S)} - \text{Variable costs (VC)}}{\text{Current EBIT}}$$

$$DOL_{(A)} = \frac{₹1,60,000 - ₹\,80,000}{₹\ 40,000} = 7$$

$$DOL_{(B)} = \frac{₹2,50,000 - ₹\,1,00,000}{₹\,50,000} = 2$$

$$DOL_{(C)} = \frac{₹3,50,000 - ₹\,2,50,000}{₹\,1,00,000} = 3$$

$$DOL_{(D)} = \frac{₹3,50,000 - ₹\,2,50,000}{₹\,1,00,000} = 1$$

The operating leverage exists only when there are fixed costs. In the case of firm D, there is no magnified effect on the EBIT due to change in sales. A 20 per cent increase in sales has resulted in a 20 per cent increase in EBIT. In the case of other firms, operating leverage exists. It is maximum in firm A, followed by firm C and minimum in firm B. The interception of DOL of 7 is that 1 per cent change in sales results in 7 per cent change in EBIT level in the direction of the change of sales level of firm A.

Question 18: illustration

A firm's details are as under:

Sales (@100 per unit) ₹ 24,00,000 Variable Cost 50%

Fixed Cost ₹ 10,00,000

It has borrowed ₹ 10,00,000 @ 10% p.a. and its equity share capital is ₹ 10,00,000 (₹ 100 each).

Consider tax @ 50 %.

CALCULATE:

(a) **Operating Leverage**

(b) **Financial Leverage**

(c) **Combined Leverage**

(d) **Return on Investment**

(e) **If the sales increases by ₹ 6,00,000; what will the new EBIT?**

Answer 18

	(₹)
Sales	24,00,000
Less: Variable cost	12,00,000
Contribution	12,00,000
Less: Fixed cost	10,00,000
EBIT	2,00,000
Less: Interest	1,00,000
EBT	1,00,000
Less: Tax (50%)	50,000
EAT	50,000
No. of equity shares	10,000
EPS	5

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(a) Operating Leverage=$\frac{12,00,000}{2,00,000}$ = 6 times
2,00,000

(b) Financial Leverage=$\frac{2,00,000}{1,00,000}$ = 2 times
1,00,000

(c) Combined Leverage = OL × FL = 6 × 2 = 12 times.

(d) ROI=$\frac{50,000}{10,00,000}$ × 100 = 5%

Here ROI is calculated as ROE i.e.= $\frac{12,00,EAT-Pref.DiviDEND}{Equity\ shareholders'fund}$ =
Equity shareholders'fund

(e) Operating Leverage = 6

$6 = \frac{\Delta\ EBIT}{0.25}$

Δ EBIT= $\frac{6\times1}{4}$

Increase in EBIT = ₹ 2,00,000 × 1.5
= ₹ 3,00,000 New EBIT = ₹ 5,00,000

Question 19: illustration

The following information is related to Yizi Company Ltd. for the year ended 31st March, 2021:

Equity share capital (of ₹ 10 each)	₹ 50 lakhs
12% Bonds of ₹ 1,000 each	₹ 37 lakhs
Sales	₹ 84 lakhs
Fixed cost (excluding interest)	₹ 6.96 lakhs
Financial leverage	1.49
Profit-volume Ratio	27.55%
Income Tax Applicable	40%

You are required to CALCULATE:

(i) **Operating Leverage;**

(ii) **Combined leverage; and**

(iii) **Earnings per share.**

Answer 19

Computation of Profits after Tax (PAT)

Particulars	Amount (₹)
Sales	84,00,000

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Contribution (Sales × P/V ratio)	23,14,200
Less: Fixed cost (excluding Interest)	(6,96,000)
EBIT (Earnings before interest and tax)	16,18,200
Less: Interest on debentures (12% ₹37 lakhs)	(4,44,000)
Less: Other fixed Interest (balancing figure)	(88,160)*
EBT (Earnings before tax)	10,86,040
Less: Tax @ 40%	4,34,416
PAT (Profit after tax)	6,51,624

(i) Operating Leverage:

$=\frac{\text{Contribution}}{EBIT}=\frac{₹23,14,200}{₹16,18,200}= 1.43$

(ii) Combined Leverage:

= Operating Leverage × Financial Leverage

= 1.43 × 1.49 = 2.13

Or,

Combined Leverage = $\frac{\text{Contribution}}{EBIT} \times \frac{EBIT}{EBIT}$=2.13

*Financial Leverage=$\frac{EBIT}{EBIT}=\frac{₹\ 16,18,200}{EBIT}$== 1.49

So, EBT=$\frac{₹\ 16,18,200}{1.49}$== ₹10,86,040

Accordingly, other fixed interest = ₹ 16,18,200 - ₹ 10,86,040 - ₹ 4,44,000

= ₹ 88,160

(iii) Earnings per share (EPS):

$\frac{\text{PAT}}{No\text{of shares outstanding}} = \frac{₹\ 6,51,624}{5,00,000 \text{ equity shares}}$= ₹ 1.30

Question 20: illustration

Following are the selected financial information of A Ltd. and B Ltd. for the year ended March 31st, 2021:

	A Ltd.	B Ltd.
Variable Cost Ratio	60%	50%
Interest	₹ 20,000	₹ 1,00,000
Operating Leverage	5	2
Financial Leverage	3	2
Tax Rate	30%	30%

You are required to FIND out:

(v) **EBIT**

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(vi) **Sales**

(vii) **Fixed Cost**

(viii) **Identify the company which is better placed with reasons based on leverages.**

Answer 20

Company A

(iv) Financial Leverage $= \frac{EBIT}{EBT i.e. ebit - INTREST}$

So, $3 = \frac{EBIT}{EBIT - 20,000}$

Or,	3 (EBIT – 20,000)	= EBIT
Or,	2 EBIT	= 60,000
Or,	EBIT	= 30,000

(v) Operating Leverage $= \frac{Contribution}{EBIT}$ $Or, \ 5 = \frac{contribution}{Rs.30,000}$

Or, Contribution = ₹ 1, 50,000

Sale $= \frac{\text{Contribution}}{\text{P/V Ratio (1−variable cost ratio)}} = \frac{₹\,1,50,000}{40\%} ==$ ₹ 3,75,000

(vi) Fixed Cost = Contribution – EBIT

= ₹ 1, 50,000 – 30,000

Or, Fixed cost = ₹ 1,20,000

Company B

iv. Financial Leverage $= \frac{EBIT}{EBT i.e. ebit - INTREST}$

So, $2 = \frac{EBIT}{EBIT - 1,00,000}$

Or,	2 (EBIT – 1,00,000)	= EBIT
Or,	2 EBIT -2,00,000	= EBIT
Or,	EBIT	= ₹ 2,00,000

v. Operating Leverage $= \frac{Contribution}{EBIT}$ $Or, \ 5 = \frac{contribution}{Rs.2,00,000}$

Or, Contribution = ₹ 4,00,000

Sale $= \frac{\text{Contribution}}{\text{P/V Ratio (1−variable cost ratio)}} = \frac{₹\,4,00,000}{50\%} ==$ ₹ 8,00,000

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vi. Fixed Cost= Contribution – EBIT

= ₹ 4, 00,000 – ₹ 2,00,000

Or, Fixed cost = ₹ 2,00,000

Income Statements of Company A and Company B

	Company A (₹)	Company B (₹)
Sales	3,75,000	8,00,000
Less: Variable cost	2,25,000	4,00,000
Contribution	1,50,000	4,00,000
Less: Fixed Cost	1,20,000	2,00,000
Earnings before interest and tax (EBIT)	30,000	2,00,000
Less: Interest	20,000	1,00,000
Earnings before tax (EBT)	10,000	1,00,000
Less: Tax @ 30%	3,000	30,000
Earnings after tax (EAT)	7,000	70,000

Comment based on Leverage

Comment based on leverage – Company B is better than company A of the following reasons:

- Capacity of Company B to meet interest liability is better than that of companies A (from EBIT/Interest ratio)

$$\left[A\frac{30,000}{20,000} = 1.5, B\frac{2,00,000}{1,00,000} = 2\right]$$

- Company B has the least financial risk as the total risk (business and financial) of company B is lower (combined leverage of Company A – 15 and Company B- 4)

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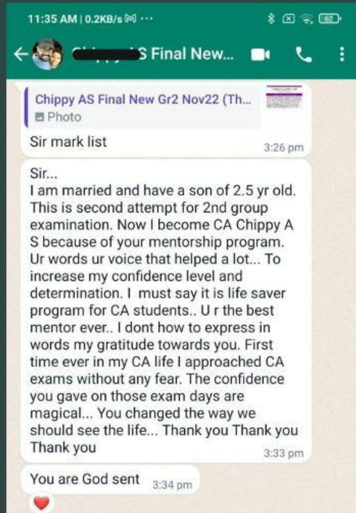

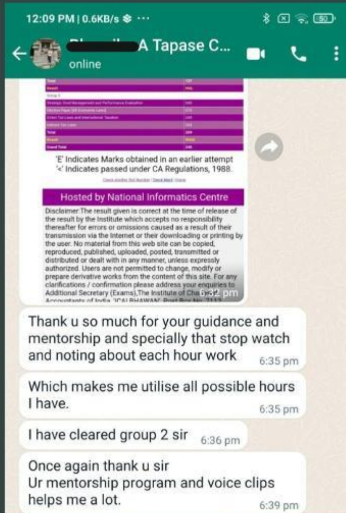

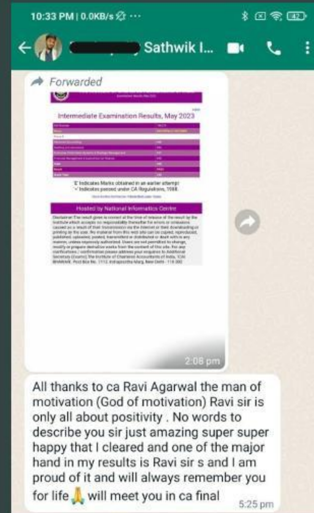

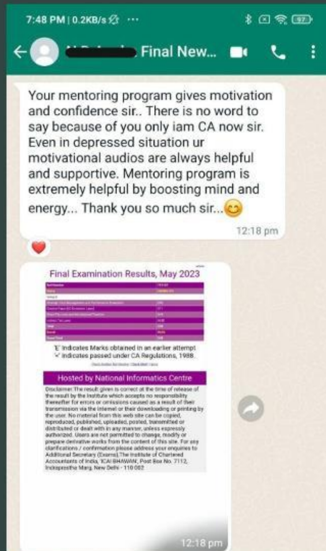

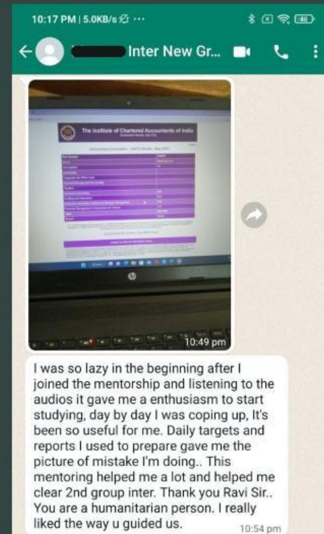

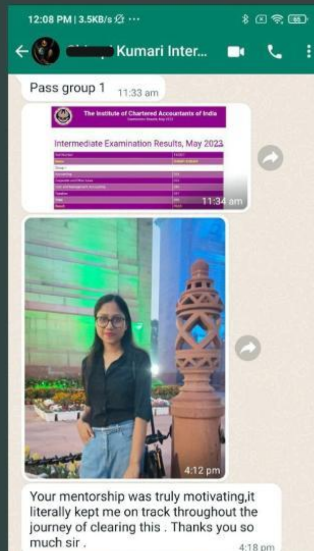

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Chapter 7
Investment Decisions

Attempt wise Distribution

Q & A													
Attempts	May' 18	Nov' 18	May' 19	Nov' 19	May '20	Nov' 20	Jan' 21	Jul' 21	Dec' 21	May' 22	Nov' 22	May' 23	Nov '23
MTP	Q29, Q33	Q39	Q12, Q41	Q18, Q46		Q5, Q37		Q47	Q15, Q48	Q2, Q7, Q21	Q35, Q38, Q42	Q1, Q10, Q49	
PYP	Q30	Q34	Q24, Q28	Q3, Q6		Q20	Q32, Q36	Q19, Q26	Q45	Q13, Q40	Q8, Q16	Q22	
RTP	Q31	Q17	Q43	Q23, Q25		Q27, Q44		Q50	Q4	Q9	Q11	Q14	

Section A

Question 1

Rambow Ltd. is contemplating purchasing machinery that would cost ₹ 10,00,000 plus GST @ 18% at the beginning of year 1. Cash inflows after tax from operations have been estimated at ₹ 2,56,000 per annum for 5 years. The company has two options for the smooth functioning of the machinery - one is service, and another is replacement of parts. The company has the option to service a part of the machinery at the end of each of the years 2 and 4 at ₹ 1,00,000 plus GST @ 18% for each year. In such a case, the scrap value at the end of year 5 will be ₹ 76,000. However, if the company decides not to service the part, then it will have to be replaced at the end of year 3 at ₹ 3,00,000 plus GST@ 18% and in this case, the machinery will work for the 6th year also and get operational cash inflow of ₹ 1,86,000 for the 6th year. It will have to be scrapped at the end of year 6 at ₹ 1,36,000.

Assume cost of capital at 12% and GST paid on all inputs including capital goods are eligible for input tax credit in the same month as and when incurred.

(i) **DECIDE whether the machinery should be purchased under option 1 or under option 2 or it shouldn't be purchased at all.**

(ii) **If the supplier gives a discount of ₹ 90,000 for purchase, WHAT would be your decision? Note: The PV factors at 12% are:**

Year	0	1	2	3	4	5	6
PV Factor	1	0.8928	0.7972	0.7118	0.6355	0.5674	0.5066

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(MTP 5 Marks April '23)

Answer 1

Option I: Purchase Machinery and Service Part at the end of Year 2 and 4.

Net Present value of cash flow @ 12% per annum discount rate.

NPV (in ₹) = - 10,00,000 + 2,56,000 x (0.8928+0.7972+0.7118+0.6355+0.5674) – (1,00,000 x
0.7972+1,00,000 x 0.6355) + (76,000 x 0.5674)

= - 10,00,000 + (2,56,000 x 3.6047) – 1,43,270+43,122.4

= - 10,00,000 + 9,22,803.2 – 1,43,270+ 43,122.4

NPV = - 1,77,344.4

Since Net Present Value is negative; therefore, this option is not to be considered.

If Supplier gives a discount of ₹ 90,000, then:

NPV (in ₹) = + 90,000 - 1,77,344.4 = -87,344.4

In this case, Net Present Value is still negative; therefore, this option may not be advisable

Option II: Purchase Machinery and Replace Part at the end of Year 2.

NPV (in ₹)= - 10,00,000 + 2,56,000 x (0.8928+0.7972+0.7118+0.6355+0.5674) – (3,00,000 x
0.7118) + (1,86,000 x 0.5066+1,36,000 x 0.5066)

= - 10,00,000 + (2,56,000 x 3.6047) – 2,13,540+1,63,125.2

= - 10,00,000 + 9,22,803.2 – 2,13,540+1,63,125.2

NPV = - 1,27,611.6

Net Present Value is negative, the machinery should not be purchased.

If the Supplier gives a discount of ₹ 90,000, then:

NPV (in ₹) = 90,000 - 1,27,611.6 = - 37,611.6

In this case, Net Present Value is still negative; therefore, this option may not be advisable.

Decision: The Machinery should not be purchased as it will earn a negative NPV in both options of repair and replacement.

Question 2

A manufacturing company is presently paying a garbage disposer company ₹ 0.50 per kilogram to dispose-off the waste resulting from its manufacturing operations. At normal operating capacity, the waste is about 2,00,000 kilograms per year.

After spending ₹ 1,20,000 on research, the company discovered that the waste

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could be sold for ₹ 5 per kilogram if it was processed further. Additional processing would, however, require an investment of ₹ 12,00,000 in new equipment, which would have an estimated life of 10 years with no salvage value. Depreciation would be calculated by straight line method.

No change in the present selling and administrative expenses is expected except for the costs incurred in advertising 40,000 per year, if the new product is sold. Additional processing costs would include variable cost of ₹ 2.50 per kilogram of waste put into process along with fixed cost of ₹ 60,000 per year (excluding Depreciation).

There will be no losses in processing, and it is assumed that the total waste processed in a given year will be sold in the same year. Estimates indicate that 2,00,000 kilograms of the product could be sold each year.

The management when confronted with the choice of disposing off the waste or processing it further and selling it, seeks your ADVICE. Which alternative would you RECOMMEND? Assume that the firm's cost of capital is 15% and it pays on an average 50% Tax on its income. Consider Present value of Annuity of ₹ 1 per year @ 15% p.a. for 10 years as 5.019. [MTP 10 Marks March 22)

Answer 2

Evaluation of Alternatives: Savings in disposing off the waste

Particulars	**(₹)**
Outflow (2,00,000 × ₹ 0.50)	1,00,000
Less: tax savings @ 50%	50,000
Net Outflow per year	**50,000**

Calculation of Annual Cash inflows in Processing of waste Material

Particulars	**Amount (₹)**	**Amount (₹)**
Sale value of waste (₹ 5 × 2,00,000 kilograms)		10,00,000
Less: Variable processing cost (₹ 2.50 × 2,00,000 kilograms)	5,00,000	
Less: Fixed processing cost	60,000	
Less: Advertisement cost	40,000	
Less: Depreciation	1,20,000	(7,20,000)
Earnings before tax (EBT)		2,80,000
Less: Tax @ 50%		(1,40,000)
Earnings after tax (EAT)		1,40,000
Add: Depreciation		1,20,000
Annual Cash inflows		2,60,000

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Total Annual Benefits = Annual Cash inflows + Net savings (adjusting tax) in disposal cost

= ₹ 2,60,000 + ₹ 50,000 = ₹ 3,10,000

Calculation of Net Present Value

Year	Particulars	Amount (₹)
0	Investment in new equipment	(12,00,000)
1 to 10	Total Annual benefits × PVAF(10 years, 15%) ₹ 3,10,000 × 5.019	15,55,890
	Net Present Value	3,55,890

Recommendation: Processing of waste is a better option as it gives a positive Net Present Value.

Note- Research cost of ₹ 1,20,000 is not relevant for decision making as it is sunk cost.

Question 3

A company has Rs.1,00,000 available for investment and has identified the following four investments in which to invest.

Project	Investment (Rs.)	NPV (Rs.)
C	40,000	20,000
D	1,00,000	35,000
E	50,000	24,000
F	60,000	18,000

You are required to optimize the returns from a package of projects within the capital spending limit if-

(i) **The projects are independent of each other and are divisible.**

(ii) **The projects are not divisible. (PYP 5 Marks, Nov'19)**

Answer 3

(i) Optimizing returns when projects are independent and divisible.

Computation of NPVs per Re. 1 of Investment and Ranking of the Projects

Project	Investment (Rs.)	NPV (Rs.)	NPV per Re. 1 invested (Rs.)	Ranking
C	40,000	20,000	0.50	1
D	1,00,000	35,000	0.35	3

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E	50,000	24,000	0.48	2
F	60,000	18,000	0.30	4

Building up of a Package of Projects based on their Rankings

Project	Investment (Rs.)	NPV (Rs.)
C	40,000	20,000
E	50,000	24,000
D (1/10th of Project)	10,000	3,500
Total	1,00,000	47,500

The company would be well advised to invest in Projects C, E and D (1/10 the) and reject Project F to optimize return within the amount of Rs.1,00,000 available for investment.

(ii) Optimizing returns when projects are indivisible.

Package of Project	Investment (Rs.)	Total NPV (Rs.)
C and E	90,000 (40,000 + 50,000)	44,000 (20,000 + 24,000)
C and F	1,00,000 (40,000 + 60,000)	38,000 (20,000 + 18,000)
Only D	1,00,000	35,000

The company would be well advised to invest in Projects C and E to optimize return within the amount of Rs.1,00,000 available for investment.

Question 4

HMR Ltd. is considering replacing a manually operated old machine with a fully automatic new machine. The old machine had been fully depreciated for tax purpose but has a book value of ₹ 2,40,000 on 31st March 2021. The machine has begun causing problems with breakdowns and it cannot fetch more than ₹ 30,000 if sold in the market at present. It will have no realizable value after 10 years. The company has been offered ₹ 1,00,000 for the old machine as a trade in on the new machine which has a price (before allowance for trade in) of ₹ 4,50,000. The expected life of new machine is 10 years with salvage value of ₹ 35,000.

Further, the company follows straight line depreciation method but for tax purpose, written down value method depreciation @ 7.5% is allowed taking that this is the only machine in the block of assets. Given below are the expected sales and costs from both old and new machine:

	Old machine (₹)	New machine (₹)
Sales	**8,10,000**	**8,10,000**
Material cost	**1,80,000**	**1,26,250**
Labour cost	**1,35,000**	**1,10,000**
Variable overhead	**56,250**	**47,500**

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Fixed overhead	**90,000**	**97,500**
Depreciation	**24,000**	**41,500**
PBT	**3,24,750**	**3,87,250**
Tax @ 30%	**97,425**	**1,16,175**
PAT	**2,27,325**	**2,71,075**

From the above information, ANALYSE whether the old machine should be replaced or not if required rate of return is 10%? Ignore capital gain tax.

PV factors @ 10%:(RTP Nov '21)

Year	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
PVF	**0.909**	**0.826**	**0.751**	**0.683**	**0.621**	**0.564**	**0.513**	**0.467**	**0.424**	**0.386**

Answer 4

Workings:

1. **Calculation of Base for depreciation or Cost of New Machine**

Particulars	**(₹)**
Purchase price of new machine	4,50,000
Less: Sale price of old machine	1,00,000
	3,50,000

2. **Calculation of Profit before tax as per books**

Particulars	Old machine (₹)	New machine (₹)	Difference (₹)
PBT as per books	3,24,750	3,87,250	62,500
Add: Depreciation as per books	24,000	41,500	17,500
Profit before tax and depreciation (PBTD)	3,48,750	4,28,750	80,000

Calculation of Incremental NPV

Year	PVF @ 10%	PBTD (₹)	Dep. @ 7.5% (₹)	PBT (₹)	Tax @ 30% (₹)	Cash Inflows (₹)	PV of Cash Inflows (₹)
	(1)	(2)	(3)	(4)	(5) = (4) x 0.30	(6) = (4) – (5) + (3)	(7) = (6) x (1)
1	0.909	80,000.00	26,250.00	53,750.00	16,125.00	63,875.00	58,062.38
2	0.82	80,000.0	24,281.2	55,718.7	16,715.63	63,284.38	52,272.89

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	6	0	5	5			
3	0.751	80,000.00	22,460.16	57,539.84	17,261.95	62,738.05	47,116.27
4	0.683	80,000.00	20,775.64	59,224.36	17,767.31	62,232.69	42,504.93
5	0.621	80,000.00	19,217.47	60,782.53	18,234.76	61,765.24	38,356.21
6	0.564	80,000.00	17,776.16	62,223.84	18,667.15	61,332.85	34,591.73
7	0.513	80,000.00	16,442.95	63,557.05	19,067.12	60,932.88	31,258.57
8	0.467	80,000.00	15,209.73	64,790.27	19,437.08	60,562.92	28,282.88
9	0.424	80,000.00	14,069.00	65,931.00	19,779.30	60,220.70	25,533.58
10	0.386	80,000.00	13,013.82	66,986.18	20,095.85	59,904.15	23,123.00
							3,81,102.44
Add: PV of Salvage value of new machine (₹ 35,000 X 0.386)							13,510.00
Total PV of incremental cash inflows							3,94,612.44
Less: Cost of new machine							3,50,000.00
Incremental Net Present Value							44,612.44

Analysis: Since the Incremental NPV is positive, the old machine should be replaced.

Question 5

A company proposes to install a machine involving a Capital Cost of Rs.72,00,000. The life of the machine is 5 years and its salvage value at the end of the life is nil. The machine will produce the net operating income after depreciation of Rs.13,60,000 per annum. The Company's tax rate is 35%(MTP 5 Marks 'May'20 & Oct '23)

The Net Present Value factors for 5 years are as under:

Discounting Rate	**:**	**14**	**15**	**16**	**17**	**18**	**19**
Cumulative factor	**:**	**3.43**	**3.35**	**3.27**	**3.20**	**3.13**	**3.06**

You are required to COMPUTE the internal rate of return (IRR) of the proposal.

Answer 5

Computation of cash inflow per annum	**Rs.**
Net operating income per annum	13,60,000
Less: Tax @ 35%	4,76,000

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Profit after tax	8,84,000
Add: Depreciation (Rs.72,00,000 / 5 years)	14,40,000
Cash inflow	23,24,000

The IRR of the investment can be found as follows: NPV = -Rs. 72,00,000 + Rs. 23,24,000 (PVAF5, r) = 0

or PVA F5 r (Cumulative factor) = $\frac{Rs.72,00,000}{Rs.23,24,000}$ = 3.09

Computation of Internal Rate of Return (IRR)

Discounting rate	15%	19%
Cumulative factor	3.35	3.06
Total NPV (Rs.)	77,85,400	71,11,440
(Rs.23,24,000 ×3.35)		(Rs.23,24,000 ×3.06)
Internal outlay (Rs.)	72,00,000	72,00,000
Surplus (Deficit) (Rs.)	5,85,400	(88,560)

IRR $= LR + \frac{\text{NPV at LR}}{\text{NPV at LR} - \text{NPV at HR}} \times (HR-LR)$

$=15\% + \frac{5,85,400}{5,58,400-(88,560)} \times (19\%-15\%)$

= 15% +3.47 =18.47%

Question 6

Explain the steps while using the equivalent annualized criterion. (PYP 3 Marks,Nov’19)

Answer 6

Equivalent Annualized Criterion: This method involves the following steps-

(iv) Compute NPV using the WACC or discounting rate.
Compute Present Value Annuity Factor (PVAF) of discounting factor used above for the period of each project.

(v) Divide NPV computed under step (I) by PVAF as computed under step (ii) and compare the values.

(b) **Question 12**

(c) **City Clap Ltd. is in the business of providing housekeeping services. There is a proposal before the company to purchase a mechanized cleaning system for a sum of Rs. 40 lakhs. The present system of the company is to use manual Labour for the cleaning job. You are provided with the following information:**

(d) **Proposed Mechanized System:**

(e) **Cost of the machine** **Rs. 40 lakhs**

(f) **Life of the machine** **7 years**

(g) **Depreciation (on straight line basis)** **15%**

(h) **Operating cost of mechanized system** **Rs. 20 lakhs per annum**

Present system (Manual):

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(i) **Manual Labour** **350 persons**
(j) **Cost of manual Labour** **Rs. 15,000 per person per annum**

(k) **The company has an after-tax cost of fund at 10% per annum.**

(l) **The applicable tax rate is 50%.**
(m) **PV factor for 7 years at 10% are as follows:**
(n)

Years	1	2	3	4	5	6	7
P.V. factor	0.909	0.826	0.751	0.683	0.621	0.564	0.513

(o) **You are required to DETERMINE whether it is advisable to purchase the mechanized cleaning system. Give your recommendations with workings. (MTP 10 Marks, April'21)**

Answer 12

(p) Calculation of NPV

	(Rs.)	(Rs.)
Cost of Manual System (Rs. 15,000 x 350)		52,50,000
Less: Cost of Mechanized System:		
Operating Cost	20,00,000	
Depreciation (Rs. 40,00,000 x 0.15)	6,00,000	26,00,000
Saving per annum		26,50,000
Less: Tax (50%)		13,25,000
Saving after tax		13,25,000
Add: Depreciation		6,00,000
Cash flow per annum		19,25,000
Cumulative PV Factor for 7 years @ 10%		4.867
Present value of cash flow for 7 years		93,68,975
Less: Cost of the Machine		40,00,000
NPV		53,68,975

The mechanized cleaning system should be purchased since NPV is positive by Rs. 53,68,975.

Question 7

The Modern Chemicals Ltd. requires ₹ 25,00,000 for a new plant. This plant is expected to yield earnings before interest and taxes of ₹ 5,00,000. While deciding about the financial plan, the company considers the objective of maximising earnings per share. It has three alternatives to finance the project-by raising debt of ₹ 2,50,000 or ₹ 10,00,000 or ₹ 15,00,000 and the balance, in each case, by issuing equity shares. The company's share is currently selling at ₹ 150, but is expected to decline to ₹ 125 in case the funds are borrowed in

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excess of ₹ 10,00,000. The funds can be borrowed at the rate of 10% upto ₹ 2,50,000, at 15% over ₹ 2,50,000 and upto ₹ 10,00,000 and at 20% over ₹ 10,00,000. The tax rate applicable to the company is 50%. ANALYSE, which form of financing should the company choose? (MTP 7 Marks April 22)

Answer 7

Calculation of Earnings per share for three alternatives to finance the project

Particulars	**Alternatives**		
	I To raise debt of ₹2,50,000 and equity of ₹ 22,50,000 (₹)	**II** To raise debt of ₹ 10,00,000 and equity of ₹ 15,00,000 (₹)	**III** To raise debt of ₹ 15,00,000 and equity of ₹ 10,00,000 (₹)
Earnings before interest and tax	5,00,000	5,00,000	5,00,000
Less: Interest on debt at the rate of	25,000 (10% on ₹ 2,50,000)	1,37,500 (10% on ₹ 2,50,000) (15% on ₹ 7,50,000)	2,37,500 (10% on ₹ 2,50,000) (15% on ₹ 7,50,000) (20% on ₹ 5,00,000)
Earnings before tax	4,75,000	3,62,500	2,62,500
Less: Tax (@ 50%)	2,37,500	1,81,250	1,31,250
Earnings after tax: (A)	2,37,500	1,81,250	1,31,250
Number of shares :(B) (Refer to working note)	15,000	10,000	8,000
Earnings per share: (A)/(B)	15.833	18.125	16.406

So, the earning per share (EPS) is higher in alternative II i.e. if the company finance the project by raising debt of ₹ 10,00,000 and issue equity shares of ₹ 15,00,000. Therefore, the company should choose this alternative to finance the project.

Working Note:

	Alternatives		
	I	**II**	**III**
Equity financing : (A)	₹ 22,50,000	₹ 15,00,000	₹ 10,00,000
Market price per share : (B)	₹ 150	₹ 150	₹ 125
Number of equity share: (A)/(B)	15,000	10,000	8,000

Question 8

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A firm is in need of a small vehicle to make deliveries. It is in tending to choose between two options. One option is to buy a new three wheeler that would cost ₹ 1,50,000 and will remain in service for 10 years.
The other alternative is to buy a second hand vehicle for ₹ 80,000 that could remain in service for 5 years. Thereafter the firm, can buy another second hand vehicle for ₹ 60,000 that will last for another 5 years.
The scrap value of the discarded vehicle will be equal to it written down value (WDV). The firm pays 30% tax and is allowed to claim depreciation on vehicles @ 25% on WDV basis.
The cost of capital of the firm is 12%.
You are required to advise the best option. Given:

t	1	2	3	4	5	6	7	8	9	10
PVIF (t,12%)	0.892	0.797	0.711	0.635	0.567	0.506	0.452	0.403	0.360	0.322

(PYP 10 Marks Nov '22)

Answer 8

Selection of Investment Decision

Tax shield on Purchase of New vehicle			
Year	**WDV**	**Dep. @ 25%**	**Tax shield @ 30%**
1	1,50,000	37,500	11,250
2	1,12,500	28,125	8,437
3	84,375	21,094	6,328
4	63,281	15,820	4,746
5	47,461	11,865	3,560
6	35,596	8,899	2,670
7	26,697	6,674	2,002
8	20,023	5,006	1,502
9	15,017	3,754	1,126
10	11,263	2,816	845
11	8,447	Scrap value	

Tax shield on Purchase of Second hand vehicles

Year	WDV	Dep. @ 25%	Tax shield @ 30%	
1	80,000	20,000	6,000	
2	60,000	15,000	4,500	
3	45,000	11,250	3,375	
4	33,750	8,437	2,531	
5	25,313	6,328	1,898	Scrap value = ₹ 18,985
6	60,000	15,000	4,500	

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7	45,000	11,250	3,375	
8	33,750	8,437	2,531	
9	25,313	6,328	1,898	
10	18,985	4,746	1,424	Scrap value = ₹ 14,239

Calculation of PV of Net outflow of New Vehicle

Year	Cash OF/IF	PV Factor	PV of OF/IF
0	1,50,000	1	1,50,000
1	(11,250)	0.892	(10,035)
2	(8,437)	0.797	(6,724)
3	(6,328)	0.711	(4,499)
4	(4,746)	0.635	(3,014)
5	(3,560)	0.567	(2,018)
6	(2,670)	0.506	(1,351)
7	(2,002)	0.452	(905)
8	(1,502)	0.403	(605)
9	(1,126)	0.360	(405)
10	(845 + 8447)	0.322	(2,992)
		PVNOF	1,17,452

Calculation of PV of Net outflow of Second hand Vehicles

Year	Cash OF/IF	PV Factor	PV of OF/IF
0	80,000	1	80,000
1	(6,000)	0.892	(5,352)
2	(4,500)	0.797	(3,587)
3	(3,375)	0.711	(2,400)
4	(2,531)	0.635	(1,607)
5	(60000 – 18985 – 1898) = 39,117	0.567	22,179
6	(4,500)	0.506	(2,277)
7	(3,375)	0.452	(1,525)
8	(2,531)	0.403	(1,020)
9	(1,898)	0.360	(683)
10	(1424 + 14239) = (15,663)	0.322	(5,043)
		PVNOF	78,686

Advise: The PV of net outflow is low in case of buying the second hand vehicles. Therefore, it is advisable to buy second hand vehicles.

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Question 9

ABC & Co. is considering whether to replace an existing machine or to spend money on revamping it. ABC & Co. currently pays no taxes. The replacement machine costs ₹ 18,00,000 now and requires maintenance of ₹ 2,00,000 at the end of every year for eight years. At the end of eight years, it would have a salvage value of ₹ 4,00,000 and would be sold. The existing machine requires increasing amounts of maintenance each year and its salvage value fall each year as follows:

Year	Maintenance (₹)	Salvage (₹)
Present	0	8,00,000
1	2,00,000	5,00,000
2	4,00,000	3,00,000
3	6,00,000	2,00,000
4	8,00,000	0

The opportunity cost of capital for ABC & Co. is 15%.

REQUIRED:

When should the company replace the machine? The following present value table is given for you:

Year	Present value of ₹ 1 at 15% discount rate
1	0.8696
2	0.7561
3	0.6575
4	0.5718
5	0.4972
6	0.4323
7	0.3759
8	0.3269

(RTP May 22)

Answer 9

ABC & Co. Equivalent Annual Cost (EAC) of new machine

		(₹)
(i)	Cost of new machine now	18,00,000
	Add: PV of annual repairs @ ₹ 2,00,000 per annum for 8 years (₹ 2,00,000 X 4.4873)	8,97,460

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	Less: PV of salvage value at the end of 8 years	26,97,460
	(₹ 4,00,000 X 0.3269)	1,30,760
		25,66,700
	Equivalent annual cost (EAC) (₹ 25,66,700/4.4873)	5,71,992

PV of cost of replacing the old machine in each of 4 years with new machine

Scenario	Year	Cash Flow (₹)	PV @ 15%	PV (₹)
Replace Immediately	0	(5,71,992)	1.00	(5,71,992)
	0	8,00,000	1.00	8,00,000
				2,28,008
Replace in one year	1	(5,71,992)	0.8696	(4,97,404)
	1	(2,00,000)	0.8696	(1,73,920)
	1	5,00,000	0.8696	4,34,800
				(2,36,524)
Replace in two years	1	(2,00,000)	0.8696	(1,73,920)
	2	(5,71,992)	0.7561	(4,32,483)
	2	(4,00,000)	0.7561	(3,02,440)
	2	3,00,000	0.7561	2,26,830
				(6,82,013)
Replace in three years	1	(2,00,000)	0.8696	(1,73,920)
	2	(4,00,000)	0.7561	(3,02,440)
	3	(5,71,992)	0.6575	(3,76,085)
	3	(6,00,000)	0.6575	(3,94,500)
	3	2,00,000	0.6575	1,31,500
				(11,15,445)
Replace in four years	1	(2,00,000)	0.8696	(1,73,920)
	2	(4,00,000)	0.7561	(3,02,440)
	3	(6,00,000)	0.6575	(3,94,500)
	4	(5,71,992)	0.5718	(3,27,065)
	4	(8,00,000)	0.5718	(4,57,440)
				(16,55,365)

Advice: The company should replace the old machine immediately because the PV of cost of replacing the old machine with new machine is least.

Question 10

Genzy Ltd. is planning to introduce a new product with a project life of 10 years. The initial equipment cost will be ₹ 2.5 crores. At the end of 10 years, the equipment will have a resale value of 50 lakhs. A working capital of ₹ 30,00,000

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will be needed and it will be released at the end of the tenth year. The project will be financed with the following capital sources.

Particulars	Amount (₹)	Issue Price (Market price)
Equity Share Capital of Face value ₹ 10 each	**1,50,00,000**	**₹30**
Debentures of face value ₹ 100 each with a maturity of 10 years	**90,00,000**	**₹90**
Preference shares of ₹ 100 each with a maturity of 10 years	**60,00,000**	**₹96**

The existing yield on T-bills is averaging 8% p.a. The systematic risk measure for the proposed project is 1.6. NSE NIFTY is expected to yield 14% p.a. on average for the foreseeable future. Debenture holders have been promised a coupon of 12% and preference shareholders have been committed a dividend of 15%.

The sales volumes over 10 years have been estimated as follows:

Year	1	2	3-5	6-8	9-10
Units per year	**70,000**	**98,000**	**2,10,000**	**2,50,000**	**1,20,000**

A sales price of ₹ 300 per unit is expected and variable expenses will amount to 60% of sales revenue. Fixed cash operating costs will amount to ₹ 40,00,000 per year. The loss of any year will be set off from the profits of subsequent years.

The company is subject to a 30 per cent tax rate. The company follows straight line method of depreciation which is to be assumed to be admissible for tax purpose also.

CALCULATE the net present value of the project for the company and advise the management to take appropriate decision.

The PV factors are to be taken as rounded figures upto 2 decimals. Use market value weights to COMPUTE overall cost of capital. (MTP 10 Marks April '23)

Answer 10

Cost of Equity

Ke = Rf + Beta * (Rm – Rf)
Ke = 8% + 1.6 * (14% - 8%)

Ke = 8% + (1.6 * 6%)

Ke = 17.6%

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1. **Cost of Redeemable Debentures (Post-Tax)**

$$Kd = \frac{Int(1-t) + \frac{Rv-NP}{n}}{\frac{RV-NP}{2}}$$

$$Kd = \frac{12,00,000*(1-30\%)+(1,00,00,000-90,00,000)/10)}{(1,00,00,000+90,00,000)/2}$$

$$Kd = \frac{8,40,000+1,00,000}{95,00,000}$$

Kd = 9.89%

2. **Cost of Redeemable Preference Shares**

$$Kp= \frac{PD + \frac{Rv-NP}{n}}{\frac{RV-NP}{2}}$$

$$Kp = \frac{(62,50,000\ X\ 15\%)+(62,50,000-60,00,000)/10}{(62,50,000+60,00,000)/2}$$

$$Kp = \frac{9,37,500+25,000}{61,25,000}$$

Kp = 15.71%

3. **Weighted Average Cost of Capital (WACC) – Book Value Method**

Source of Capital	**Market Value**	**Weights**	**After Tax Cost of Capital**	**WACC**
Equity Share Capital	1,50,00,000	0.5	17.6%	0.088
Debentures	90,00,000	0.3	9.89%	0.030
Preference Share Capital	60,00,000	0.2	15.71%	0.031
	3,00,00,000	1.000		0.149

WACC = 14.9%

4. **Computation of CFAT**

	(year 1 to year 4)					
Sr. No.	**Particulars / Year**	**1**	**2**	**3-5**	**6-8**	**9-10**
A	Sale Price p.u.	300	300	300	300	300
	Sale units	70,000	98,000	2,10,000	2,50,000	1,20,000
C	Sales (A x B)	2,10,00,000	2,94,00,000	6,30,00,000	7,50,00,000	3,60,00,000
D	Variable Cost p.u.	180	180	180	180	180
E	Variable Cost (B x D)	1,26,00,000	1,76,40,000	3,78,00,000	4,50,00,000	2,16,00,000
F	Contribution (C - E)	84,00,000	1,17,60,000	2,52,00,000	3,00,00,000	1,44,00,000

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G	Less: Fixed Cost	40,00,000	40,00,000	40,00,000	40,00,000	40,00,000
H	PBDT (F-G)	44,00,000	77,60,000	2,12,00,000	2,60,00,000	1,04,00,000
I	Less: Depreciation (2,50,00,000-50,00,000) / 10	20,00,000	20,00,000	20,00,000	20,00,000	20,00,000
J	PBT	24,00,000	57,60,000	1,92,00,000	2,40,00,000	84,00,000
K	Less: Taxes @ 30%	7,20,000	17,28,000	57,60,000	72,00,000	25,20,000
L	PAT	16,80,000	40,32,000	1,34,40,000	1,68,00,000	58,80,000
M	Add: Depreciation	20,00,000	20,00,000	20,00,000	20,00,000	20,00,000
N	CFAT	36,80,000	60,32,000	1,54,40,000	1,88,00,000	78,80,000

5. **Computation of NPV**

Sr. No.	Particulars / Year	1	2	3-5	6-8	9-10
I	CFAT	36,80,000	60,32,000	1,54,40,000	1,88,00,000	78,80,000
II	PVAF @ 14.9%	0.87	0.76	(0.66+0.57+ 0.50) = 1.73	(0.43+0.38+0.33) = 1.14	(0.29+0.25) = 0.54
III	PV of CFATs (I x II)	32,01,600	45,84,320	2,67,11,200	2,14,32,000	42,55,200
IV	Salvage + Release of WC					80,00,000
V	PVF @ 14.9%					0.25
VI	PV of Salvage (IV x V)					20,00,000

PV of Inflows = 32,01,600 + 45,84,320 + 2,67,11,200 + 2,14,32,000 + 42,55,200 + 20,00,000
PV of Inflows = 6,21,84,320
PV of Outflows = Investment + Introduction of

Working Capital PV of Outflows = 2,50,00,000 +

30,00,000

PV of Outflows = 2,80,00,000
NPV = PV of Inflows – PV of Outflows NPV = 6,21,84,320 -

2,80,00,000

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NPV = 3,41,84,320
The management should consider taking up the project as the Net Present Value of the Project is Positive.

Question 11

K. K. M. M Hospital is considering purchasing an MRI machine. Presently, the hospital is outsourcing the work received relating to MRI machine and is earning commission of ₹ 6,60,000 per annum (net of tax). The following details are given regarding the machine:

	(₹)
Cost of MRI machine	**90,00,000**
Operating cost per annum (excluding Depreciation)	**14,00,000**
Expected revenue per annum	**45,00,000**
Salvage value of the machine (after 5 years)	**10,00,000**
Expected life of the machine	**5 years**

Assuming tax rate @ 40%, whether it would be profitable for the hospital to purchase the machine?
Give your RECOMMENDATION under:

(i) **Net Present Value Method, and**

(ii) **Profitability Index Method.**

PV factors at 10% are given below:

Year	**1**	**2**	**3**	**4**	**5**
PV factor	**0.909**	**0.826**	**0.751**	**0.683**	**0.620**

(RTP Nov'22)

Answer 11

A. Determination of Cash inflows

Elements	(₹)
Sales Revenue	45,00,000
Less: Operating Cost	14,00,000
	31,00,000
Less: Depreciation (90,00,000 – 10,00,000)/5	16,00,000
Net Income	15,00,000
Tax @ 40%	6,00,000
Earnings after Tax (EAT)	9,00,000
Add: Depreciation	16,00,000
Cash inflow after tax per annum	25,00,000
Less: Loss of Commission Income	6,60,000
Net Cash inflow after tax per annum	18,40,000
In 5th Year:	
New Cash inflow after tax	18,40,000

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Add: Salvage Value of Machine	10,00,000
Net Cash inflow in year 5	28,40,000

Calculation of Net Present Value (NPV)

Yea	CFAT	PV Factor @10%	Present Value of Cash inflows
1 to 4	18,40,000	3.169	58,30,960
5	28,40,000	0.620	17,60,800
			75,91,760
Less: Cash Outflows			90,00,000
NPV			(14,08,240)

$$\text{Profitability Index} = \frac{\text{Sum of discounted cash inflows}}{\text{Present value of cash outflows}} = \frac{75,91,760}{90,00,000} = 0.844$$

Advise: Since the net present value is negative and profitability index is also less than 1, therefore, the hospital should not purchase the MRI machine

Question 12

Prem Ltd has a maximum of Rs. 8,00,000 available to invest in new projects. Three possibilities have emerged and the business finance manager has calculated Net Present Value (NPVs) for each of the projects as follows:

Investment	Initial cash outlay Rs.	NPV Rs.
Alfa (α)	**5,40,000**	**1,00,000**
Beta(β)	**6,00,000**	**1,50,000**
Gama (γ)	**2,60,000**	**58,000**

DETERMINE which investment/combination of investments should the company invest in, if we assume that the projects can be divided? (MTP 6 Marks, April'19)

Answer 12

Since funds available are restricted, the normal Net Present Value (NPV) rule of accepting investments decisions with the highest NPVs cannot be adopted straight way. Further, as the projects are divisible, a Profitability Index (PI) can be utilized to provide the most beneficial combination of investment for Rio Ltd.

Project	PV Per Rs.	Rank as per PI
Alfa (α)	Rs. 6,40,000 / Rs. 5,40,000 = 1.185	III
Beta (β)	Rs. 7,50,000 / Rs. 6,00,000 = 1.250	I

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Gama (γ)	Rs. 3,18,000 / Rs. 2,60,000 = 1.223	II

Therefore, Rio Ltd should invest Rs. 6,00,000 into project β (Rank I) earnings Rs. 1,50,000 and Rs.2,00,000 into project γ (Rank II) earning Rs. 44,615 Rs. 2,00,000 / Rs. 2,60,000 × Rs. 58,000

So, total NPV will be Rs.1,94,615 Rs. 1,50,000 + Rs. 44,615 from Rs. 8,00,000 of investment.

Question 13

Alpha Limited is a manufacturer of computers. It wants to introduce artificial intelligence while making computers. The estimated annual saving from introduction of the artificial intelligence (AI) is as follows:

- **reduction of five employees with annual salaries of ₹ 3,00,000 each**
- **reduction of ₹ 3,00,000 in production delays caused by inventory problem**
- **reduction in lost sales ₹ 2,50,000 and**
- **Gain due to timely billing ₹ 2,00,000**

The purchase price of the system for installation of artificial intelligence is ₹ 20,00,000 and installation cost is ₹ 1,00,000. 80% of the purchase price will be paid in the year of purchase and remaining will be paid in next year.

The estimated life of the system is 5 years and it will be depreciated on a straight -line basis.

However, the operation of the new system requires two computer specialists with annual salaries of ₹ 5,00,000 per person.

In addition to above, annual maintenance and operating cost for five years are as below:

(Amount in ₹)

Year	1	2	3	4	5
Maintenance & Operating Cost	2,00,000	1,80,000	1,60,000	1,40,000	1,20,000

Maintenance and operating cost are payable in advance.

The company's tax rate is 30% and its required rate of return is 15%.

Year	1	2	3	4	5
PVIF 0.10, t	0.909	0.826	0.751	0.683	0.621
PVIF 0.12, t	0.893	0.797	0.712	0.636	0.567
PVIF 0.15, t	0.870	0.756	0.658	0.572	0.497

Evaluate the project by using Net Present Value and Profitability Index. (PYP 10 Marks May'22)

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Answer 13

Computation of Annual Cash Flow after Tax

Particulars	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5
Savings in Salaries		15,00,000	15,00,000	15,00,000	15,00,000	15,00,000
Reduction in Production Delays		3,00,000	3,00,000	3,00,000	3,00,000	3,00,000
Reduction in Lost Sales		2,50,000	2,50,000	2,50,000	2,50,000	2,50,000
Gain due to Timely Billing		2,00,000	2,00,000	2,00,000	2,00,000	2,00,000
Salary to Computer Specialist		(10,00,000)	(10,00,000)	(10,00,000)	(10,00,000)	(10,00,000)
Maintenance and Operating Cost (payable in advance)		(2,00,000)	(1,80,000)	(1,60,000)	(1,40,000)	(1,20,000)
Depreciation (21 lakhs/5)		(4,20,000)	(4,20,000)	(4,20,000)	(4,20,000)	(4,20,000)
Gain Before Tax		6,30,000	6,50,000	6,70,000	6,90,000	7,10,000
Less: Tax (30%)		1,89,000	1,95,000	2,01,000	2,07,000	2,13,000
Gain After Tax		4,41,000	4,55,000	4,69,000	4,83,000	4,97,000
Add: Depreciation		4,20,000	4,20,000	4,20,000	4,20,000	4,20,000
Add: Maintenance and Operating Cost (payable in advance)		2,00,000	1,80,000	1,60,000	1,40,000	1,20,000
Less: Maintenance and Operating Cost (payable in advance)	(2,00,000)	(1,80,000)	(1,60,000)	(1,40,000)	(1,20,000)	-
Net CFAT	(2,00,000)	8,81,000	8,95,000	9,09,000	9,23,000	10,37,000

Note: Annual cash flows can also be calculated Considering tax shield on depreciation & maintenance and operating cost. There will be no change in the final cash flows after tax.

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Computation of NPV				
Particulars	**Year**	**Cash Flows (₹)**	**PVF**	**PV (₹)**
Initial Investment (80% of 20 Lacs)	0	16,00,000	1	16,00,000
Installation Expenses	0	1,00,000	1	1,00,000
Instalment of Purchase Price	1	4,00,000	0.870	3,48,000
PV of Outflows (A)				20,48,000
CFAT	0	(2,00,000)	1	(2,00,000)
CFAT	1	8,81,000	0.870	7,66,470
CFAT	2	8,95,000	0.756	6,76,620
CFAT	3	9,09,000	0.658	5,98,122
CFAT	4	9,23,000	0.572	5,27,956
CFAT	5	10,37,000	0.497	5,15,389
PV of Inflows (B)				28,84,557
NPV (B-A)				8,36,557
Profitability Index (B/A)				1.408 or 1.41

Evaluation: Since the NPV is positive (i.e. ₹ 8,36,557) and Profitability Index is also greater than 1 (i.e. 1.41), Alpha Ltd. may introduce artificial intelligence (AI) while making computers.

Question 14

Dharma Ltd, an existing profit-making company, is planning to introduce a new product with a projected life of 8 years. Initial equipment cost will be ₹ 240 lakhs and additional equipment costing ₹ 26 lakhs will be needed at the beginning of third year. At the end of 8 years, the original equipment will have resale value equivalent to the cost of removal, but the additional equipment would be sold for ₹ 2 lakhs. Working Capital of ₹ 25 lakhs will be needed at the beginning of the operations. The 100% capacity of the plant is of 4,00,000 units per annum, but the production and sales volume expected are as under:

Year	**Capacity (%)**
1	**20**
2	**30**
3-5	**75**
6-8	**50**

A sale price of ₹ 100 per unit with a profit volume ratio (contribution/sales) of 60% is likely to be obtained. Fixed operating cash cost are likely to be ₹ 16 lakhs per annum. In addition to this the advertisement expenditure will have to be incurred as under:

Year	**1**	**2**	**3-5**	**6-8**
Expenditure (₹ Lakhs each year)	**30**	**15**	**10**	**4**

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The company is subjected to 50% tax rate and consider 12% to be an appropriate cost of capital. Straight line method of depreciation is followed by the company. ADVISE the management on the desirability of the project. (RTP May 23)

Answer 14

Calculation of Cash Flow After tax

	Year	**1**	**2**	**3 to 5**	**6 to 8**
A	Capacity	20%	30%	75%	50%
B	Units	80000	120000	300000	200000
C	Contribution p.u.	₹60	₹60	₹60	₹60
D	Contribution	₹48,00,000	₹72,00,000	₹1,80,00,000	₹1,20,00,000
E	Fixed Cash Cost	₹16,00,000	₹16,00,000	₹16,00,000	₹16,00,000
	Depreciation				
F	Original Equipment (₹240Lakhs/8)	₹30,00,000	₹30,00,000	₹30,00,000	₹30,00,000
G	Additional Equipment (₹24Lakhs/6)	--	--	₹4,00,000	₹4,00,000
H	Advertisement Expenditure	₹30,00,000	₹15,00,000	₹10,00,000	₹4,00,000
I	Profit Before Tax (D- E-F-G-H)	₹ (28,00,000)	₹11,00,000	₹1,20,00,000	₹66,00,000
J	Tax savings/ (expenditure)	₹14,00,000	₹ (5,50,000)	₹ (60,00,000)	₹ (33,00,000)
K	Profit After Tax	₹ (14,00,000)	₹5,50,000	₹60,00,000	₹33,00,000
L	Add: Depreciation (F+G)	₹30,00,000	₹30,00,000	₹34,00,000	₹34,00,000
M	Cash Flow After Tax	₹16,00,000	₹35,50,000	₹94,00,000	₹67,00,000

Calculation of NPV

Year	**Particulars**	**Cash Flows**	**PV factor**	**PV**
0	Initial Investment	₹ (2,40,00,000	1.000	₹ (2,40,00,000)

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		)		
0	Working Capital Introduced	₹ (25,00,000)	1.000	₹ (25,00,000)
1	CFAT	₹16,00,000	0.893	₹ 14,28,800
2	CFAT	₹ 35,50,000	0.797	₹ 28,29,350
2	Additional Equipment	₹ (26,00,000)	0.797	₹ (20,72,200)
3	CFAT	₹ 94,00,000	0.712	₹ 66,92,800
4	CFAT	₹ 94,00,000	0.636	₹ 59,78,400
5	CFAT	₹ 94,00,000	0.567	₹ 53,29,800
6	CFAT	₹ 67,00,000	0.507	₹ 33,96,900
7	CFAT	₹ 67,00,000	0.452	₹ 30,28,400
8	CFAT	₹ 67,00,000	0.404	₹ 27,06,800
8	WC Released	₹ 25,00,000	0.404	₹ 10,10,000
8	Salvage Value	₹ 2,00,000	0.404	₹ 80,800
	Net Present Value			₹39,09,850

Since the NPV is positive, the proposed project should be implemented.

Question 15

Superb Ltd. constructs customized parts for satellites to be launched by USA and Canada. The parts are constructed in eight locations (including the central headquarter) around the world. The Finance Director, Ms. Kuthrapali, chooses to implement video conferencing to speed up the budget process and save travel costs. She finds that, in earlier years, the company sent two officers from each location to the central headquarter to discuss the budget twice a year. The average travel cost per person, including air fare, hotels and meals, is ₹ 27,000 per trip. The cost of using video conferencing is Rs.8,25,000 to set up a system at each location plus Rs.300 per hour average cost of telephone time to transmit signals. A total 48 hours of transmission time will be needed to complete the budget each year. The company depreciates this type of equipment over five years by using straight line method. An alternative approach is to travel to local rented video conferencing facilities, which can be rented for Rs. 1,500 per hour plus Rs.400 per hour average cost for telephone charges. You are Senior Officer of Finance Department. You have been asked by Ms. Kuthrapali to EVALUATE the proposal and SUGGEST if it would be worthwhile for the company to implement video conferencing. [MTP 10 Marks, Nov'21]

Answer 15

Option I: Cost of travel, in case Video Conferencing facility is not provided

Total Trip = No. of Locations × No. of Persons × No. of Trips per Person = 7×2×2 = 28 Trips

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Total Travel Cost (including air fare, hotel accommodation and meals) (28 trips × Rs. 27,000 per trip) = Rs.7,56,000

Option II: Video Conferencing Facility is provided by Installation of Own Equipment at Different Locations

Cost of Equipment at each location (Rs.8,25,000 × 8 locations) = Rs.66,00,000 Economic life of Machines (5 years). Annual depreciation (66,00,000/5) = Rs.13,20,000

Annual transmission cost (48 hrs. transmission × 8 locations × Rs.300 per hour) = Rs.1,15,200 Annual cost of operation (13,20,000 + 1,15,200) = Rs.14,35,200

Option III: Engaging Video Conferencing Facility on Rental Basis Rental cost (48 hrs. × 8 locations × Rs. 1,500 per hr.) = Rs.5,76,000 Telephone cost (48 hrs.× 8 locations × Rs.400 per hr.) = Rs.1,53,600 Total rental cost of equipment (5,76,000 + 1,53,600) = Rs.7,29,600

Analysis: The annual cash outflow is minimum, if video conferencing facility is engaged on rental basis. Therefore, Option III is suggested.

Question 16

A hospital is considering to purchase a diagnostic machine costing ₹ 80,000. The projected life of the machine is 8 years and has an expected salvage value of ₹ 6,000 at the end of 8 years. The annual operating cost of the machine is ₹ 7,500. It is expected to generate revenues of ₹ 40,000 per year for eight years. Presently, the hospital is outsourcing the diagnostic work and is earning commission income of ₹ 12,000 per annum.

Consider tax rate of 30% and Discounting Rate as

10%. Advise:

Whether it would be profitable for the hospital to purchase the machine?

Give your recommendation as per Net Present Value method and Present Value Index method under below mentioned two situations:

(i) **If Commission income of ₹ 12,000 p.a. is before taxes.**

(ii) **If Commission income of ₹ 12,000 p.a. is net of taxes.**

Given:

t	1	2	3	4	5	6	7	8
PVIF (t, 10%)	0.909	0.826	0.751	0.683	0.621	0.564	0.513	0.467

(PYP 10 Marks Nov '22)

Answer 16

Analysis of Investment Decisions

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Determination of Cash inflows	Situation-(i) Commission Income before taxes	Situation-(ii) Commission Income after taxes
Cash flow up-to 7th year:		
Sales Revenue	40,000	40,000
Less: Operating Cost	(7,500)	(7,500)
	32,500	32,500
Less: Depreciation (80,000 – 6,000) ÷ 8	(9,250)	(9,250)
Net Income	23,250	23,250
Tax @ 30%	(6,975)	(6,975)
Earnings after Tax (EAT)	16,275	16,275
Add: Depreciation	9,250	9,250
Cash inflow after tax per annum	25,525	25,525
Less: Loss of Commission Income	(8,400)	(12,000)
Net Cash inflow after tax per annum	17,125	13,525
In 8th Year:		
Net Cash inflow after tax	17,125	13,525
Add: Salvage Value of Machine	6,000	6,000
Net Cash inflow in year 8	23,125	19,525

Calculation of Net Present Value (NPV) and Profitability Index (PI)

	Particulars	PV factor @10%	Situation-(i) [Commission Income before taxes]	Situation-(ii) [Commission Income after taxes]
A	Present value of cash inflows (1st to 7th year)	4.867	83,347.38 (17,125 × 4.867)	65,826.18 (13,525 × 4.867)
B	Present value of cash inflow at 8th year	0.467	10,799.38 (23,125 × 0.467)	9,118.18 (19,525 × 0.467)
C	PV of cash inflows	1.00	94,146.76	74,944.36
D	Less: Cash Outflow		(80,000)	(80,000)
E	Net Present Value (NPV)		14,146.76	(5,055.64)
F	PI = (C÷D)		1.18	0.94

Recommendation: The hospital may consider purchasing of diagnostic machine in situation(i) where commission income is 12,000 before tax as NPV is positive and PI is also greater than 1. Contrary to situation (i), in situation (ii) where the commission income is net of tax, the recommendation is reversed to not purchase the machine as

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NPV is negative and PI is also less than 1.

Question 17

Shiv Limited is thinking of replacing its existing machine by a new machine which would cost ₹ 60 lakhs. The company's current production is 80,000 units, and is expected to increase to 1,00,000 units, if the new machine is bought. The selling price of the product would remain unchanged at ₹ 200 per unit. The following is the cost of producing one unit of product using both the existing and new machine:

Unit cost (₹)			
	Existing Machine (80,000 units)	New Machine (1,00,000 units)	Difference
Materials	75.0	63.75	(11.25)
Wages & Salaries	51.25	37.50	(13.75)
Supervision	20.0	25.0	5.0
Repairs and Maintenance	11.25	7.50	(3.75)
Power and Fuel	15.50	14.25	(1.25)
Depreciation	0.25	5.0	4.75
Allocated Corporate Overheads	10.0	12.50	2.50
	183.25	165.50	(17.75)

The existing machine has an accounting book value of ₹ 1,00,000, and it has been fully depreciated for tax purpose. It is estimated that machine will be useful for 5 years. The supplier of the new machine has offered to accept the old machine for ₹ 2,50,000. However, the market price of old machine today is ₹ 1,50,000 and it is expected to be ₹ 35,000 after 5 years. The new machine has a life of 5 years and a salvage value of ₹ 2,50,000 at the end of its economic life. Assume corporate Income tax rate at 40%, and depreciation is charged on straight line basis for Income-tax purposes. Further assume that book profit is treated as ordinary income for tax purpose. The opportunity cost of capital of the Company is 15%.

Required:

(x) **ESTIMATE net present value of the replacement decision.**

(xi) **CALCULATE the internal rate of return of the replacement decision.**

(xii) **Should Company go ahead with the replacement decision? ANALYSE.**

Year (t)	1	2	3	4	5
$PVIF_{0.15,t}$	0.8696	0.7561	0.6575	0.5718	0.4972
$PVIF_{0.20,t}$	0.8333	0.6944	0.5787	0.4823	0.4019
$PVIF_{0.25,t}$	0.80	0.64	0.512	0.4096	0.3277
$PVIF_{0.30,t}$	0.7692	0.5917	0.4552	0.3501	0.2693

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$PVIF_{0.35,t}$	0.7407	0.5487	0.4064	0.3011	0.2230

(RTP Nov '18)

Answer 17

(i) Net Cash Outlay of New Machine

Purchase Price ₹ 60,00,000

Less: Exchange value of old machine

[2,50,000 – 0.4(2,50,000 – 0)] 1,50,000

₹ 58,50,000

Market Value of Old Machine: The old machine could be sold for ₹ 1,50,000 in the market. Since the exchange value is more than the market value, this option is not attractive. This opportunity will be lost whether the old machine is retained or replaced. Thus, on incremental basis, it has no impact.

Depreciation base: Old machine has been fully depreciated for tax purpose. Thus, the depreciation base of the new machine will be its original cost i.e. ₹ 60,00,000.

Net Cash Flows: Unit cost includes depreciation and allocated overheads. Allocated overheads are allocated from corporate office therefore they are irrelevant. The depreciation tax shield may be computed separately. Excluding depreciation and allocated overheads, unit costs can be calculated. The company will obtain additional revenue from additional 20,000 units sold.

Thus, after-tax saving, excluding depreciation, tax shield, would be

= {100,000(200 – 148) – 80,000(200 – 173)} × (1 – 0.40)

= {52,00,000 – 21,60,000} × 0.60

= ₹ 18,24,000

After adjusting depreciation tax shield and salvage value, net cash flows and net present value are estimated.

Calculation of Cash flows and Project Profitability

₹ ('000)							
		0	1	2	3	4	5
1	After-tax savings	-	1824	1824	1824	1824	1824
2	Depreciation (₹ 60,00,000 – 2,50,000)/5	-	1150	1150	1150	1150	1150
3	Tax shield on depreciation (Depreciation × Tax rate)	-	460	460	460	460	460
4	Net cash flows from operations (1 + 3)*	-	2284	2284	2284	2284	2284
5	Initial cost	(5850)					

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6	Net Salvage Value (2,50,000 – 35,000)	-	-	-	-	-	215
7	Net Cash Flows (4+5+6)	(5850)	2284	2284	2284	2284	2499
8	PVF at 15%	1.00	0.8696	0.7561	0.6575	0.5718	0.4972
9	PV	(5850)	1986.166	1726.932	1501.73	1305.99	1242.50
10	NPV	₹ 1913.32					

* Alternately Net Cash flows from operation can be calculated as follows:
Profit before depreciation and tax = ₹ 1,00,000 (200 -148) - 80,000 (200 -173)
= ₹ 52,00,000 – 21,60,000
= ₹ 30,40,000
So profit after depreciation and tax is ₹ (30,40,000 -11,50,000) × (1 - .40)
= ₹ 11,34,000
So profit before depreciation and after tax is :
₹ 11,34,000 + ₹ 11,50,000 (Depreciation added back) = ₹ 22,84,000
(ii)

						₹ ('000)
	0	1	2	3	4	5
NCF	(5850)	2284	2284	2284	2284	2499
PVF at 20%	1.00	0.8333	0.6944	0.5787	0.4823	0.4019
PV	(5850)	1903.257	1586.01	1321.751	1101.57	1004.35
PV of benefits	6916.94					
PVF at 30%	1.00	0.7692	0.5917	0.4550	0.3501	0.2693
PV	(5850)	1756.85	1351.44	1039.22	799.63	672.98
PV of benefits	5620.12					

IRR = 20% + 10% × $\frac{1066.94}{1296.82}$ = 28.23%

(iii) Advise: The Company should go ahead with replacement project, since it is positive NPV decision.

Question 18

Hindlever Company is considering a new product line to supplement its range of products. It is anticipated that the new product line will involve cash investments of ₹ 7,00,000 at time 0 and ₹ 10,00,000 in year 1. After-tax cash inflows of₹ 2,50,000 are expected in year 2, ₹ 3,00,000 in year 3, ₹ 3,50,000 in year 4 and₹ 4,00,000 each year thereafter through year 10. Although the product line might be viable even after year 10, the company prefers to be conservative and end all calculations at that time.

(a) If the required rate of return is 15 per cent, COMPUTE net present value ofthe project. Is it acceptable?

(b) ANALYSE what would be the case if the required rate of return were 10 percent?

(c) CALCULATE its internal rate of return.

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(d) **COMPUTE the project's payback period. (Same concept different figures MTP 7 Marks, Oct'19)**

Answer 18

a) Computation of NPV at 15% discount rate

Year	Cash flow	Discount Factor (15%)	Present value
	(₹)		(₹)
0	(7,00,000)	1.000	(7,00,000)
1	(10,00,000)	0.870	(8,70,000)
2	2,50,000	0.756	1,89,000
3	3,00,000	0.658	1,97,400
4	3,50,000	0.572	2,00,200
5 □ 10	4,00,000	2.163	8,65,200
Net Present Value			(1,18,200)

As the net present value is negative, the project is unacceptable.

b) Computation of NPV if discount rate would be 10% discount rate

Year	Cash flow	ount Factor (10%)	Present value
	(₹)		(₹)
0	(7,00,000)	1.000	(7,00,000)
1	(10,00,000)	0.909	(9,09,000)
2	2,50,000	0.826	2,06,500
3	3,00,000	0.751	2,25,300
4	3,50,000	0.683	2,39,050
5 □10	4,00,000	2.974	11,89,600
Net Present Value			2,51,450

Since NPV = ₹ 2,51,450 is positive, hence the project would be acceptable.

c) Calculation of IRR:

$$IRR \quad LR + \frac{NPV_{at}LR}{NPV_{at}LR - NPV_{at}HR}(HR - LR)$$

$$10\% + \frac{Rs.2,51,450}{Rs.2,51,450 - (-)1,18,200}(15\% - 10\%)$$

= 10% + 3.4012 or 13.40%

d) Computation of Pay-back period of the project:

Payback Period = 6 years:

- ₹ 7,00,000 ₹ 10,00,000 + ₹ 2,50,000 + ₹ 3,00,000 + ₹ 3,50,000 + ₹ 4,00,000 + ₹ 4,00,000 = 0

Question 19

An existing company has a machine which has been in operation for two years,

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its estimated remaining useful life is 4 years with no residual value in the end. Its current market value is Rs.3 lakhs. The management is considering a proposal to purchase an improved model of a machine gives increase output. The details are as under:

Particulars	Existing Machine	New Machine
Purchase Price	Rs.6,00,000	Rs.10,00,000
Estimated Life	6 years	4 years
Residual Value	0	0
Annual Operating days	300	300
Operating hours per day	6	6
Selling price per unit	Rs.10	Rs.10
Material cost per unit	Rs.2	Rs.2
Output per hour in units	20	40
Labour cost per hour	Rs.20	Rs.30
Fixed overhead per annum excluding depreciation	Rs.1,00,000	Rs.60,000
Working Capital	Rs.1,00,000	Rs.2,00,000
Income-tax rate	30%	30%

Assuming that - cost of capital is 10% and the company uses written down value of depreciation @ 20% and it has several machines in 20% block.

Advice the management on the Replacement of Machine as per the NPV method. The discounting factors table given below:

Discounting Factors	Year 1	Year 2	Year 3	Year 4
10%	0.909	0.826	0.751	0.683

(PYP 10 Marks, July'21)

Answer 19

i. **Calculation of Net Initial Cash Outflows**:

Particulars	Rs.
Purchase Price of new machine	10,00,000
Add: Net Working Capital	1,00,000
Less: Sale proceeds of existing machine	3,00,000
Net initial cash outflows	8,00,000

ii. **Calculation of annual Profit Before Tax and depreciation**

Particulars	Existing machine	New Machine	Differential
(1)	**(2)**	**(3)**	**(4) = (3) – (2)**
Annual output	36,000	72,000	36,000 units

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	units	units	
	Rs.	Rs.	Rs.
(A) Sales revenue @ Rs.10 per unit	3,60,000	7,20,000	3,60,000
(B) Cost of Operation			
Material @ Rs.2 per unit	72,000	1,44,000	72,000
Labour			
Old = 1,800 ×Rs.20	36,000		
New = 1,800 ×Rs.30		54,000	18,000
Fixed overhead excluding depreciation	1,00,000	60,000	(40,000)
Total Cost (B)	2,08,000	2,58,000	50,000
Profit Before Tax and depreciation (PBTD) (A – B)	1,52,000	4,62,000	3,10,000

iii. Calculation of Net Present value on replacement of machine

Yea	PBTD	Depreciate on @ 20% WDV	PBT	Tax @ 30%	PAT	Net cash flow	PVF @ 10%	PV
(1)	(2)	(3)	(4 = 2-3)	(5)	(6 = 4-5)	(7 = 6 + 3)	(8)	(9 = 7 x 8)
1	3,10,000	1,40,000	1,70,000	51,000	1,19,000	2,59,000	0.909	2,35,431.000
2	3,10,000	1,12,000	1,98,000	59,400	1,38,600	2,50,600	0.826	2,06,995.600
3	3,10,000	89,600	2,20,400	66,120	1,54,280	2,43,880	0.751	1,83,153.880
4	3,10,000	71,680	2,38,320	71,496	1,66,824	2,38,504	0.683	1,62,898.232
								7,88,478.712
Add: Release of net working capital at year end 4 (1,00,000 x 0.683)								68,300.000
Less: Initial Cash Outflow								8,00,000.000
NPV								56,778.712

Advice: Since the incremental NPV is positive, existing machine should be replaced.

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Working Notes:

1. **Calculation of Annual Output**

   Annual output = (Annual operating days' x Operating hours per day) x output per hour Existing machine = (300 x 6) x 20 = 1,800 x 20 = 36,000 units

   New machine= (300 x 6) x 40 = 1,800 x 40 = 72,000 units

2. Base for incremental depreciation

Particulars	₹
WDV of Existing Machine	
Purchase price of existing machine	6,00,000
Less: Depreciation for year 1 1,20,000	
Depreciation for Year 2 96,000	2,16,000
WDV of Existing Machine (I)	3,84,000
Depreciation base of New Machine	
Purchase price of new machine	10,00,000
Add: WDV of existing machine	3,84,000
Less: Sales value of existing machine	3,00,000
Depreciation base of New Machine (ii)	**10,84,000**
Base for incremental depreciation [(ii) – (I)]	**7,00,000**

(Note: The above solution has been done based on incremental approach)

Alternatively, solution can be done based on Total Approach as below:

(i) **Calculation of depreciation:**

Existing Machine						
	Year 1	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
Opening balance	6,00,000	4,80,000	3,84,000	3,07,200	2,45,760	1,96,608.00
Less: Depreciation @ 20%	1,20,000	96,000	76,800	61,440	49,152	39,321.60
WDV	4,80,000	3,84,000	3,07,200	2,45,760	1,96,608	1,57,286.40

New Machine				
	Year 1	Year 2	Year 3	Year 4
Opening balance	10,84,000 *	8,67,200	6,93,760	5,55,008.00

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Less: Depreciation @ 20%	2,16,800	1,73,440	1,38,752	1,11,001.60
WDV	8,67,200	6,93,760	5,55,008	4,44,006.40

* As the company has several machines in 20% block, the value of Existing Machine from the block calculated as below shall be added to the new machine of Rs.10,00,000:

WDV of existing machine at the beginning of the year Rs.3,84,000 Less: Sale Value of Machine Rs.3,00,0

00

WDV of existing machine in the block Rs.84,000

Therefore, opening balance for depreciation of block = Rs.10,00,000 + Rs.84,000 = Rs.10,84,000

(ii) **Calculation of annual cash inflows from operation:**

Particulars	**EXISTING MACHINE**			
	Year 3	**Year 4**	**Year 5**	**Year 6**
Annual output (300 operating days x 6 operating hours x 20 output per hour)	36,000 units	36,000 units	36,000 units	36,000 units
	₹	₹	₹	₹
(A) Sales revenue @ Rs.10 per unit	3,60,000.00	3,60,000.00	3,60,000.00	3,60,000.00
(B) Less: Cost of Operation				
Material @ Rs.2 per unit	72,000.00	72,000.00	72,000.00	72,000.00
Labour @ Rs.20 per hour for (300 x 6) hours	36,000.00	36,000.00	36,000.00	36,000.00
Fixed overhead	1,00,000.00	1,00,000.00	1,00,000.00	1,00,000.00
Depreciation	76,800.00	61,440.00	49,152.00	39,321.60
Total Cost (B)	2,84,800.00	2,69,440.00	2,57,152.00	2,47,321.60
Profit Before Tax (A – B)	75,200.00	90,560.00	1,02,848.00	1,12,678.40
Less: Tax @ 30%	22,560.00	27,168.00	30,854.40	33,803.52
Profit After Tax	52,640.00	63,392.00	71,993.60	78,874.88
Add: Depreciation	76,800.00	61,440.00	49,152.00	39,321.60
Add: Release of				

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Working Capital				1,00,000.00
Annual Cash Inflows	1,29,440.00	1,24,832.00	1,21,145.60	2,18,196.48

Particulars	NEW MACHINE			
	Year 1	**Year 2**	**Year 3**	**Year 4**
Annual output (300 operating days x 6 operating hours x 40 output per hour)	72,000 units	72,000 units	72,000 units	72,000 units
	₹	₹	₹	₹
(A) Sales revenue @ Rs.10 per unit	7,20,000.00	7,20,000.00	7,20,000.00	7,20,000.00
(B) Less: Cost of Operation				
Material @ Rs.2 per unit	1,44,000.00	1,44,000.00	1,44,000.00	1,44,000.00
Labour @ Rs.30 per hour for (300 x 6) hours	54,000.00	54,000.00	54,000.00	54,000.00
Fixed overhead	60,000.00	60,000.00	60,000.00	60,000.00
Depreciation	2,16,800.00	1,73,440.00	1,38,752.00	1,11,001.60
Total Cost (B)	**4,74,800.00**	**4,31,440.00**	**3,96,752.00**	**3,69,001.60**
Profit Before Tax (A – B)	2,45,200.00	2,88,560.00	3,23,248.00	3,50,998.40
Less: Tax @ 30%	73,560.00	86,568.00	96,974.40	1,05,299.52
Profit After Tax	**1,71,640.00**	**2,01,992.00**	**2,26,273.60**	**2,45,698.88**
Add: Depreciation	2,16,800.00	1,73,440.00	1,38,752.00	1,11,001.60
Add: Release of Working Capital				2,00,000.00
Annual Cash Inflows	**3,88,440.00**	**3,75,432.00**	**3,65,025.60**	**5,56,700.48**

(i) **Calculation of Incremental Annual Cash Flow:**

Particulars	Year 1 (₹)	Year 2 (₹)	Year 3 (₹)	ear 4 (₹)
Existing Machine (A)	1,29,440.00	1,24,832.00	1,21,145.60	,18,196.4
New Machine (B)	3,88,440.00	3,75,432.00	3,65,025.60	,56,700.4

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Incremental Annual Cash Flow (B – A)	2,59,000.00	2,50,600.00	2,43,880.00	,38,504.0

(ii) **Calculation of Net Present Value on replacement of machine:**

Year	Incremental Annual Cash Flow (₹) (A)	Discounting factor @ 10% (B)	Present Value of Incremental Annual Cash Flow (₹) (A x B)
1	2,59,000.00	0.909	2,35,431.000
2	2,50,600.00	0.826	2,06,995.600
3	2,43,880.00	0.751	1,83,153.880
4	3,38,504.00	0.683	2,31,198.232
Total Incremental Inflows			**8,56,778.712**
Less: Net Initial Cash Outflows (Working note)			8,00,000.000
Incremental NPV			**56,778.712**

Advice: Since the incremental NPV is positive, existing machine should be replaced.

Working Note:

Calculation of Net Initial Cash Outflows:

Particulars	₹
Cost of new machine	10,00,000
Less: Sale proceeds of existing machine	3,00,000
Add: incremental working capital required (Rs.2,00,000 – Rs.1,00,000)	1,00,000
Net initial cash outflows	8,00,000

Question 20

CK Ltd. is planning to buy a new machine. Details of which are as follows:

Cost of the Machine at the commencement	**Rs.2,50,000**
Economic Life of the Machine	**8 year**
Residual Value	**Nil**
Annual Production Capacity of the Machine	**1,00,000 units**
Estimated Selling Price per unit	**Rs.6**
Estimated Variable Cost per unit	**Rs.3**
Estimated Annual Fixed Cost	**Rs.1,00,000 (Excluding depreciation)**

Advertisement Expenses in 1st year in addition of annual fixed cost Rs.

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20,000
Maintenance Expenses in 5th year in addition of annual fixed cost Rs. 30,000
Cost of Capital12%
Ignore Tax.
Analyze the above mentioned proposal using the Net Present Value Method and advice.
P.V. factor @ 12% is as under:

Year	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
PV Factor	**0.893**	**0.797**	**0.712**	**0.636**	**0.567**	**0.507**	**0.452**	**0.404**

(PYP 5 Marks, Nov'20)

Answer 20

Calculation of Net Cash flows

Owners equity = 50% × Rs.10,00,000 = 0.203 or 20.3%

Contribution = (Rs.6 – Rs.3) ×1,00,000 units = Rs.3,00,000

Fixed costs (excluding depreciation) = Rs.1,00,000

Year	**Capital (₹)**	**Contribution (₹)**	**Fixed costs (₹)**	**Advertisement/ Maintenance expenses (₹)**	**Net cash flow (₹)**
0	(2,50,000)				(2,50,000)
1		3,00,000	(1,00,000)	(20,000)	1,80,000
2		3,00,000	(1,00,000)		2,00,000
3		3,00,000	(1,00,000)		2,00,000
4		3,00,000	(1,00,000)		2,00,000
5		3,00,000	(1,00,000)	(30,000)	1,70,000
6		3,00,000	(1,00,000)		2,00,000
7		3,00,000	(1,00,000)		2,00,000
8		3,00,000	(1,00,000)		2,00,000

Calculation of Net Present Value

Year	**Net cash flow (₹)**	**12% discount factor**	**Present value (₹)**
0	(2,50,000)	1.000	(2,50,000)

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1	1,80,000	0.893	1,60,740
2	2,00,000	0.797	1,59,400
3	2,00,000	0.712	1,42,400
4	2,00,000	0.636	1,27,200
5	1,70,000	0.567	96,390
6	2,00,000	0.507	1,01,400
7	2,00,000	0.452	90,400
8	2,00,000	0.404	80,800
			7,08,730

Advise: CK Ltd. should buy the new machine, as the net present value of the proposal is positive i.e. ₹ 7,08,730.

Question 21

Manoranjan Ltd is a News broadcasting channel having its broadcasting Centre in Mumbai. There are total 200 employees in the organisation including top management. As a part of employee benefit expenses, the company serves tea or coffee to its employees, which is outsourced from a third -party. The company offers tea or coffee three times a day to each of its employees. 120 employees prefer tea all three times, 40 employees prefer coffee all three times and remaining prefer tea only once in a day. The third-party charges ₹ 10 for each cup of tea and ₹ 15 for each cup of coffee. The company works for 200 days in a year. Looking at the substantial amount of expenditure on tea and coffee, the finance department has proposed to the management an installation of a master tea and coffee vending machine which will cost ₹ 10,00,000 with a useful life of five years. Upon purchasing the machine, the company will have to enter into an annual maintenance contract with the vendor, which will require a payment of ₹ 75,000 every year. The machine would require electricity consumption of 500 units p.m. and current incremental cost of electricity for the company is ₹ 12 per unit. Apart from these running costs, the company will have to incur the following consumables expenditure also:

(1) **Packets of Coffee beans at a cost of ₹ 90 per packet.**

(2) **Packet of tea powder at a cost of ₹ 70 per packet.**

(3) **Sugar at a cost of ₹ 50 per Kg.**

(4) **Milk at a cost of ₹ 50 per litre.**

(5) **Paper cup at a cost of 20 paise per cup.**

Each packet of coffee beans would produce 200 cups of coffee and same goes for tea powder packet. Each cup of tea or coffee would consist of 10g of sugar on an average and 100 ml of milk.

The company anticipate that due to ready availability of tea and coffee through vending machines its employees would end up consuming more tea and coffee. It estimates that the consumption will increase by on an average 20% for all

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class of employees. Also, the paper cups consumption will be 10% more than the actual cups served due to leakages in them.

The company is in the 25% tax bracket and has a current cost of capital at 12% per annum. Straight line method of depreciation is allowed for the purpose of taxation. You as a financial consultant is required to ADVISE on the feasibility of acquiring the vending machine.

PV factors @ 12%:

Year	1	2	3	4	5
PVF	0.8929	0.7972	0.7118	0.6355	0.5674

(MTP 10 Marks April 22)

Answer 21

A. Computation of CFAT (Year 1 to 5)

Particulars		Amount (₹)
(a) Savings in existing Tea & Coffee charges	(120 × 10 ×3) + (40 ×15 × 3) + (40 ×10 × 1) x 200 days	11,60,000
(b) AMC of machine		(75,000)
(c) Electricity charges	500 ×12 ×12	(72,000)
(d) Coffee Beans	(W.N.) 144 × 90	(12,960)
(e) Tea Powder	(W.N.) 480 × 70	(33,600)
(f) Sugar	(W.N.) 1248 × 50	(62,400)
(g) Milk	(W.N.) 12480 × 50	(6,24,000)
(h) Paper Cup	(W.N.) 1,37,280 × 0.2	(27,456)
(i) Depreciation	10,00,000/5	(2,00,000)
Profit before Tax		52,584
(-) Tax @ 25%		(13,146)
Profit after Tax		39,438
Depreciation		2,00,000
CFAT		2,39,438

B. Computation of NPV

Year	Particulars	CF	PVF @ 12%	PV
0	Cost of machine	(10,00,00)	1	(10,00,000)
1-5	CFAT	2,39,438	3.6048	8,63,126
Net Present Value				(1,36,874)

Since NPV of the machine is negative, it should not be purchased.

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Working Note:

Computation of Qty of consumable

No. of Tea Cups= [(120 × 3 × 200 days) + (40 × 1 × 200 days) × 1.2 = 96,000

No. of Coffee cups = 40 × 3 × 200 days × 1.2 = 28,800

No. of coffee beans packet = $\frac{28,800}{200}$ = 144

No. of Tea Powder packet = $\frac{96,000}{200}$ = 480

Qty of sugar = $\frac{(96,000+28,800)X10g}{1,000\ g}$ = 1248 kgs

Qty of Milk = $\frac{(96,000+28,800)X100\ ml}{1,000\ ml}$ = 12,480 liters

No. of paper cups = (96,000+28,000)X 1.1 = 1,37,280

Question 22

Four years ago, Z Ltd. had purchased a machine of ₹ 4,80,000 having estimated useful life of 8 years with zero salvage value. Depreciation is charged using SLM method over the useful life. The company want to replace this machine with a new machine. Details of new machine are as below:

- **Cost of new machine is ₹ 12,00,000, Vendor of this machine is agreed to take old machine at a value of ₹ 2,40,000. Cost of dismantling and removal of old machine will be ₹ 40,000. 80% of net purchase price will be paid on spot and remaining will be paid at the end of one year.**
- **Depreciation will be charged @ 20% p.a. under WDV method.**
- **Estimated useful life of new machine is four years and it has salvage value of ₹ 1,00,000 at the end of year four.**
- **Incremental annual sales revenue is ₹ 12,25,000.**
- **Contribution margin is 50%.**
- **Incremental indirect cost (excluding depreciation) is ₹ 1,18,750 per year.**
- **Additional working capital of ₹ 2,50,000 is required at the beginning of year and ₹ 3,00,000 at the beginning of year three. Working capital at the end of year four will be nil.**
- **Tax rate is 30%.**
- **Ignore tax on capital gain.**

Z Ltd. will not make any additional investment, if it yields less than 12% Advice, whether existing machine should be replaced or not.

Year	1	2	3	4	5
PVIF0.12, t	0.893	0.797	0.712	0.636	0.567

(PYP 10 Marks May '23)

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Answer 22

Working Notes:

(i) Calculation of Net Initial Cash Outflow

Particulars	**₹**
Cost of New Machine	12,00,000
Less: Sale proceeds of existing machine	2,00,000
Net Purchase Price	10,00,000
Paid in year 0	8,00,000
Paid in year 1	2,00,000

(ii) Calculation of Additional Depreciation

Year	**1**	**2**	**3**	**4**
	₹	₹	₹	₹
Opening WDV of machine	10,00,000	8,00,000	6,40,000	5,12,000
Depreciation on new machine @ 20%	2,00,000	1,60,000	1,28,000	1,02,400
Closing WDV	8,00,000	6,40,000	5,12,000	4,09,600
Depreciation on old machine (4,80,000/8)	60,000	60,000	60,000	60,000
Incremental depreciation	**1,40,000**	**1,00,000**	**68,000**	**42,400**

(iii) Calculation of Annual Profit before Depreciation and Tax (PBDT)

Particulars	**Incremental Values (₹)**
Sales	12,25,000
Contribution	6,12,500
Less: Indirect Cost	1,18,750
Profit before Depreciation and Tax (PBDT)	4,93,750

Calculation of Incremental NPV

Year	**PVF @ 12%**	**PBTD (₹)**	**Incremental Depreciation (₹)**	**PBT (₹)**	**Tax @ 30% (₹)**	**Cash Inflows (₹)**	**PV of Cash Inflows (₹)**
	(1)	**(2)**	**(3)**	**(4)**	**(5) = (4) x 0.30**	**(6) = (4) – (5) + (3)**	**(7) = (6) x (1)**

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1	0.893	4,93,750	1,40,000	3,53,750	106,125	3,87,625	3,46,149.125
2	0.797	4,93,750	1,00,000	3,93,750	1,18,125	3,75,625	2,99,373.125
3	0.712	4,93,750	68,000	4,25,750	1,27,725	3,66,025	2,60,609.800
4	0.636	4,93,750	42,400	4,51,350	1,35,405	3,58,345	2,27,907.420
			*			*	11,34,039.470
Add: PV of Salvage (₹ 1,00,000 x 0.636)							63,600
Less: Initial Cash Outflow - Year 0 Year 1 (₹ 2,00,000 × 0.893)							8,00,000 1,78,600
Less: Working Capital - Year 0 Year 2 (₹ 3,00,000 × 0.797)							2,50,000 2,39,100
Add: Working Capital released - Year 4 (₹ 5,50,000 × 0.636)							3,49,800
Incremental Net Present Value							79,739.470

Since the incremental NPV is positive, existing machine should be replaced.

Alternative Presentation

Computation of Outflow for new Machine:

	₹
Cost of new machine	12,00,000
Replaced cost of old machine	2,40,000
Cost of removal	40,000
Net Purchase price	10,00,000
Outflow at year 0	8,00,000
Outflow at year 1	2,00,000

Computation of additional deprecation

Year	**1**	**2**	**3**	**4**
	₹	**₹**	**₹**	**₹**
Opening WDV of machine	10,00,000	8,00,000	6,40,000	5,12,000
Depreciation on new machine @ 20%	2,00,000	1,60,000	1,28,000	1,02,400
Closing WDV	8,00,000	6,40,000	5,12,000	4,09,600
	60,000	60,000	60,000	60,000

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Depreciation on old machine (4,80,000/8) Incremental depreciation	1,40,000	1,00,000	68,000	42,400

Computation of NPV

	Year	0	1	2	3	4
		₹	₹	₹	₹	₹
1.	Increase in sales revenue		12,25,000	12,25,000	12,25,000	12,25,000
2.	Contribution		6,12,500	6,12,500	6,12,500	6,12,500
3.	Increase in fixed cost		1,18,750	1,18,750	1,18,750	1,18,750
4.	Incremental Depreciation		1,40,000	1,00,000	68,000	42,400
5.	Net profit before tax [1-(2+3+4)]		3,53,750	3,93,750	4,25,750	4,51,350
6.	Net Profit after tax (5 x 70%)		2,47,625	2,75,625	2,98,025	3,15,945
7.	Add: Incremental depreciation		1,40,000	1,00,000	68,000	42,400
8.	Net Annual cash inflows (6 + 7)		3,87,625	3,75,625	3,66,025	3,58,345
9.	Release of salvage value					1,00,000
10.	(investment)/disinvestment in working capital	(2,50,000)		(3,00,000)		5,50,000
11.	Initial cost	(8,00,000)	(2,00,000)			
12.	Total net cash flows	(10,50,000)	1,87,625.0	75,625	3,66,025	10,08,345
13.	Discounting Factor	1	0.893	0.797	0.712	0.636
14.	Discounted cash flows (12 x 13)	(10,50,000)	1,67,549.125	60,273.125	2,60,609.800	641307.420

NPV = (1,67,549 + 60,273 + 2,60,610 + 6,41,307) - 10,50,000 = ₹ 79,739

Since the NPV is positive, existing machine should be replaced.

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Question 23

MTR Limited is considering buying a new machine which would have a useful economic life of five years, at a cost of ₹25,00,000 and a scrap value of ₹3,00,000, with 80 per cent of the cost being payable at the start of the project and 20 per cent at the end of the first year. The machine would produce 75,000 units per annum of a new product with an estimated selling price of ₹300 per unit. Direct costs would be ₹285 per unit and annual fixed costs, including depreciation calculated on a straight- line basis, would be ₹8,40,000 per annum.

In the first year and the second year, special sales promotion expenditure, not included in the above costs, would be incurred, amounting to ₹1,00,000 and ₹1,50,000 respectively.

EVALUATE the project using the NPV method of investment appraisal, assuming the company's cost of capital to be 15 percent. (RTP Nov '19 & Nov '23)

Answer 23

Calculation of Net Cash flows

Contribution = (300 – 285) X 75,000 = ₹11,25,000

Fixed costs = 8,40,000 – [(25,00,000 – 3,00,000)/5] = ₹4,00,000

Year	Capital (₹)	Contribution (₹)	Fixed costs (₹)	Adverts (₹)	Net cash flow (₹)
0	(20,00,000)				(20,00,000)
1	(5,00,000)	11,25,000	(4,00,000)	(1,00,000)	1,25,000
2		11,25,000	(4,00,000)	(1,50,000)	5,75,000
3		11,25,000	(4,00,000)		7,25,000
4		11,25,000	(4,00,000)		7,25,000
5	3,00,000	11,25,000	(4,00,000)		10,25,000

Calculation of Net Present Value

Year	Net cash flow (₹)	12% discount factor	Present value (₹)
0	(20,00,000)	1.000	(20,00,000)
1	1,25,000	0.892	1,11,500
2	5,75,000	0.797	4,58,275
3	7,25,000	0.711	5,15,475
4	7,25,000	0.635	4,60,375
5	10,25,000	0.567	5,81,175

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			1,26,800

The net present value of the project is ₹1,26,800.

Question 24

AT Limited is considering three projects A, B and C. The cash flows associated with the projects are given below:

Cash flows associated with the Three Projects (₹)

Project	C0	C1	C2	C3	C4
A	(10,000)	2,000	2,000	6,000	0
B	(2,000)	0	2,000	4,000	6,000
C	(10,000)	2,000	2,000	6,000	10,000

You are required to:

(a) **Calculate the payback period of each of the three projects.**

(b) **If the cut-off period is two years, then which projects should be accepted?**

(c) **Projects with positive NPVs if the opportunity cost of capital is 10 percent.**

(d) **"Payback gives too much weight to cash flows that occur after the cut-off date". True or false?**

(e) **"If a firm used a single cut-off period for all projects, it is likely to accept too many short lived projects." True or false?**

(f) **P.V. Factor @ 10 %**

Year	0	1	2	3	4	5
P.V.	1.000	0.909	0.826	0.751	0.683	0.621

(PYP 10 Marks, May'19)

Answer 24

a) Payback Period of Projects

Projects	C0(₹)	C1(₹)	C2(₹)	C3(₹)	Payback
A	(10,000)	2000	2000	6,000	2,000+2,000+6,000 =10,000 i.e. 3 years
B	(2,000)	0	2,000	NA	0+2,000 = 2,000 i.e. 2 years
C	(10,000)	2000	2000	6,000	2,000+2,000+6,000 = 10,000 i.e. 3 years

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b) If standard payback period is 2 years, Project B is the only acceptable project.

c) Calculation of NPV

Year	PVF @ 10%	Project A		Project B		Project C	
		Cash Flows (₹)	PV of cash flows (₹)	Cash Flows (₹)	PV of cash flows (₹)	Cash Flows (₹)	PV of cash flows (₹)
0	1	(10,000)	(10,000)	(2,000)	(2,000)	(10,000)	(10,000)
1	0.909	2,000	1,818	0	0	2,000	1,818
2	0.826	2,000	1,652	2,000	1,652	2,000	1,652
3	0.751	6,000	4506	4,000	3004	6,000	4,506
4	0.683	0	0	6,000	4,098	10,000	6,830
NPV			(-2,024)		6,754		4,806

So, Projects with positive NPV are Project B and Project C

d) False. Payback gives no weightage to cash flows after the cut-off date.

e) True. The payback rule ignores all cash flows after the cutoff date, meaning that future years' cash inflows are not considered. Thus, payback is biased towards short-term projects.

Question 25

EXPLAIN the term 'Payback reciprocal'. (MTP 2 Marks April 22, RTP Nov '19)

Answer 25

Financial ratios provide clues but not conclusions. These are tools only in the hands of experts because there is no standard ready-made interpretation of financial ratios As the name indicates it is the reciprocal of payback period. A major drawback of the payback period method of capital budgeting is that it does not indicate any cut of f period for the purpose of investment decision. It is, however, argued that the reciprocal of the payback would be a close approximation of the Internal Rate of Return (later discussed in detail) if the life of the project is at least twice the payback period and the project generates equal amount of the annual cash inflows. In practice, the payback reciprocal is a helpful tool for quickly estimating the rate of return of a project provided its life is at least twice the payback period.

The payback reciprocal can be calculated as follows:

$$\text{Payback Reciprocal} = \frac{Average\ annual\ cash\ in\ flow}{initial\ investment}$$

Question 26

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Explain the limitations of Average Rate of Return. (PYP 2 Marks, July'21)

Answer 26

Limitations of Average Rate of Return

- The accounting rate of return technique, like the payback period technique, ignores the **time value of money** and considers the value of all cash flows to be equal.
- The technique uses accounting numbers that are dependent on the organization's **choice of accounting procedures**, and different accounting procedures, e.g., depreciation methods, can lead to substantially different amounts for an investment's net income and book values.
- The method **uses net income rather than cash flows;** while net income is a useful measure of profitability, the net cash flow is a better measure of an investment's performance.
- Furthermore, inclusion of only the book value of the invested asset **ignore**s the fact that a project can require **commitments of working capital** and other outlays that are not included in the book value of the project.

Question 27

A company is considering the proposal of taking up a new project which requires an investment of ₹800 lakhs on machinery and other assets. The project is expected to yield the following earnings (before depreciation and taxes) over the next five years:

Year	Earnings (₹ in lakhs)
1	320
2	320
3	360
4	360
5	300

The cost of raising the additional capital is 12% and assets have to be depreciated at 20% on written down value basis. The scrap value at the end of the five year period may be taken as zero. Income-tax applicable to the company is 40%.

You are required to CALCULATE the net present value of the project and advise the management to take appropriate decision. Also CALCULATE the Internal Rate of Return of the Project.

Note: Present values of Re. 1 at different rates of interest are as follows:

(RTP May '20)

Year	10%	12%	14%	16%	20%
1	0.91	0.89	0.88	0.86	0.83
2	0.83	0.80	0.77	0.74	0.69
3	0.75	0.71	0.67	0.64	0.58

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4	**0.68**	**0.64**	**0.59**	**0.55**	**0.48**
5	**0.62**	**0.57**	**0.52**	**0.48**	**0.40**

Answer 27

(i) Calculation of Net Cash Flow

(₹ in lakhs)

Year	Profit before dep. and tax	Depreciation (20% on WDV)	PBT	PAT	Net cash flow
(1)	(2)	(3)	(4)	(5)	(3) + (5)
1	320	800 X 20% = 160	160	96	256
2	320	(800 - 160)X 20% = 128	192	115.20	243.20
3	360	(640 - 128)X 20% = 102.4	257.6	154.56	256.96
4	360	(512 - 102.4)X 20% = 81.92	278.08	166.85	248.77
5	300	(409.6 - 81.92) = 327.68*	-27.68	-16.61	311.07

*this is treated as a short term capital loss.

(ii) Calculation of Net Present Value (NPV)

(₹ in lakhs)

Year	Net Cash Flow	12 %		16 %		20 %	
		D.F	P.V	D.F	P.V	D.F	P.V
1	256	0.89	227.84	0.86	220.16	0.83	212.48
2	243.20	0.80	194.56	0.74	179.97	0.69	167.81
3	256.96	0.71	182.44	0.64	164.45	0.58	149.03
4	248.77	0.64	159.21	0.55	136.82	0.48	119.41
5	311.07	0.57	177.31	0.48	149.31	0.40	124.43
			941.36		850.71		773.16
	Less: Initial Investment		800.00		800.00		800.00
		NPV	141.36		50.71		-26.84

(iii) **Advise:** Since Net Present Value of the project at 12% = 141.36 lakhs, therefore the project should be implemented.

(iv) **Calculation of Internal Rate of Return (IRR)**

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$$IRR = 16\% + \frac{50.71X4}{50.71-(-26.84)}$$
$$=16\% + \frac{2.03}{77.55} = 16\%+2.62\% = 18.62\%$$

Question 28

Explain any two steps involved in Decision Tree Analysis. (PYP 2 Marks, May'19)

Answer 28

Steps involved in Decision Tree analysis:

Step 1- Define Investment: Decision three analysis can be applied to a variety of business decision-making scenarios.

Step 2- Identification of Decision Alternatives: It is very essential to clearly identity decision alternatives. For example, if a company is planning to introduce a new product, it may be local launch, national launch or international launch.

Step 3- Drawing a Decision Tree: After identifying decision alternatives, at the relevant data such as the projected cash flows, probability distribution expected present value etc. should be put in diagrammatic form called decision tree.

Step 4- Evaluating the Alternatives: After drawing out the decision the next step is the evaluation of alternatives.

Question 29

You are a financial analyst of B Limited. The director of finance has asked you to analyses two capital investments proposals, Projects X and Y. Each project has a cost of ₹10,000 and the cost of capital for each project is 12 per cent. The project's expected net cash flows are as follows:

Year	Expected net cash flows	
	Project X (₹)	Project Y (₹)
0	(10,000)	(10,000)
1	6,500	3,500
2	3,000	3,500
3	3,000	3,500
4	1,000	3,500

(i) **CALCULATE each project's payback period, net present value (NPV) and internal rate of return (IRR).**

(ii) **DETERMINE, which project or projects should be accepted if they are independent? (MTP 10 Marks, March'18)**

Answer 29

I) Payback Period Method

The cumulative cash flows for each project are as follows:

Year	Cumulative Cash Flows	
	Project X (₹)	Project Y (₹)
0	(10,000)	(10,000)

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1	(3,500)	(6,500)
2	(500)	(3,000)
3	2,500	500
4	3,500	4,000

$Payback_x = 2 + \frac{Rs.500}{RS.3000} = 2.17$ years

$Payback_y = \frac{Rs.3000}{RS.3500}$ X 2.86 years.

Net Present Value (NPV)

NPV_x**=-RS.1000+** $\frac{Rs6500}{(1.12)^1} + \frac{Rs.3000}{(1.12)^2} + \frac{Rs3000}{(1.12)^3} + \frac{Rs.1000}{(1.12)^4}$

= Rs.630.72

Internal Rate of Return (IRR)

To solve for each project's IRR, find the discount rates that equate each NPV to zero:

IRRx = 18.0%.

IRRy = 15.0%.

(ii) The following table summarizes the project rankings by each method:

	Project that ranks higher
Payback	X
NPV	X
IRR	X

Analysis: All methods rank Project X over Project Y. In addition, both projects are acceptable under the NPV and IRR criteria. Thus, both projects should be accepted if they are independent.

Question 30

A company is evaluating a project that requires initial investment of Rs.60 lakhs in fixed assets and Rs.12 lakhs towards additional working capital.

The project is expected to increase annual real cash inflow before taxes by Rs.24,00,000 during its life. The fixed assets would have zero residual value at the end of life of 5 years. The company follows straight line method of depreciation which is expected for tax purposes also. Inflation is expected to be 6% per year. For evaluating similar projects, the company uses discounting rate of 12% in real terms. Company's tax rate is 30%. Advise whether the company should accept the project, by calculating NPV in real terms.

PVIF (12%, 5 years)		**PVIF (12%, 5 years)**	
Year 1	0.893	Year 1	0.943
Year 2	0.797	Year 2	0.890
Year 3	0.712	Year 3	0.840
Year 4	0.636	Year 4	0.792

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Year 5	0.567	Year 5	0.747

(PYP 10 Marks May '18)

Answer 30

(i) Equipment's initial cost = Rs.60,00,000 + Rs.12,00,000

= ₹ 72,00,000

(ii) Annual straight line depreciation = Rs.60,00,000/5

= Rs.12,00,000.

(iii) Net Annual cash flows can be calculated as follows:

= Before Tax CFs × (1 – Tc) + Tc × Depreciation (Tc = Corporate tax i.e. 30%)

= Rs.24,00,000 × (1 – 0.3) + (0.3 x Rs.12,00,000)

= Rs.16,80,000 + Rs.3,60,000 = Rs.20,40,000

So, Total Present Value = PV of inflow + PV of working capital released

= (Rs.20,40,000 × PVIF 12%, 5 years) + (Rs.12,00,000 × 0.567)
= (Rs.20,40,000 × 3.605) + Rs.6,80,400
= ₹ 73,54,200 + Rs.6,80,400
= Rs.80,34,600
So NPV = PV of Inflows – Initial Cost
= Rs.80,34,600 – ₹ 72,00,000
= Rs.8,34,600

Advice: Company should accept the project as the NPV is Positive

Question 31

A company has to make a choice between two projects namely A and B. The initial capital outlay of two Projects are Rs.1,35,00,000 and Rs.2,40,00,000 respectively for A and B. There will be no scrap value at the end of the life of both the projects. The opportunity cost of capital of the company is 16%. The annual incomes are as under:

Year	Project A	Project B	Discounting factor @ 16%
1	--	60,00,000	0.862
2	30,00,000	84,00,000	0.743
3	1,32,00,000	96,00,000	0.641
4	84,00,000	1,02,00,000	0.552
5	84,00,000	90,00,000	0.476

You are required to CALCULATE for each project:
(i) **Discounted payback period**
(ii) **Profitability index**
(iii) **Net present value (MTP 10 Marks, Aug'18, RTP May '18)**

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Answer 31

(1) Computation of Net Present Values of Projects (Amount in Rest. '000)

Year	Cash flows		Discount factor @ 16 %	Discounted Cash flow	
	Project A (Rs.)	Project B (Rs.)		Project A (Rs.)	Project B (Rs.)
	(1)	(2)	(3)	(3) × (1)	(3) × (2)
0	(13,500)	(24,000)	1.000	(13,500)	(24,000)
1	--	6,000	0.862	--	5,172
2	3,000	8,400	0.743	2,229	6,241.2
3	13,200	9,600	0.641	8,461.2	6,153.6
4	8,400	10,200	0.552	4,636.8	5,630.4
5	8,400	9,000	0.476	3,998.4	4,284
Net present value				5,825.4	3,481.2

(2) Computation of Cumulative Present Values of Projects Cash inflows (Amount in Rs. '000)

Year	Project A		Project B	
	PV of cash inflows (Rs.)	Cumulative PV (Rs.)	PV of cash inflows (Rs.)	Cumulative PV (Rs.)
1	--	--	5,172	51,72
2	2,229	22,29	6,241.2	11,413.2
3	8,461.2	10,690.2	6,153.6	17,566.8
4	4,636.8	15,327	5,630.4	23,197.2
5	3,998.4	19,325.4	4,284	27,481.2

(i) Discounted payback period: (Refer to Working note 2)

Cost of Project A = Rs.1,35,00,000 Cost of Project B = Rs.2,40,00,000

Cumulative PV of cash inflows of Project A after 4 years = Rs.1,53,27,000

Cumulative PV of cash inflows of Project B after 5 years = Rs.2,74,81,200

A comparison of projects cost with their cumulative PV clearly shows that the project A's cost will be recovered in less than 4 years and that of project B in less than 5 years. The exact duration of discounted payback period can be computed as follows:

	Project A	Project B
Excess PV of cash inflows over the project cost (Rs.)	18,27,000 (Rs.1,53,27,000 - Rs.1,35,00,000)	34,81,200 (Rs. 2,74,81,200 - Rs.2,40,00,000)
Computation of period required to recover excess amount of cumulative PV over project cost (Refer to Working note 2)	0.39 year (Rs. 18,27,000 ÷ Rs.46,36,800)	0.81 years (Rs.34,81,200 ÷ Rs. 42,84,000)

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Discounted paybac k period	3.61 year (4 -0.39) years	4.19 years (5 -0.81) years

Profitability Index= $=\frac{\text{Sum of discounted cash in flows}}{\text{intian cash outly}}$

Profitability Index (for Project A)=$\frac{\text{Rs.1,9,32,5400}}{\text{Rs.1,35,00,000}}$=1.43

Profitability Index (for Project B)=$\frac{\text{Rs.2,74,81,200}}{\text{Rs.2,40,00,000}}$=1.15

(i) **Net present value** (for Project A) = Rs.58,25,400 (Refer to Working note 1)
Net present value (for Project B) = Rs.34,81,200

Question 32

A company wants to buy a machine, and two different models namely A and B are available. Following further particulars are available:

Particulars	Machine-A	Machine-B
Original Cost (₹)	**8,00,000**	**6,00,000**
Estimated Life in years	**4**	**4**
Salvage Value (₹)	**0**	**0**

The company provides depreciation under Straight Line Method. Income tax rate applicable is 30%.
The present value of Rs.1 at 12% discounting factor and net profit before depreciation and tax are as under:

Year	Net Profit Before Depreciation and tax		PV Factor
	Machine-A ₹	Machine-B ₹	
1.	2,30,000	1,75,000	0.893
2.	2,40,000	2,60,000	0.797
3.	2,20,000	3,20,000	0.712
4.	5,60,000	1,50,000	0.636

Calculate:

1. **NPV (Net Present Value)**
2. **Discounted pay-back period**

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3. **PI (Profitability Index)**

   Suggest: Purchase of which machine is more beneficial under Discounted pay-back period method, NPV method and PI method. (PYP 10 Marks, Jan'21)

Answer 32

Workings:

(i) Calculation of Annual Depreciation

Depreciation on Machine – A = $\frac{Rs.8,00,000}{4}$ =2,00,000

Depreciation on Machine – B = $\frac{Rs.8,00,000}{4}$ == Rs.1,50,000

(ii) Calculation of Annual Cash Inflows

Particulars	**Machine-A (₹)**			
	1	**2**	**3**	**4**
Net Profit before Depreciation and Tax	2,30,000	2,40,000	2,20,000	5,60,000
Less: Depreciation	2,00,000	2,00,000	2,00,000	2,00,000
Profit before Tax	30,000	40,000	20,000	3,60,000
Less: Tax @ 30%	9,000	12,000	6,000	1,08,000
Profit after Tax	21,000	28,000	14,000	2,52,000
Add: Depreciation	2,00,000	2,00,000	2,00,000	2,00,000
Annual Cash Inflows	**2,21,000**	**2,28,000**	**2,14,000**	**4,52,000**

Particulars	**Machine-B (₹)**			
	1	**2**	**3**	**4**
Net Profit before Depreciation and Tax	1,75,000	2,60,000	3,20,000	1,50,000
Less: Depreciation	1,50,000	1,50,000	1,50,000	1,50,000
Profit before Tax	25,000	1,10,000	1,70,000	0
Less: Tax @ 30%	7,500	33,000	51,000	0
Profit after Tax	17,500	77,000	1,19,00	0

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			0	
Add: Depreciation	1,50,00 0	1,50,000	1,50,00 0	1,50,000
Annual Cash Inflows	**1,67,50 0**	**2,27,000**	**2,69,0 00**	**1,50,000**

(i) Calculation of PV of Cash Flows

	Machine – A				Machine - B		
Year	**PV of Re 1 @ 12%**	**Cash flow (₹)**	**PV (₹)**	**Cumulative PV (₹)**	**Cash flow (₹)**	**PV (₹)**	**Cumulative PV (₹)**
1	0.893	2,21,0 00	1,97,35 3	1,97,35 3	1,67,5 00	1,49,5 78	1,49,578
2	0.797	2,28,0 00	1,81,71 6	3,79,06 9	2,27,0 00	1,80,9 19	3,30,497
3	0.712	2,14,0 00	1,52,36 8	5,31,43 7	2,69,0 00	1,91,5 28	5,22,025
4	0.636	4,52,0 00	2,87,47 2	8,18,90 9	1,50,00 0	95,40 0	6,17,425

1. **NPV (Net Present Value) Machine – A**

NPV = Rs.8,18,909 - Rs.8,00,000 = Rs. 18,909

Machine – B

NPV = Rs.6,17,425 – Rs.6,00,000 = Rs. 17,425

2. **Discounted Payback Period**

Machine – A

Discounted Payback Period=3+$\frac{\text{Rs.8,00,000} - \text{₹ 5,31,437}}{\text{Rs.2,87,472}}$

= 3 + 0.934

= 3.934 years or 3 years 11.21 months

Machine – B

Discounted Payback Period=3+$\frac{\text{Rs.6,00,000} - \text{₹ 5,22,025}}{\text{Rs.95,400}}$

= 3 + 0.817

= 3.817 years or 3 years 9.80 months

3. **PI (Profitability Index)**

Machine – A

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Profitability Index = $\frac{Rs.8,18,909}{Rs.8,00,000}$ = 1.024

Machine – B

Profitability Index = $\frac{Rs.6,17,425}{Rs.6,00,000}$ = 1.029

Suggestion:

Method	Machine - A	Machine - B	Suggested Machine
Net Present Value	Rs.18,909	Rs.17,425	**Machine A**
Discounted Payback Period	3.934 years	3.817 years	**Machine B**
Profitability Index	1.024	1.029	**Machine B**

Question 33

STATE Modified Internal Rate of Return method. (MTP 2 Marks, March'18)

Answer 33

Modified Internal Rate of Return (MIRR): There are several limitations attached with the concept of the conventional Internal Rate of Return. The MIRR addresses some of these deficiencies. For example, it eliminates multiple IRR rates; it addresses the reinvestment rate issue and produces results, which are consistent with the Net Present Value method.

Under this method, all cash flows, apart from the initial investment, are brought to the terminal value using an appropriate discount rate (usually the cost of capital). This results in a single stream of cash inflow in the terminal year. The MIRR is obtained by assuming a single outflow in the zeroth year and the terminal cash inflow as mentioned above. The discount rate which equates the present value of the terminal cash in flow to the zeroth year outflow is called the MIRR.

Question 34

PD Ltd. an existing company, is planning to introduce a new product with projected life of 8 years. Project cost will be Rs.2,40,00,000. At the end of 8 years no residual value will be realized. Working capital of Rs.30,00,000 will be needed. The 100% capacity of the project is 2,00,000 units p.a. but the Production and Sales Volume is expected are as under:

Year	Number of Units
1	**60,000 units**
2.	**80,000 units**
3-5	**1,40,000 units**
6-8	**1,20,000 units**

Other Information:

(i) **Selling price per unit Rs.200**

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(ii) **Variable cost is 40 of sales.**

(iii) **Fixed cost p.a. Rs.30,00,000.**

(iv) **In addition to these advertisement expenditures will have to be incurred as under:**

Year	1	2	3-5	6-8
Expenditure (₹)	50,00,000	25,00,000	10,00,000	5,00,000

(v) **Income Tax is 25%.**

(vi) **Straight line method of depreciation is permissible for tax purpose.**

(vii) **Cost of capital is 10%.**

(viii) **Assume that loss cannot be carried forward.**

Present Value Table

Year	1	2	3	4	5	6	7	8
PVF@ 10	0.909	0.826	0.751	0.683	0.621	0.564	0.513	0.467

Advise about the project acceptability. (PYP 10 Marks, Nov'18)

Answer 34

Computation of initial cash outlay (COF)

	(₹ in lakhs)
Project Cost	240
Working Capital	30
	270

Calculation of Cash Inflows(CIF):

Years	1	2	3-5	6-8
Sales in units	60,000	80,000	1,40,000	1,20,000
	₹	₹	₹	₹
Contribution (Rs.200 x 60% x No. of Unit)	72,00,000	96,00,000	1,68,00,000	1,44,00,000
Less: Fixed cost	30,00,000	30,00,000	30,00,000	30,00,000
Less: Advertisement	50,00,000	25,00,000	10,00,000	5,00,000
Less: Depreciation (24000000/8) = 30,00,000	30,00,000	30,00,000	30,00,000	30,00,000
Profit /(loss)	(38,00,000)	11,00,000	98,00,000	79,00,000
Less: Tax @ 25%	NIL	2,75,000	24,50,000	19,75,000
Profit/(Loss) after tax	(38,00,000)	8,25,000	73,50,000	59,25,000
Add: Depreciation	30,00,000	30,00,000	30,00,000	30,00,000

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Cash inflow	(8,00,000)	38,25,000	1,03,50,000	89,25,000

(Note: Since variable cost is 40%, Contribution shall be 60% of sales)

Computation of PV of CIF

Year	CIF ₹	PV Factor @ 10%	₹
1	(8,00,000)	0.909	(7,27,200)
2	38,25,000	0.826	31,59,450
3	1,03,50,000	0.751	77,72,850
4	1,03,50,000	0.683	70,69,050
5	1,03,50,000	0.621	64,27,350
6	89,25,000	0.564	50,33,700
7	89,25,000	0.513	45,78,525
8 Working Capital	89,25,000 30,00,000	0.467	55,68,975
			3,88,82,700
	PV of COF		2,70,00,000
		NPV	1,18,82,700

Recommendation: Accept the project in view of positive NPV.

Question 35

DISTINGUISH between Net Present Value and Internal Rate of Return. (MTP 4 Marks Oct'22)

Answer 35

NPV versus IRR: NPV and IRR methods differ in the sense that the results regarding the choice of an asset under certain circumstances are mutually contradictory under two methods. In case of mutually exclusive investment projects, in certain situations, they may give contradictory results such that if the NPV method finds one proposal acceptable, IRR favours another. The different rankings given by the NPV and IRR methods could be due to size disparity problem, time disparity problem and unequal expected lives.

The net present value is expressed in financial values whereas internal rate of return (IRR) is expressed in percentage terms.

In the net present value cash flows are assumed to be re-invested at cost of capital rate. In IRR reinvestment is assumed to be made at IRR rates.

Question 36

Define Internal Rate of Return (IRR) (PYP 2 Marks, Jan'21)

Answer 36

Internal rate of return: Internal rate of return for an investment proposal is the discount rate that equates the present value of the expected cash inflows with the

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initial cash outflow.

Question 37

ABC Ltd. is considering a project "X" with an initial outlay of Rs.16,00,000 and the possible three cash inflow attached with the project is as follows:)

(Amount in ₹ '000)

Particular	Year 1	Year 2	Year 3
Scenario 1	550	500	800
Scenario 2	650	550	900
Scenario 3	750	600	1000

Assuming the cost of capital as 9%.

(i) **DETERMINE NPV in each scenario.**

(ii) **If ABC Ltd. is certain about the 1set and 2ND year's results in scenario 2 but uncertain about the third year's cash flow, DETERMINE NPV expecting scenario 1 in the third year.**

Year	1	2	3
DF @ 9%	0.917	0.842	0.772

[MTP 5 Marks, Oct'20]

Answer 37

(I) The possible outcomes under different scenario will be as follows:

(Amount in ₹ '000)

Year	PVF @ 9%	Scenario 1		Scenario 2		Scenario 3	
		Cash Flow	PV	Cash Flow	PV	Cash Flow	PV
0	1.000	(1600)	(1600)	(1600)	(1600)	(1600)	(1600)
1	0.917	550.00	504.35	650.00	596.05	750.00	687.75
2	0.842	500.00	421.00	550.00	463.10	600.00	505.20
3	0.772	800.00	617.60	900.00	694.80	1000.00	772.00
NPV			(57.05)		153.95		364.95

(ii) The company is bit confident about the estimates in the first two years, but not sure about the third year's cash inflow, the NPV in such case expecting scenario 1 in the third year will be as follows:

= -16,00,000 + (6,50,000 × 0.917 + 5,50,000 × 0.842 + 8,00,000 × 0.772)

= -16,00,000 + (5,96,050 + 4,63,100 + 6,17,600)

= ₹ 76,750

Question 38

What do you UNDERSTAND by desirability factor/profitability index? (MTP 2

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Marks Oct'22)

Answer 38

Desirability Factor/Profitability Index

In certain cases, we have to compare a number of proposals each involving different amount of cash inflows. One of the methods of comparing such proposals is to work out what is known as the 'Desirability factor' or 'Profitability index'. In general terms, a project is acceptable if its profitability index value is greater than

Mathematically, the desirability factor is calculated as below:

$$\frac{\text{Sum of Discounted Cashinflows}}{\text{Initial Cash outlay or Total Discounted Cash outflow (as the case may be)}}$$

Question 39

X Limited is considering to purchase of new plant worth Rs. 80,00,000. The expected net cash flows after taxes and before depreciation are as follows:

Year	Net Cash Flows (Rs.)
1	14,00,000
2	14,00,000
3	14,00,000
4	14,00,000
5	14,00,000
6	16,00,000
7	20,00,000
8	30,00,000
9	20,00,000
10	8,00,000

The rate of cost of capital is 10%. You are required to CALCULATE

(i) **Pay-back period**

(ii) **Net present value at 10 discount factor**

(iii) **Profitability index at 10 discount factor**

(iv) **Internal rate of return with the help of 10% and 15% discount factor The following present value table is given for you:**

Year	Present value of Rs. 1 at 10% discount rate	Present value of Rs. 1 at 15% discount rate
1	.909	.870
2	.826	.756

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3	.751	.658
4	.683	.572
5	.621	.497
6	.564	.432
7	.513	.376
8	.467	.327
9	.424	.284
10	.386	.247

(MTP 10 Marks, Oct'18)

Answer 39

(i) Calculation of Pay-back Period

Cash Outlay of the Project = Rs. 80,00,000
Total Cash Inflow for the first five years = Rs. 70,00,000

Balance of cash outlay left to be paid back in the 6th year Rs. 10,00,000

Cash inflow for 6th year = 16,00,000

So the payback period is between 5th and 6th years, i.e., 5 Years + Rs.10,00,000 / Rs.6,00,000

= 5.625 years or 5 years 7.5 months

(ii) Calculation of Net Present Value (NPV) @10% discount rate:

Year	Net Cash Inflow (Rs.)	Present Value at Discount Rate of 10%	Present Value (Rs.)
	(a)	(b)	(c) = (a) × (b)
1	14,00,000	0.909	12,72,600
2	14,00,000	0.826	11,56,400
3	14,00,000	0.751	10,51,400
4	14,00,000	0.683	9,56,200
5	14,00,000	0.621	8,69,400
6	16,00,000	0.564	9,02,400
7	20,00,000	0.513	10,26,000
8	30,00,000	0.467	14,01,000
9	20,00,000	0.424	8,48,000
10	8,00,000	0.386	3,08,800
			97,92,200

Net Present Value (NPV) = Cash Outflow – Present Value of Cash Inflows
= Rs. 80,00,000 – Rs. 97,92,200 = 17,92,200

(iii) Calculation of Profitability Index @ 10% discount rate:

Profitability Index

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$$= \frac{\text{Present Value of Cash inflows}}{\text{Cost of the investment}}$$

$$= \frac{\text{Rs.97,92,200}}{\text{Rs.80,00,000}} = \mathbf{1.224}$$

(iv) Calculation of Internal Rate of Return:

Net present value @ 10% interest rate factor has already been calculated in (ii) above, we will calculate Net present value @15% rate factor.

Year	Net Cash Inflow (Rs.)	Present Value at Discount Rate of 15%	Present Value (Rs.)
	(a)	(b)	(c) = (a)× (b)
1	14,00,000	0.870	12,18,000
2	14,00,000	0.756	10,58,400
3	14,00,000	0.658	9,21,200
4	14,00,000	0.572	8,00,800
5	14,00,000	0.497	6,95,800
6	16,00,000	0.432	6,91,200
7	20,00,000	0.376	7,52,000
8	30,00,000	0.327	9,81,000
9	20,00,000	0.284	5,68,000
10	8,00,000	0.247	1,97,600
			78,84,000

Net Present Value at 15% = Rs. 78,84,000 – Rs. 80,00,000 = Rs. -1,16,000

As the net present value @ 15% discount rate is negative, hence internal rate of return falls in between 10% and 15%. The correct internal rate of return can be calculated as follows:

$$\text{IRR} = L + \frac{NPV_L}{NPV_L - NPV_H}(H-L)$$

$$10\% + \frac{\text{Rs.17,92,200}}{\text{Rs.17,92,200} - (-\text{Rs.1,16,000})}(15\% - 10\%)$$

$$= 10\% = \frac{\text{Rs.17,92,200}}{\text{Rs.19,08,200}} \times 5\% = 14.7\%$$

Question 40

Identify the limitations of Internal Rate of Return. (PYP 4 Marks May'22)

Answer 40

Limitations of Internal Rate of Return (IRR)

- The calculation process is tedious if there is more than one cash outflow interspersed between the cash inflows; there can be multiple IRR, the interpretation of which is difficult.

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- The IRR approach creates a peculiar situation if we compare two projects with different inflow/outflow patterns.
- It is assumed that under this method all the future cash inflows of a proposal are reinvested at a rate equal to the IRR. It ignores a firm's ability to re-invest in portfolio of different rates.
- If mutually exclusive projects are considered as investment options which have considerably different cash outlays. A project with a larger fund commitment but lower IRR contributes more in terms of absolute NPV and increases the shareholders' wealth. In such situation decisions based only on IRR criterion may not be correct.

Question 41

X Ltd. is considering to select a machine out of two mutually exclusive machines. The company's cost of capital is 15 per cent and corporate tax rate is 30 per cent. Other information relating to both machines is as follows:

Machine – I	**Machine – II**	
Cost of Machine	**Rs. 30,00,000**	**Rs. 40,00,000**
Expected Life	**10 years.**	**10 years.**
Annual Income		
(Before Tax and Depreciation)	**Rs. 12,50,000**	**Rs. 17,50,000**

Depreciation is to be charged on straight line basis:

You are required to CALCULATE:

(i) **Discounted Pay Back Period**

(ii) **Net Present Value**

(iii) **Profitability Index**

The present value factors of Re.1 @ 15% are as follows: [MTP 10 Marks, Mach'19]

Year	**01**	**02**	**03**	**04**	**05**
PV factor @ 15%	**0.870**	**0.756**	**0.658**	**0.572**	**0.497.**

Answer 41

Working Notes:

Depreciation on Machine-I=$\frac{30,00,000}{10}$=Rs.3,00,000

Depreciation on Machine-II=$\frac{40,00,000}{10}$=Rs.4,00,000

Particulars	**Machine-I (Rs.)**	**Machine – II (Rs.)**
Annual Income (before Tax and Depreciation)	12,50,000	17,50,000
Less: Depreciation	3,00,000	4,00,000
Annual Income (before Tax)	9,50,000	13,50,000
Less: Tax @ 30%	(2,85,000)	(4,05,000)
Annual Income (after Tax)	6,65,000	9,45,000
Add: Depreciation	3,00,000	4,00,000

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Annual Cash Inflows	9,65,000	13,45,000
	Machine – I	Machine - II

Year	PV of Re 1 @ 15%	Cash flow	PV	Cumulative PV	Cash flow	PV	Cumulative PV
1	0.870	9,65,000	8,39,550	8,39,550	13,45,000	11,70,150	11,70,150
2	0.756	9,65,000	7,29,540	15,69,090	13,45,000	10,16,820	21,86,970
3	0.658	9,65,000	6,34,970	22,04,060	13,45,000	8,85,010	30,71,980
4	0.572	9,65,000	5,51,980	27,56,040	13,45,000	7,69,340	38,41,320
5	0.497	9,65,000	4,79,605	32,35,645	13,45,000	6,68,465	45,09,785

(i) Discounted Payback Period

Machine – I

Discounted Payback Period= $4 + \frac{(3,00,00-27,56,040)}{4,79,605}$

$=4+\frac{2,43,960}{4,79,605}$== 4 + 0.5087 = 4.5087 years or 4 years 6.10 months

Machine – II

Discounted Payback Period=$4 + \frac{(40,00,000-38,41,320)}{6,68,465}$

$4 + \frac{\mathbf{1,58,680}}{\mathbf{6,68,465}}$

= 4 + 0.2374= 4.2374 years or 4 years 2.85 months

(ii) Net Present Value (NPV)

Machine – I

NPV = 32,35,645 – 30,00,000 = Rs. 2,35,645

Machine – II

NPV = 45,09,785 – 40,00,000 = Rs. 5,09,785

(iii) Profitability Index

Machine – I

Profitability Index=$\frac{32,35,645}{30,00,000}$=1.08

Machine – II

$\frac{45,09,785}{40,00,000}$=1.13

Conclusion:

Method	Machine - I	Machine - II	Rank
Discounted Payback Period	4.51 years	4.24 years	II
Net Present Value	Rs. .2,35,645	Rs. 5,09,785	II
Profitability Index	1.08	1.13	II

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Question 42

WRITE a short note on "Cut-off Rate". (MTP 2 Marks Oct'22)

Answer 42

Cut-off Rate: It is the minimum rate which the management wishes to have from any project. Usually this is based upon the cost of capital. The management gains only if a project gives return of more than the cut - off rate. Therefore, the cut - off rate can be used as the discount rate or the opportunity cost rate.

Question 43

GG Pathology Lab Ltd. is using 2D sonography machine which has reached the end of its useful life. The lab is intending to upgrade along with the technology by investing in 3D sonography machine as per the choices preferred by the patients. Following new 3D sonography machine of two different brands with same features is available in the market:

Brand	Cost of machine (Rs.)	Life of machine (Rs.)	Maintenance Cost (Rs.)			SLM Depreciation rate (%)
			Year 1-5	Year 6-10	Year 11-15	
X	15,00,000	15	50,000	70,000	98,000	6
Y	10,00,000	10	70,000	1,15,000	-	6

Residual Value of machines shall be dropped by 10% and 40% of Purchase price for Brand X and Y respectively in the first year and thereafter shall be depreciated at the rate mentioned above on the original cost.

Alternatively, the machine of Brand Y can also be taken on rent to be returned back to the owner after use on the following terms and conditions:

- **Annual Rent shall be paid in the beginning of each year and for first year it shall be Rs. 2,24,000. Annual Rent for the subsequent 4 years shall be Rs. 2,25,000.**
- **Annual Rent for the final 5 years shall be Rs. 2,70,000.**
- **The Rent/Agreement can be terminated by GG Labs by making a payment of Rs. 2,20,000 as penalty. This penalty would be reduced by Rs. 22,000 each year of the period of rental agreement.**

You are required to:

(i) **ADVISE which brand of 3D sonography machine should be acquired assuming that the use of machine shall be continued for a period of 20 years.**

(ii) **STATE which of the option is most economical if machine is likely to be used for a period of 5 years?**

The cost of capital of GG Labs is 12%.

The present value factor of Rs. 1 @ 12% for different years is given as under:

Year	PVF	Year	PVF
1	0.893	9	0.361
2	0.797	10	0.322
3	0.712	11	0.287

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4	0.636	12	0.257
5	0.567	13	0.229
6	0.507	14	0.205
7	0.452	15	0.183
8	0.404	16	0.163

(MTP 10 Marks, March'21, RTP May '19)

Answer 43

Since the life span of each machine is different and time span exceeds the useful lives of each mode, we shall use Equivalent Annual Cost method to decide which brand should be chosen.

(ix) If machine is used for 20 years

(a) Residual value of machine of brand X
= [Rs. 15,00,000 – (1 - 0.10)] - (Rs. 15,00,000 × 0.06 × 14) = Rs. 90,000

(b) Residual value of machine of brand Y
= [Rs. 10,00,000 – (1 - 0.40)] - (Rs. 10,00,000 × 0.06 × 9) = Rs. 60,000

Present Value (PV) of cost if machine of brand X is purchased

Period	Cash Outflow (Rs.)	PVF @ 12%	PV (Rs.)
0	15,00,000	1.000	15,00,000
1-5	50,000	3.605	1,80,250
6-10	70,000	2.046	1,43,220
11-15	98,000	1.161	1,13,778
15	(90,000)	0.183	(16,470)
			19,20,778

PVAF for 1-15 years= 6.812

Equivalent Annual Cost= $\frac{\text{Rs.}19,20,778}{6.812}$ == Rs. 2,81,969.76

Present Value (PV) of cost if machine of brand Y is purchased

Period	Cash Outflow (Rs.)	PVF @ 12%	PV (Rs.)
0	10,00,000	1.000	10,00,000
1-5	70,000	3.605	2,52,350
6-10	1,15,000	2.046	2,35,290
10	(60,000)	0.322	(19,320)
			14,68,320

PVAF for 1-10 years = 5.651

Equivalent Annual Cost= $\frac{\text{Rs.}14,68,320=}{5.651}$=Rs.2,59,833.66

Present Value (PV) of cost if machine of brand Y is taken on rent

Period	Cash Outflow (Rs.)	PVF @ 12%	PV (Rs.)
0	2,24,000	1.000	2,24,000
1-4	2,25,000	3.038	6,83,550
5-9	2,70,000	2.291	6,18,570

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			15,26,120

PVAF for 1-10 years = 5.651

Equivalent Annual Cost=

$= \frac{Rs.14,68,320}{5.651}$

= Rs. 2,70,061.94

Decision: Since Equivalent Annual Cash Outflow is least in case of purchase of Machine of brand Y the same should be purchased.

(x) If machine is used for 5 years

(a) Scrap value of machine of brand X
= [Rs. 15,00,000 – (1 - 0.10)] - (Rs. 15,00,000 × 0.06 × 4) = Rs. 9,90,000

(b) Scrap value of machine of brand Y
= [Rs. 10,00,000 – (1 - 0.40)] - (Rs. 10,00,000 × 0.06 × 4) = Rs. 3,60,000

Present Value (PV) of cost if machine of brand X is purchased

Period	**Cash Outflow (Rs.)**	**PVF @ 12%**	**PV (Rs.)**
0	15,00,000	1.000	15,00,000
1-5	50,000	3.605	1,80,250
5	(9,90,000)	0.567	(5,61,330)
			11,18,920

Present Value (PV) of cost if machine of brand Y is purchased

Period	**Cash Outflow (Rs.)**	**PVF @ 12%**	**PV (Rs.)**
0	10,00,000	1.000	10,00,000
1-5	70,000	3.605	2,52,350
5	(3,60,000)	0.567	(2,04,120)
			10,48,230

Present Value (PV) of cost if machine of brand Y is taken on rent

Period	**Cash Outflow (Rs.)**	**PVF @ 12%**	**PV (Rs.)**
0	2,24,000	1.000	2,24,000
1-4	2,25,000	3.038	6,83,550
5	1,10,000*	0.567	62,370
			9,69,920

* [Rs. 2,20,000 - (Rs. 22,000 × 5) = Rs. 1,10,000]

Decision: Since Cash Outflow is least in case of rent of Machine of brand Y the same should be taken on rent.

Question 44

A large profit making company is considering the installation of a machine to process the waste produced by one of its existing manufacturing process to be converted into a marketable product. At present, the waste is removed by a contractor for disposal on payment by the company of ₹ 150 lakh per annum for the next four years. The contract can be terminated upon installation of the

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aforesaid machine on payment of a compensation of ₹ 90 lakh before the processing operation starts. This compensation is not allowed as deduction for tax purposes.

The machine required for carrying out the processing will cost ₹ 600 lakh to be financed by a loan repayable in 4 equal instalments commencing from end of the year 1. The interest rate is 14% per annum. At the end of the 4th year, the machine can be sold for ₹ 60 lakh and the cost of dismantling and removal will be ₹ 45 lakh.

Sales and direct costs of the product emerging from waste processing for 4 years are estimated as under:

(₹ In lakh)

Year	1	2	3	4
Sales	966	966	1,254	1,254
Material consumption	90	120	255	255
Wages	225	225	255	300
Other expenses	120	135	162	210
Factory overheads	165	180	330	435
Depreciation (as per income tax rules)	150	114	84	63

Initial stock of materials required before commencement of the processing operations is ₹ 60 lakh at the start of year 1. The stock levels of materials to be maintained at the end of year 1, 2 and 3 will be ₹ 165 lakh and the stocks at the end of year 4 will be nil. The storage of materials will utilise space which would otherwise have been rented out for ₹ 30 lakh per annum. Labour costs include wages of 40 workers, whose transfer to this process will reduce idle time payments of ₹ 45 lakh in the year - 1 and ₹ 30 lakh in the year - 2. Factory overheads include apportionment of general factory overheads except to the extent of insurance charges of ₹ 90 lakh per annum payable on this venture. The company's tax rate is 30%.

Present value factors for four years are as under:

Year	1	2	3	4
PV factors @14%	0.877	0.769	0.674	0.592

ADVISE the management on the desirability of installing the machine for processing the waste. All calculations should form part of the answer. (RTP Nov '20)

Answer 44

Statement of Operating Profit from processing of waste (₹ in lakh)

Year	1	2	3	4
Sales :(A)	966	966	1,254	1,254
Material consumption	90	120	255	255
Wages	180	195	255	300

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Other expenses	120	135	162	210
Factory overheads (insurance only)	90	90	90	90
Loss of rent on storage space (opportunity cost)	30	30	30	30
Interest @14%	84	63	42	21
Depreciation (as per income tax rules)	150	114	84	63
Total cost: (B)	744	747	918	969
Profit (C)=(A)-(B)	222	219	336	285
Tax (30%)	66.6	65.7	100.8	85.5
Profit after Tax (PAT)	155.4	153.3	235.2	199.5

Statement of Incremental Cash Flows **(₹ in lakh)**

Year	0	1	2	3	4
Material stock	(60)	(105)	-	-	165
Compensation for contract	(90)	-	-	-	-
Contract payment saved	-	150	150	150	150
Tax on contract payment	-	(45)	(45)	(45)	(45)
Incremental profit	-	222	219	336	285
Depreciation added back	-	150	114	84	63
Tax on profits	-	(66.6)	(65.7)	(100.8)	(85.5)
Loan repayment	-	(150)	(150)	(150)	(150)
Profit on sale of machinery (net)	-	-	-	-	15
Total incremental cash flows	(150)	155.4	222.3	274.2	397.5
Present value factor	1.00	0.877	0.769	0.674	0.592
Present value of cash flows	(150)	136.28	170.95	184.81	235.32
Net present value	577.36				

Advice: Since the net present value of cash flows is ₹ 577.36 lakh which is positive the management should install the machine for processing the waste.

Notes:

(i) Material stock increases are taken in cash flows.

(ii) Idle time wages have also been considered.

(iii) Apportioned factory overheads are not relevant only insurance charges of this project are relevant.

(iv) Interest calculated at 14% based on 4 equal instalments of loan repayment.

(v) Sale of machinery- Net income after deducting removal expenses taken. Tax on Capital gains ignored.

(vi) Saving in contract payment and income tax thereon considered in the cash flows.

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Question 45

Stand Ltd. is contemplating replacement of one of its machines which has become outdated and inefficient. Its financial manager has prepared a report outlining two possible replacement machines. The details of each machine are as follows:

	Machine 1	Machine 2
Initial investment	₹ 12,00,000	₹ 16,00,000
Estimated useful life	3 years	5 years
Residual value	₹ 1,20,000	₹ 1,00,000
Contribution per annum	₹ 11,60,000	₹ 12,00,000
Fixed maintenance costs per annum	₹ 40,000	₹ 80,000
Other fixed operating costs per annum	₹ 7,20,000	₹ 6,10,000

The maintenance costs are payable annually in advance. All other cash flows apart from the initial investment assumed to occur at the end of each year. Depreciation has been calculated by straight line method and has been included in other fixed operating costs. The expected cost of capital for this project is assumed as 12% p.a.

Required:

(i) **Which machine is more beneficial, using Annualized Equivalent Approach? Ignore tax.**

(ii) **Calculate the sensitivity of your recommendation in part (i) to changes in the contribution generated by machine 1.**

Year	1	2	3	4	5	6
PVIF0.12, t	0.893	0.797	0.712	0.636	0.567	0.507
PVIFA0.12, t	0.893	1.690	2.402	3.038	3.605	4.112

(PYP 10 Marks Dec '21)

Answer 45

(i) **Calculation of Net Cash**

Flows Machine 1

Other fixed operating costs (excluding depreciation) = 7,20,000–[(12,00,000–1,20,000)/3] = ₹ 3,60,000

Year	Initial Investment (₹)	Contribution	Fixed maintenance costs	Other fixed operating costs	Residual Value	Net cash flow (₹)

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		(₹)	(₹)	(excluding depreciation) (₹)	(₹)	
0	(12,00,000)		(40,000)			(12,40,000)
1		11,60,000	(40,000)	(3,60,000)		7,60,000
2		11,60,000	(40,000)	(3,60,000)		7,60,000
3		11,60,000		(3,60,000)	1,20,000	9,20,000

Machine 2

Other fixed operating costs (excluding depreciation) = 6,10,000 –[(16,00,000–1,00,000)/5]
= ₹ 3,10,000

Year	Initial Investment (₹)	Contribution (₹)	Fixed maintenance costs (₹)	Other fixed operating costs (excluding depreciation) (₹)	Residual Value (₹)	Net cash flow (₹)
0	(16,00,000)		(80,000)			(16,80,000)
1		12,00,000	(80,000)	(3,10,000)		8,10,000
2		12,00,000	(80,000)	(3,10,000)		8,10,000
3		12,00,000	(80,000)	(3,10,000)		8,10,000
4		12,00,000	(80,000)	(3,10,000)		8,10,000
5		12,00,000		(3,10,000)	1,00,000	9,90,000

Calculation of Net Present Value

		Machine 1		Machine 2	
Year	12% discount factor	Net cash flow (₹)	Present value (₹)	Net cash flow (₹)	Present value (₹)
0	1.000	(12,40,000)	(12,40,000)	(16,80,000)	(16,80,000)
1	0.893	7,60,000	6,78,680	8,10,000	7,23,330
2	0.797	7,60,000	6,05,720	8,10,000	6,45,570
3	0.712	9,20,000	6,55,040	8,10,000	5,76,720
4	0.636			8,10,000	5,15,160

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5	0.567			9,90,000	5,61,330
NPV @ 12%			**6,99,440**		**13,42,110**
PVAF @ 12%			2.402		3.605
Equivalent Annualized Criterion			**2,91,190.674**		**3,72,291.262**

Recommendation: Machine 2 is more beneficial using Equivalent Annualized Criterion.

(ii) **Calculation of sensitivity of recommendation in part (i) to changes in the contribution generated by machine 1**

Difference in Equivalent Annualized Criterion of Machines required for changing the recommendation in part (i) = 3,72,291.262- 2,91,190.674 = **₹ 81,100.588**

∴ Sensitivity relating to Contribution = $\frac{Rs.81,100.588}{Rs.11,60,000.00}$ X 100 = 6.991 or 7% yearly

Alternatively,

The annualized equivalent cash flow for machine 1 is lower by ₹ (3,72,291.262–2,91,190.674) = ₹81,100.588 than for machine 2. Therefore, it would need to increase contribution for complete 3 years before the decision would be to invest in this machine.

Sensitivity w.r.t contribution = 81,100.588 / (11,60,000 × 2.402) x100 = 2.911%

Question 46

EXPLAIN the concept of discounted payback period. (MTP 2 Marks, Oct'19)

Answer 46

Concept of Discounted Payback Period

Pay back period is time taken to recover the original investment from project cash flows. It is also termed as break even period. The focus of the analysis is on liquidity aspect and it suffers from the limitation of ignoring time value of money and profitability. Discounted payback period considers present value of cash flows, discounted at company's cost of capital to estimate breakeven period i.e. it is that period in which future discounted cash flows equal the initial outflow. The shorter the period, better it is. It also ignores post discounted payback period cash flows.

Question 47

WQ Limited is considering relaxing its present credit policy and is in the process of evaluating two proposed polices. Currently, the firm has annual credit sales of Rs. 180 lakh and Debtors turnover ratio of 4 times a year. The current level of loss due to bad debts is Rs. 6 lakhs. The firm is required to give a return of 25% on the investment in

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new accounts receivables. The company's variable costs are 60% of the selling price. Given the following information, DETERMINE which is a better Policy?

(Amount in lakhs)

	Present Policy	Proposed Policy	
		Option I	Option II
Annual credit sales (Rs.)	**180**	**220**	**280**
Debtors turnover ratio	**4**	**3.2**	**2.4**
Bad debt losses (Rs.)	**6**	**18**	**38**

(MTP 10 Marks, April'21)

Answer 47

Statement showing evaluation of Credit Policies

Amount in lakhs)

	Particulars	Present (Rs.)	Proposed Policy (Rs.)	
			Option I	Option II
A	Expected Profit:			
	(a) Credit Sales	180	220	280
	(b) Total Cost other than Bad Debts:			
	Variable Costs (60%)	108	132	168
	(c) Bad Debts	6	18	38
	(d) Expected Profit [(a)-(b)-(c)]	66	70	74
B	Opportunity Cost of Investment in Debtors (Refer workings)	6.75	10.31	17.5
C	Net Benefits [A - B]	59.25	59.69	56.5

Recommendation: The Proposed Policy I should be adopted since the net benefits under this policy is higher than those under other policies.

Workings:

Calculation of Opportunity Cost of Investment in Debtors

Opportunity Cost= Total Cost=

$$= \frac{\text{Collection period*}}{12} \times \frac{\text{Rate of Return}}{100}$$

Collection period (in months) = 12/Debtors turnover ratio

Present Policy= $\text{Rs.}108 \times \frac{12/4}{12} \times \frac{25}{100} = \text{Rs.}\,6.75\text{lakhs}$

Proposed Policy I== $\text{Rs.}168 \times \frac{12/2.4}{12} \times \frac{25}{100} = \text{Rs.}\,17.5\text{lakhs}$

Proposed Policy II=== $\text{Rs.}132 \times \frac{12/3.2}{12} \times \frac{25}{100} = \text{Rs.}\,10.31\text{lakhs}$

Question 48

Superb Ltd. constructs customized parts for satellites to be launched by USA and Canada. The parts are constructed in eight locations (including the central headquarter) around the world. The Finance Director, Ms. Kuthrapali,

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chooses to implement video conferencing to speed up the budget process and save travel costs. She finds that, in earlier years, the company sent two officers from each location to the central headquarter to discuss the budget twice a year. The average travel cost per person, including air fare, hotels and meals, is ₹ 27,000 per trip. The cost of using video conferencing is Rs.8,25,000 to set up a system at each location plus Rs.300 per hour average cost of telephone time to transmit signals. A total 48 hours of transmission time will be needed to complete the budget each year. The company depreciates this type of equipment over five years by using straight line method. An alternative approach is to travel to local rented video conferencing facilities, which can be rented for Rs. 1,500 per hour plus Rs.400 per hour average cost for telephone charges. You are Senior Officer of Finance Department. You have been asked by Ms. Kuthrapali to EVALUATE the proposal and SUGGEST if it would be worthwhile for the company to implement video conferencing. [MTP 10 Marks, Nov'21]

Answer 48

Option I: Cost of travel, in case Video Conferencing facility is not provided

Total Trip = No. of Locations × No. of Persons × No. of Trips per Person = 7×2×2 = 28 Trips

Total Travel Cost (including air fare, hotel accommodation and meals) (28 trips × Rs. 27,000 per trip) = Rs.7,56,000

Option II: Video Conferencing Facility is provided by Installation of Own Equipment at Different Locations

Cost of Equipment at each location (Rs.8,25,000 × 8 locations) = Rs.66,00,000 Economic life of Machines (5 years). Annual depreciation (66,00,000/5) = Rs.13,20,000

Annual transmission cost (48 hrs. transmission × 8 locations × Rs.300 per hour) = Rs.1,15,200 Annual cost of operation (13,20,000 + 1,15,200) = Rs.14,35,200

Option III: Engaging Video Conferencing Facility on Rental Basis Rental cost (48 hrs. × 8 locations × Rs. 1,500 per hr.) = Rs.5,76,000 Telephone cost (48 hrs.× 8 locations × Rs.400 per hr.) = Rs.1,53,600 Total rental cost of equipment (5,76,000 + 1,53,600) = Rs.7,29,600

Analysis: The annual cash outflow is minimum, if video conferencing facility is engaged on rental basis. Therefore, Option III is suggested.

Question 49

Yellow bells Ltd. wants to replace its old machine with new automatic machine. The old machine had been fully depreciated for tax purpose but has a book value of ₹3,50,000 on 31st March 2022. The machine cannot fetch more than ₹45,000

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if sold in the market at present. It will have no realizable value after 10 years. The company has been offered ₹1,60,000 for the old machine as a trade in on the new machine which has a price (before allowance for trade in) of ₹6,50,000. The expected life of new machine is 10 years with salvage value of ₹63,000.

Further, the company follows straight line depreciation method but for tax purpose, written down value method depreciation @ 9% is allowed taking that this is the only machine in the block of assets.

Given below are the expected sales and costs from both old and new machine:

	Old machine (₹)	New machine (₹)
Sales	11,74,500	11,74,500
Material cost	2,61,000	1,83,063
Labour cost	1,95,750	1,59,500
Variable overhead	81,563	68,875
Fixed overhead	1,30,500	1,41,375
Depreciation	34,800	60,175
Profit Before Tax (PBT)	4,70,888	5,61,513
Tax @ 25%	1,17,722	1,40,378
Profit After Tax (PAT)	3,53,166	4,21,134

From the above information, ANALYSE whether the old machine should be replaced or not if required rate of return is 10%? Ignore capital gain tax.

PV factors @ 10%:

Year	1	2	3	4	5	6	7	8	9	10
PVF	0.909	0.826	0.751	0.683	0.621	0.564	0.513	0.467	0.424	0.386

(MTP 10 Marks March '23)

Answer 49

(i) Calculation of Base for depreciation or Cost of New Machine

Particulars	(₹)
Purchase price of new machine	6,50,000
Less: Sale price of old machine	1,60,000
	4,90,000

(ii) Calculation **of Profit before tax as per books**

Particulars	Old machine (₹)	New machine (₹)	Difference (₹)
PBT as per books	4,70,888	5,61,513	90,625

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Add: Depreciation as per books	34,800	60,175	25,375
Profit before tax and depreciation (PBTD)	5,05,688	6,21,688	1,16,000

Calculation of Incremental NPV

Year	PVF	PBTD	Dep. @ 9%	PBT	Tax @ 25%	Cash Inflows	PV of Cash Inflows
	@ 10%	(₹)	(₹)	(₹)	(₹)	(₹)	(₹)
	1	2	3	4(2-3)	(5) = (4) x 0.25	(6) = (4) – (5) + (3)	(7) = (6) x (1)
1	0.909	1,16,000.00	44,100.00	71,900.00	17,975.00	98,025.00	89,104.73
2	0.826	1,16,000.00	40,131.00	75,869.00	18,967.25	97,032.75	80,149.05
3	0.751	1,16,000.00	36,519.21	79,480.79	19,870.20	96,129.80	72,193.48
4	0.683	1,16,000.00	33,232.48	82,767.52	20,691.88	95,308.12	65,095.45
5	0.621	1,16,000.00	30,241.56	85,758.44	21,439.61	94,560.39	58,722.00
6	0.564	1,16,000.00	27,519.82	88,480.18	22,120.05	93,879.95	52,948.29
7	0.513	1,16,000.00	25,043.03	90,956.97	22,739.24	93,260.76	47,842.77
8	0.467	1,16,000.00	22,789.16	93,210.84	23,302.71	92,697.29	43,289.63
9	0.424	1,16,000.00	20,738.14	95,261.86	23,815.47	92,184.53	39,086.24
10	0.386	1,16,000.00	18,871.70	97,128.30	24,282.07	91,717.93	35,403.12
							5,83,834.77
Add: PV of Salvage value of new machine (₹ 63,000 ´ 0.386)							24,318.00
Total PV of incremental cash inflows							6,08,152.77
Less: Cost of new machine [as calculated in point(i)]							4,90,000.00
Incremental Net Present Value							1,18,152.77

Analysis: Since the Incremental NPV is positive, the old machine should be replaced.

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Question 50

The General Manager of Merry Ltd. is considering the replacement of five -year-old equipment. The company has to incur excessive maintenance cost of the equipment. The equipment has zero written down value. It can be modernized at a cost of ₹ 1,40,000 enhancing its economic life to 5 years. The equipment could be sold for ₹ 30,000 after 5 years. The modernization would help in material handling and in reducing labour , maintenance & repairs costs. The company has another alternative to buy a new machine at a cost of ₹ 3,50,000 with an economic life of 5 years and salvage value of ₹ 60,000. The new machine is expected to be more efficient in reducing costs of material handling, labour , maintenance & repairs, etc.

The annual cost are as follows:

	Existing Equipment (₹)	Modernization (₹)	New Machine (₹)
Wages & Salaries	45,000	35,500	15,000
Supervision	20,000	10,000	7,000
Maintenance	25,000	5,000	2,500
Power	30,000	20,000	15,000
	1,20,000	70,500	39,500

Assuming tax rate of 50% and required rate of return of 10%, should the company modernize the equipment or buy a new machine?

PV factor at 10% are as follows: (RTP May '21)

Year	1	2	3	4	5
PV factor	0.909	0.826	0.751	0.683	0.621

Answer 50

Workings:

Calculation of Depreciation:

On Modernized Equipment = $\frac{Rs.1,40,000 - Rs.30,000}{5\ years}$ = Rs. 22,000 p.a.

On New machine = $\frac{Rs.3,50,000 - Rs.60,000}{5\ years}$ = Rs. 58,000 p.a.

(i) Calculation of Incremental annual cash inflows/ savings:

Particulars	Existing Equipment (₹)	Modernization		New Machine	
		Amount (₹)	Savings (₹)	Amount (₹)	Savings (₹)
	(1)	(2	(3)=(1)-	(4	(5)=(1)-

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		)	(2)	)	(4)
Wages & Salaries	45,000	35,500	9,500	15,000	30,000
Supervision	20,000	10,000	10,000	7,000	13,000
Maintenance	25,000	5,000	20,000	2,500	22,500
Power	30,000	20,000	10,000	15,000	15,000
Total	**1,20,000**	**70,500**	**49,500**	**39,500**	**80,500**
Less: Depreciation			22,000		58,000
(Refer Workings)					
Total Savings			**27,500**		**22,500**
Less: Tax @ 50%			13,750		11,250
After Tax Savings			**13,750**		**11,250**
Add: Depreciation			22,000		58,000
Incremental Annual			**35,750**		**69,250**
Cash Inflows					

(ii) Calculation of Net Present Value (NPV)

Particulars	Year	Modernization (₹)	New Machine (₹)
Initial Cash outflow (A)	0	1,40,000.00	3,50,000.00
Incremental Cash Inflows	1-5	1,35,492.50	2,62,457.50
		(₹ 35,750 x 3.790)	(₹ 69,250 x 3.790)
Salvage value	5	18,630.00 (₹ 30,000 x 0.621)	37,260.00 (₹ 60,000 x 0.621)
PV of Cash inflows (B)		1,54,122.50	2,99,717.50
Net Present Value (B - A)		14,122.50	(50,282.50)

Advise: The company should modernize its existing equipment and not buy a new machine because NPV is positive in modernization of equipment.

Section B

1. A capital budgeting technique which does not require the computation of cost of

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capital for decision making purposes is:

(a) Net Present Value method

(b) Internal Rate of Return method

(c) Modified Internal Rate of Return method

(d) Payback Period method

Ans: (d)

2. **If two alternative proposals are such that the acceptance of one shall exclude the possibility of the acceptance of another then such decision making will lead to:**

(a) Mutually exclusive decisions

(b) Accept reject decisions

(c) Contingent decisions

(d) None of the above

Ans: (a)

3. **In case a company considers a discounting factor higher than the cost of capital for arriving at present values, the present values of cash inflows will be:**

(a) Less than those computed on the basis of cost of capital

(b) More than those computed on the basis of cost of capital

(c) Equal to those computed on the basis of the cost of capital

(d) None of the above

Ans: (a)

4. **If the cut off rate of a project is greater than IRR, we may:**

(a) Accept the proposal

(b) Reject the proposal

(c) Be neutral about it

(d) Wait for the IRR to increase and match the cut off rate

Ans: (b)

5. **While evaluating capital investment proposals, time value of money is used in which of the following techniques:**

(a) Payback Period method

(b) Accounting rate of return

(c) Net present value

(d) None of the above

Ans: (c)

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6. **IRR would favor project proposals which have:**
   (a) Heavy cash inflows in the early stages of the project.
   (b) Evenly distributed cash inflows throughout the project.
   (c) Heavy cash inflows at the later stages of the project.
   (d) None of the above.

Ans: (a)

7. **The re-investment assumption in the case of the IRR technique assumes that:**
   (a) Cash flows can be re-invested at the projects IRR.
   (b) Cash flows can be re-invested at the weighted cost of capital.
   (c) Cash flows can be re-invested at the marginal cost of capital.
   (d) None of the above

Ans: (a)

8. **Multiple IRRs are obtained when:**
   (a) Cash flows in the early stages of the project exceed cash flows duringthe later stages.
   (b) Cash flows reverse their signs during the project.
   (c) Cash flows are uneven.
   (d) None of the above.

Ans: (b)

9. **Depreciation is included as a cost in which of the following techniques:**
   (a) Accounting rate of return
   (b) Net present value
   (c) Internal rate of return
   (d) None of the above

Ans: (a)

10. **Management is considering a ₹ 1,00,000 investment in a project with a 5 year life and no residual value. If the total income from the project is expected to be ₹ 60,000 and recognition is given to the effect of straight line depreciation on the investment, the average rate of return is:**
    (a) 12%
    (b) 24%
    (c) 60%
    (d) 75%

Ans: (b)

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11. Assume cash outflow equals ₹ 1,20,000 followed by cash inflows of ₹ 25,000 per year for 8 years and a cost of capital of 11%. What is the Net present value?

(a) (₹ 38,214)

(b) ₹ 9,653

(c) ₹ 8,653

(d) ₹ 38,214

Ans: (c)

12. What is the Internal rate of return for a project having cash flows of ₹ 40,000 per year for 10 years and a cost of ₹ 2,26,009?

(a) 8%

(b) 9%

(c) 10%

(d) 12%

Ans: (d)

13. While evaluating investments, the release of working capital at the end of the project's life should be considered as:

(a) Cash inflow

(b) Cash outflow

(c) Having no effect upon the capital budgeting decision

(d) None of the above

Ans: (a)

14. Capital rationing refers to a situation where:

(a) Funds are restricted and the management has to choose from amongst available alternative investments.

(b) Funds are unlimited and the management has to decide how to allocate them to suitable projects.

(c) Very few feasible investment proposals are available with the management.

(d) None of the above.

Ans: (a)

15. Capital budgeting is done for:

(a) Evaluating short term investment decisions.

(b) Evaluating medium term investment decisions.

(c) Evaluating long term investment decisions.

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(d) None of the above.

Ans: (c)

Theoretical Questions Answers

Question 1

DISCUSS the various techniques of capital budgeting.

Answer 1

In order to maximise the return to the shareholders of a company, it is important that the best or most profitable investment projects are selected. Results of making a bad long-term investment decision can be devastating in both financial and strategic terms. Proper care is required for investment project selection and evaluation.

There are a number of techniques available for appraisal of investment proposals and can be classified as presented below:

Organizations may use any one or more of capital investment evaluation techniques. Some organizations use different methods for different types of projects while others may use multiple methods for evaluating each project. The techniques discussed below are Payback Period, Accounting Rate of Return (ARR), Net Present Value (NPV), Profitability Index (PI), Internal Rate of Return (IRR), Discounted Payback Period and Modified Internal Rate of Return (MIRR).

Payback Period

Time required to recover the initial cash-outflow is called pay-back period. The payback period of an investment is the length of time required for the cumulative total net cash flows from the investment to equal the total initial cash outlays. At that point in time (payback period), the investor has recovered all the money invested in the project.

Uniform Cash Flows: When the cash inflows are uniform over the useful life of the project, the number of years in the payback period can be calculated using the following

$$\text{Payback period} = \frac{\text{Total initial capital investment}}{\text{Annual expected after-tax net cash flow}}$$

equation:

Non-Uniform Cash Flows: When the annual cash inflows are not uniform, the cumulative cash inflow from operations must be calculated for each year. The payback period shall be corresponding period when total of cumulative cash inflows is equal to the initial capital investment. However, if exact sum does not match, then the period in which it lies should be identified. After that we need to compute the fraction of the year

Payback Reciprocal

As the name indicates, it is the reciprocal of payback period. A major drawback of the payback period method of capital budgeting is that it does not indicate any cut off period for the purpose of investment decision. It is, however, argued that the reciprocal of the payback would be a close approximation of the Internal Rate of Return (later discussed in detail) if the life of the project is at least twice the payback period and the project generates equal amount of the annual cash inflows. In practice, the payback reciprocal

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is a helpful tool for quick estimation of rate of return of a project provided its life is at least twice the payback period.

The payback reciprocal can be calculated as follows:

$$\text{Payback Reciprocal} = \frac{\text{Average annual cash in flow}}{\text{Initial investment}}$$

Accounting (Book) Rate of Return (ARR) or Average Rate of Return (ARR)

The accounting rate of return of an investment measures the average annual net income of the project (incremental income) as a percentage of the investment.

The numerator is the average annual net income generated by the project over its useful life. The denominator can be either the initial investment (including installation cost) or the average investment over the useful life of the project. Average investment means the average amount of fund remained blocked during the lifetime of the project under consideration.

$$\text{Accounting rate of return (ARR)} = \frac{\text{Average annual net income}}{\text{Investment}}$$

Net Present Value Technique (NPV)

The net present value technique is a discounted cash flow method that considers the time value of money in evaluating capital investments. An investment has cash flows throughout its life, and it is assumed that an amount of cash flow in the early years of an investment is worth more than an amount of cash flow in a later year.The net present value method uses a specified discount rate to bring all subsequent cash inflows after the initial investment to their present values (the time of the initial investment is year 0).

The net present value of a project is the amount, in current value of amount, the investment earns after paying cost of capital in each period.

Net present value = Present value of net cash inflow - Total net initial investment

Since it might be possible that some additional investment may also be required during the life time of the project, then appropriate formula shall be:

Net present value = Present value of cash inflows - Present value of cash outflows It can be expressed as below:

$$\text{NPV} = \left[\frac{C_1}{1+k} + \frac{C_2}{(1+k)^2} + \frac{C_3}{(1+k)^3} + \cdots + \frac{C_n}{(1+k)^n}\right] - I$$

$$\text{NPV} = \sum_{t=1}^{n} \frac{C_t}{(1+k)} - I$$

Where,

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C = Cash flow of various yearsk = Discount rate

N = Life of the project

I = Investment

Profitability Index /Desirability Factor/Present Value Index Method (PI)

The students may have seen how with the help of discounted cash flow technique, the two alternative proposals for capital expenditure can be compared. In certain cases, we have to compare a number of proposals, each involving different amounts of cash inflows.

One of the methods of comparing such proposals is to work out what is known as the 'Desirability factor', or 'Profitability Index' or 'Present Value Index Method'.

Mathematically:

The Profitability Index (PI) is calculated as below:

$$\text{Profitability Index (PI)} = \frac{Sum\ of\ discounted\ cash\ in\ flows}{Initial\ cash\ outlay\ or\ total\ discounted\ cash\ outflow\ (as\ the\ case\ may)}$$

Internal Rate of Return Method (IRR)

The internal rate of return method considers the time value of money, the initial cash investment, and all cash flows from the investment. But unlike the net present value method, the internal rate of return method does not use the desired rate of return but estimates the discount rate that makes the present value of subsequent cash inflows equal to the initial investment. This discount rate is called IRR.

IRR Definition: Internal rate of return for an investment proposal is **the discount rate that equates the present value of the expected cash inflows with theinitial cash outflow.**

This IRR is then compared to a criterion rate of return that can be the organization's desired rate of return for **evaluating capital investments**.

Calculation of IRR: The procedures for computing the internal rate of return vary with the pattern of net cash flows over the useful life of an investment.

Scenario 1: For an investment with uniform cash flows over its life, the following equation is used:

Step 1: Total initial investment = Annual cash inflow × Annuity discount factor of the discount rate for the number of periods of the investment's useful life

If A is the annuity discount factor, then:

$$A = \frac{Total\ initial\ cash\ disbursements\ and\ commitments\ for\ the\ invesment}{Annual\ (equal) cash\ inflows\ from\ the\ invesment}$$

Step 2: Once A is calculated, the interest rate corresponding to project's life, the value of A is searched in Present Value Annuity Factor (PVAF) table. If exact valueof 'A' is found the respective interest rate shall be IRR. However, it rarely happens therefore we follow the steps discussed below:

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Step 1: Compute approximate payback period also called fake payback period.

Step 2: Locate this value in PVAF table corresponding to period of life of the project. The value may be falling between two discounting rates.

Step 3: Discount cash flows using these two discounting rates.

Step 4: Use following Interpolation Formula:

LR = $\frac{NPV\ at\ LR}{NPV\ at\ LR - NPV\ at\ HR} \times (HR - LR)$

R = $\frac{PV\ at\ LR - CI}{PV\ at\ LR - PV\ at\ HR} \times (HR - LR)$

Where,

L= Lower Rate

HR= Higher Rate

CI= Capital Investment

Question 2

DISCUSS NPV. How is it calculated

Answer 2

Same as Answer 16

Question 3

DISCUSS in detail the 'Capital Budgeting Process'.

Answer 3

The extent to which the capital budgeting process needs to be formalised and systematic procedures to be established depends on the size of the organisation; number of projects to be considered; direct financial benefit of each project considered by itself; the composition of the firm's existing assets and management's desire to change that composition; timing of expenditures associated with the projects that are finally accepted.

(i) **Planning:** The capital budgeting process begins with the identification of potential investment opportunities. The opportunity then enters the planning phase when the potential effect on the firm's fortunes is assessed and the ability of the management of the firm to exploit the opportunity is determined. Opportunities having little merit are rejected and promising opportunities are advanced in the form of a proposal to enter the evaluation phase.

(ii) **Evaluation:** This phase involves the determination of proposal and its investments, inflows and outflows. Investment appraisal techniques, ranging from the simple payback method and accounting rate of return to the more sophisticated discounted cash flow techniques, are used to appraise the proposals. The technique selected should be the one that enables the manager to make the best decision in the light of prevailing circumstances.

(iii) **Selection:** Considering the returns and risks associated with the individual projects as well as the cost of capital to the organisation, the organisation will

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choose among projects which maximises the shareholders' wealth.

(iv) **Implementation:** When the final selection is made, the firm must acquire the necessary funds, purchase the assets, and begin the implementation of the project.

(v) **Control:** The progress of the project is monitored with the aid of feedback reports. These reports will include capital expenditure progress reports, performance reports comparing actual performance against plans set and post completion audits.

(vi) **Review:** When a project terminates, or even before, the organisation should review the entire project to explain its success or failure. This phase may have implication for firm's planning and evaluation procedures. Further, the review may produce ideas for new proposals to be undertaken in the future.

Question 4

CLASSIFY various types of Capital Investment decisions known to you.

Answer 4

There are many ways to classify the capital budgeting decision. Generally capital investment decisions are classified in two ways. One way is to classify them on the basis of firm's existence. Another way is to classify them on the basis of decision situation.

On the basis of firm's existence

The capital budgeting decisions are taken by both newly incorporated firms as well as by existing firms. The new firms may require decision making in respect of selection of a plant to be installed. Whereas the existing firm may require taking decisions to meet the requirement of new environment or to face the challenges of competition. These decisions may be classified as follows:

Replacement and Modernisation decisions: The replacement and modernization decisions aims to improve operating efficiency and reduce cost. Generally, all types of plant and machinery require replacement either because the economic life of the plant or machinery is over or because it has become technologically outdated. The former decision is known as replacement decision and latter is known as modernization decision. Both replacement and modernization decisions are called as cost reduction decisions.

(i) **Expansion decisions:** Existing successful firms may experience growth in demand of their product line. If such firms experience shortage or delay in the delivery of their products due to inadequate production facilities, they may consider proposal to add capacity to existing product line.

(ii) **Diversification decisions:** These decisions require evaluation of proposals to diversify into new product lines, new markets etc. for reducing the risk of failureby dealing in different products or by operating in several markets.

Both expansion and diversification decisions are called revenue expansion decisions.

On the basis of decision situation

The capital budgeting decisions on the basis of decision situation are classified asfollows:

(i) **Mutually exclusive decisions:** The decisions are said to be mutually exclusive

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iftwo or more alternative proposals are such that the **acceptance of one proposal** will exclude the acceptance of the other alternative proposals. For instance, a firm may be considering proposal to install a semi-automatic or highly automatic machine. If the firm installs a semi-automatic machine, it excludes the acceptance of proposal to install highly automatic machine.

(ii) **Accept-Reject decisions:** The accept-reject decisions occur when **proposals are independent** and do not compete with each other. The firm may accept or reject a proposal on the basis of a minimum return on the required investment. All those proposals which give a higher return than certain desired rate of return are accepted and the rest are rejected.

(iii) **Contingent decisions:** The contingent decisions are made when the proposals are **dependable** proposals. The investment in one proposal requires investment in one or more other proposals. For example, if a company accepts a proposal to set up a factory in remote area, it will have to invest in infrastructure, like building of roads, houses for employees etc. also.

Question 5

DESCRIBE the advantages and disadvantages of profitability of index.

Answer 5

Advantages of PI

- The method also uses the **concept of time value of money**.
- In the PI method, since the present value of cash inflows is divided by the present value of cash outflow, it is a **relative measure** of a project's profitability.

Limitations of PI

- Profitability index **fails as a guide** in resolving capital rationing where projects are indivisible.
- Once a single large project with high NPV is selected, possibility of accepting several small projects which together may have higher NPV than the **single project is excluded**.
- Also, situations may arise where a project with a lower profitability index selected may generate cash flows in such a way that another project can be taken up one or two years later, the total NPV in such case being more than the one with a project with highest Profitability Index.
  The Profitability Index approach thus **cannot be used indiscriminately** but all other type of alternatives of projects will have to be worked out

Question 6

DESCRIBE MIRR.

Answer 6

There are several limitations attached with the concept of the conventional Internal Rate of Return (IRR). The MIRR addresses some of these deficiencies e.g., it eliminates multiple IRR rates; it addresses the reinvestment rate issue and produces results which are consistent with the Net Present Value method. **This method is also called Terminal Value method**.

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Under this method, all cash flows, apart from the initial investment, are brought to the terminal value using an appropriate discount rate (usually the Cost of Capital). This results in a single stream of cash inflow in the terminal year. **The MIRR is obtained by assuming a single outflow in the zeroth year and the terminal cash inflow** as mentioned above. **The discount rate which equates the present value of the terminal cash inflow to the zeroth year outflow is called the MIRR**.

The decision criterion of MIRR is same as IRR i.e. you accept an investment if MIRR is larger than required rate of return and reject if it is lower than the required rateof return.

Question 7

Following data has been available for a capital project:

Annual cash inflows ₹ 1,00,000

Useful life 4 years

Salvage value 0

Internal rate of return 12%

Profitability index 1.064

You are required to CALCULATE the following for this project:

(i) **Cost of project**

(ii) **Cost of capital**

(iii) **Net present value**

(iv) **Payback period**

PV factors at different rates are given below:

Discount factor	12%	11%	10%	9%
1 year	0.893	0.901	0.909	0.917
2 year	0.797	0.812	0.826	0.842
3 year	0.712	0.731	0.751	0.772
4 year	0.636	0.659	0.683	0.708

Answer 7

i. Cost of the Project

At 12% internal rate of return (IRR), the sum of total cash inflows = cost ofthe project i.e initial cash outlay

Annual cash inflows = ₹ 1,00,000Useful life = 4 years

Considering the discount factor table @ 12%, cumulative present value ofcash inflows for 4 years is 3.038 (0.893 + 0.797 + 0.712 + 0.636).

Hence, Total Cash inflows for 4 years for the Project is:

₹ 1,00,000 × 3.038 = ₹ 3,03,800

Hence, Cost of the Project = ₹ 3,03,800

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ii. Cost of Capital

Profitability index

$$= \frac{\text{Sum of Discounted Cash in flows}}{\text{Cost of the Project}}$$

$$1.064 = \frac{\text{Sum of Discounted Cash in flows}}{₹\ 3,03,800}$$

∴Sum of Discounted Cash inflows = ₹ 3,23,243.20

Since, Annual Cash Inflows = ₹ 1,00,000

Hence, cumulative discount factor for 4 years $= \frac{₹\ 3,23,243.20}{₹\ 1,00,000} = 3.232$

From the discount factor table, at discount rate of 9%, the cumulative discount factor for 4 years is 3.239 (0.917 + 0.842 + 0.772 + 0.708).

Hence, Cost of Capital = 9% (approx.)

iii. Net Present Value (NPV)

NPV = Sum of Present Values of Cash inflows – Cost of the Project

= ₹ 3,23,243.20 – ₹ 3,03,800 = ₹ 19,443.20₹

iv. Payback Period

$$\text{Payback period} = \frac{\text{Cost of the Project}}{\text{Annual Cash Inflows}}$$

$$\frac{\text{Rs.}3,03,800}{\text{Rs.}1,00,000} = 3.038 \text{ years}$$

Question 8

Lockwood Limited wants to replace its old machine with a new automatic machine. Two models A and B are available at the same cost of ₹ 5 lakhs each. Salvage value of the old machine is ₹ 1 lakh. The utilities of the existing machine can be used if the company purchases model A. Additional cost of utilities to be purchased in this case will be ₹ 1 lakh. If the company purchases B, then all the existing utilities will have to be replaced with new utilities costing ₹ 2 lakhs. The salvage value of the old utilities will be ₹ 0.20 lakhs. The earnings after taxation are expected to be:

Year	Inflows of A(₹)	Inflows of B(₹)	P.V. Factor @ 15%
1	1,00,000	2,00,000	0.870
2	1,50,000	2,10,000	0.756
3	1,80,000	1,80,000	0.658
4	2,00,000	1,70,000	0.572
5	1,70,000	40,000	0.497
Salvage Value at the end of Year 5	50,000	60,000	

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The targeted return on capital is 15%. You are required to (i) COMPUTE, for the two machines separately, net present value, discounted payback period and desirability factor and (ii) STATE which of the machines is to be selected?

Answer 8

Working:

Calculation of Cash -outflow at year zero

Particulars	A (₹)	B (₹)
Cost of Machine	5,00,000	5,00,000
Cost of Utilities	1,00,000	2,00,000
Salvage value of Old Machine	(1,00,000)	(1,00,000)
Salvage of value Old Utilities	–	(20,000)
Total Expenditure (Net)	5,00,000	5,80,000

a) Calculation of NPV

Year	PV Factor @ 15%	Machine A		Machine B	
		Cash Inflows (₹)	iscounted value of inflows (₹)	Cash Inflows (₹)	iscounted Value of inflows (₹)
0	1.000	(5,00,000)	(5,00,000)	(5,80,000)	(5,80,000)
1	0.870	1,00,000	87,000	2,00,000	1,74,000
2	0.756	1,50,000	1,13,400	2,10,000	1,58,760
3	0.658	1,80,000	1,18,440	1,80,000	1,18,440
4	0.572	2,00,000	1,14,400	1,70,000	97,240
5	0.497	1,70,000	84,490	40,000	19,880
Salvage	0.497	50,000	24,850	60,000	29,820
Net Present Value			42,580		18,140

Since the Net present Value of both the machines is positive bothare acceptable.

(b) Discounted Pay-back Period

(Amount in ₹)

Year	Machine A		Machine B	
	Discounted cash inflows	Cumulative Discounted cash inflows	Discounted cash inflows	Cumulative Discounted cash inflows
1	87,000	87,000	1,74,000	1,74,000
2	1,13,400	2,00,400	1,58,760	3,32,760
3	1,18,440	3,18,840	1,18,440	4,51,200
4	1,14,400	4,33,240	97,240	5,48,440
5	1,09,340*	5,42,580	49,700*	5,98,140

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* Includes salvage value.

Discounted Payback Period (For A and B):

Machine A = 4 years= $\frac{5,00,000-4,33,240}{10,09,340}$== 4.61 years

Machine B = 4 years= $\frac{5,80,000-5,48,440}{49,700}$== 4.63 years

(c) Desirability Factor or Profitability Index:

Profitability Index(PI)= = $\frac{\text{Sum of present value of net cash inflow}}{\text{Initial cash outflow}}$

Machine A = $\frac{₹ 5,42,580}{₹ 5,,00,000}$== 1.08; Machine B= $\frac{₹ 5,98,140}{₹ 5,,80,000}$= 1.03

a) Since the absolute surplus in the case of A is more than B and also the desirability factor, it is better to choose A.

The discounted payback period in both the cases is almost same, also thenet present value is positive in both the cases, but the desirability factor (profitability index) is higher in the case of Machine A, it is therefore betterto choose Machine A.

Question 9

Hindlever Company is considering a new product line to supplement its range of products. It is anticipated that the new product line will involve cash investments of ₹ 7,00,000 at time 0 and ₹ 10,00,000 in year 1. After-tax cash inflows of₹ 2,50,000 are expected in year 2, ₹ 3,00,000 in year 3, ₹ 3,50,000 in year 4 and₹ 4,00,000 each year thereafter through year 10. Although the product line might be viable even after year 10, the company prefers to be conservative and end all calculations at that time.

(e) If the required rate of return is 15 per cent, COMPUTE net present value of the project. Is it acceptable?

(f) ANALYSE what would be the case if the required rate of return were 10 percent?

(g) CALCULATE its internal rate of return.

(h) COMPUTE the project's payback period.

Answer 9

Computation of NPV at 15% discount rate

Year	**Cash flow**	**ount Factor (15%)**	**Present value**
	(₹)		**(₹)**
0	(7,00,000)	1.000	(7,00,000)
1	(10,00,000)	0.870	(8,70,000)
2	2,50,000	0.756	1,89,000
3	3,00,000	0.658	1,97,400
4	3,50,000	0.572	2,00,200
5 10	4,00,000	2.163	8,65,200
Net Present Value			(1,18,200)

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As the net present value is negative, the project is unacceptable.

e) Computation of NPV if discount rate would be 10% discount rate

Year	Cash flow	Discount Factor (10%)	Present value
	(₹)		(₹)
0	(7,00,000)	1.000	(7,00,000)
1	(10,00,000)	0.909	(9,09,000)
2	2,50,000	0.826	2,06,500
3	3,00,000	0.751	2,25,300
4	3,50,000	0.683	2,39,050
5 □10	4,00,000	2.974	11,89,600
Net Present Value			2,51,450

Since NPV = ₹ 2,51,450 is positive, hence the project would be acceptable.

f) Calculation of IRR:

$$IRR \quad LR + \frac{NPV_{at}LR}{NPV_{at}LR - NPV_{at}HR}(HR - LR)$$

$$10\% + \frac{Rs.2,51,450}{Rs.2,51,450 - (-)1,18,200}(15\% - 10\%)$$

= 10% + 3.4012 or 13.40%

g) Computation of Pay-back period of the project:

Payback Period = 6 years:

- ₹ 7,00,000 ₹ 10,00,000 + ₹ 2,50,000 + ₹ 3,00,000 + ₹ 3,50,000 + ₹ 4,00,000 + ₹ 4,00,000 = 0

Question 10

Elite Cooker Company is evaluating three investment situations: (1) Produce a new line of aluminium skillets, (2) Expand its existing cooker line to include several new sizes, and (3) Develop a new, higher-quality line of cookers. If only the project in question is undertaken, the expected present values and the amounts of investment required are:

Project	Investment required	Present value of Future Cash-Flows
	₹	₹
1	2,00,000	2,90,000
2	1,15,000	1,85,000
3	2,70,000	4,00,000

If projects 1 and 2 are jointly undertaken, there will be no economies; the investments required and present values will simply be the sum of the parts. With projects 1 and 3, economies are possible in investment because one of the

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machines acquired can be used in both production processes. The total investment required for projects 1 and 3 combined is ₹ 4,40,000. If projects 2 and3 are undertaken, there are economies to be achieved in marketing and producing the products but not in investment. The expected present value of future cash flows for projects 2 and 3 is ₹ 6,20,000. If all three projects are undertaken simultaneously, the economies noted will still hold. However, a₹ 1,25,000 extension on the plant will be necessary, as space is not available for all three projects. CALCULATE NPV of the projects and STATE which project or projects should be chosen?

Answer 11

1. Calculation of NPV

Project	nvestment Required	Present value of Future Cash Flows	Present value
	₹	₹	₹
1	2,00,000	2,90,000	90,000
2	1,15,000	1,85,000	70,000
3	2,70,000	4,00,000	1,30,000
1 and 2	3,15,000	4,75,000	1,60,000
1 and 3	4,40,000	6,90,000	2,50,000
2 and 3	3,85,000	6,20,000	2,35,000
1, 2 and 3 (Refer Working note)	6,80,000*	9,10,000	2,30,000

Working Note:

(i) Total Investment required if all the three projects are undertaken simultaneously:

	(₹)
Project 1 & 3	4,40,000
Project 2	1,15,000
Plant extension cost	1,25,000
Total	6,80,000

(ii) Total of Present value of Cash flows if all the three projects are undertaken simultaneously:

	(₹)
Project 2 & 3	6,20,000
Project 1	2,90,000
Total	9,10,000

Projects 1 and 3 should be chosen, as they provide the highest netpresent value.

Question 12

Cello Limited is considering buying a new machine which would have a useful economic life of five years, a cost of ₹ 1,25,000 and a scrap value of ₹ 30,000, with

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80 per cent of the cost being payable at the start of the project and 20 percent at the end of the first year. The machine would produce 50,000 units per annum of a new product with an estimated selling price of ₹ 3 per unit. Direct costs would be ₹ 1.75 per unit and annual fixed costs, including depreciation calculated on a straight- line basis, would be ₹ 40,000 per annum.In the first year and the second year, special sales promotion expenditure, notincluded in the above costs, would be incurred, amounting to ₹ 10,000 and₹ 15,000 respectively. CALCULATE NPV of the project for investment appraisal, assuming that thecompany's cost of capital is 10 percent.

Answer 12

1. Calculation of Net Cash flow

Contribution = (3.00 – 1.75) ×50,000= ₹ 62,500

Fixed costs= 40,000 – [(1,25,000 – 30,000)/5] = ₹ 21,000

Year	Capital (₹)	Contribution (₹)	Fixed costs (₹)	Adverts (₹)	Net cash flow (₹)
0	(1,00,000)	-	-	-	(1,00,000)
1	(25,000)	62,500	(21,000)	(10,000)	6,500
2	-	62,500	(21,000)	(15,000)	26,500
3	-	62,500	(21,000)	-	41,500
4	-	62,500	(21,000)	-	41,500
5	30,000	62,500	(21,000)	-	71,500

Calculation of Net Present Value

Year	Net cash flow (₹)	10% discount factor	Present value (₹)
0	(1,00,000)	1.000	(1,00,000)
1	6,500	0.909	5,909
2	26,500	0.826	21,889
3	41,500	0.751	31,167
4	41,500	0.683	28,345
5	71,500	0.621	44,402
NPV			31,712

The net present value of the project is ₹ 31,712.

Question 13

Ae Bee Cee Ltd. is planning to invest in machinery, for which it has to make a choice between the two identical machines, in terms of Capacity, 'X' and 'Y'. Despite being designed differently, both machines do the same job. Further, details regarding both the machines are given below:

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Particulars	Machine 'X'	Machine 'Y'
Purchase Cost of the Machine (₹)	15,00,000	10,00,000
Life (years)	3	2
Running cost per year (₹)	4,00,000	6,00,000

The opportunity cost of capital is 9%.You are required to IDENTIFY the machine which the company should buy? The present value (PV) factors at 9% are:

Year	t1	t2	t3
PVIF0.09.t	0.917	0.842	0.772

Answer 13

1. **Statement Showing the Evaluation of Two Machines**

Particulars	Machine 'X'	Machine 'Y'
(i) Purchase Cost	₹ 15,00,000	₹ 10,00,000
(ii) Life of Machine	3 years	2 years
(iii) Running Cost of Machine per year	₹ 4,00,000	₹ 6,00,000
(iv) PVIFA (0.09, 3)	2.531	
PVIFA (0.09, 2)		1.759
(v) PV of Running Cost of Machine {(iii) × (iv)}	₹ 10,12,400	₹ 10,55,400
(vi) Cash outflows of Machine {(i) + (v)}	₹ 25,12,400	₹ 20,55,400
(vii) Equivalent PV of Annual Cash outflow {(vi)/(iv)}	₹ 9,92,651	₹ 11,68,505

Recommendation: Ae Bee Cee Ltd. should buy Machine 'X' since equivalentannual cash outflow is less than that of Machine 'Y'.

Question 14

Alley Pvt. Ltd. is planning to invest in a machinery that would cost ₹ 1,00,000 at the beginning of year 1. Net cash inflows from operations have been estimatedat ₹ 36,000 per annum for 3 years. The company has two options for smooth functioning of the machinery - one is service, and another is replacement of parts. If the company opts to service a part of the machinery at the end of year 1 at ₹ 20,000, in such a case, the scrap value at the end of year 3 will be ₹ 25,000. However, if the company decides not to service the part, then it will have to be replaced at the end of year 2 at ₹ 30,800, and in this case, the machinery will work for the 4th year also and get operational cash inflow of ₹ 36,000 for the 4th year. It will have to be scrapped at the end of year 4 at ₹ 18,000.Assuming cost of capital at 10% and ignoring taxes, DETERMINE the purchase ofthis machinery based on the net present value of its cash flows.If the supplier gives a discount of ₹ 10,000 for purchase, what would be your decision?

Note: The PV factors at 10% are:

Year	0	1	2	3	4	5	6
PV Factor	1	0.909 1	0.826 4	0.751 3	0.683 0	0.620 9	0.564 5

Answer 14

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Option I: Purchase Machinery and Service Part at the end of Year 1.

Net Present value of cash flow @ 10% per annum discount rate.

NPV (in ₹) = $-1,00,000 + \frac{36,000}{(1.1)} + \frac{36,000}{(1.1)^2} + \frac{36,000}{(1.1)^3} - \frac{20,000}{(1.1)} + \frac{25,000}{(1.1)^3}$

= -1,00,000 + 36,000 (0.9091 + 0.8264 + 0.7513) – (20,000 ×0.9091) + (25,000 × 0.7513)

= -1,00,000 + (36,000 ×2.4868) – 18,182 + 18,782.5

= - 1,00,000 + 89,524.8 – 18,182 + 18,782.5

NPV= -9,874.7

Since, Net Present Value is negative; therefore, this option is not to be considered.

If Supplier gives a discount of ₹ 10,000, then:

NPV (in ₹) = + 10,000 – 9,874.7 = + 125.3

In this case, Net Present Value is positive but very small; therefore, this option may not be advisable.

Option II: Purchase Machinery and Replace Part at the end of Year 2.

NPV (in ₹)= $-1,00,000 + \frac{36,000}{(1.1)} + \frac{36,000}{(1.1)^2} + \frac{36,000}{(1.1)^3} - \frac{30,800}{(1.1)^2} + \frac{54,000}{(1.1)^4}$

= - 1,00,000+ 36,000 (0.9091 + 0.8264 + 0.7513) – (30,800 × 0.8264) + (54,000 × 0.6830)

= -1,00,000 + 36,000 (2.4868) – 25,453.12 + 36,882

= -1,00,000 + 89,524.8 – 25,453.12 + 36,882

NPV= + 953.68

Net Present Value is positive, but very low as compared to the investment.

If the Supplier gives a discount of ₹ 10,000, then:

NPV (in ₹) = 10,000 + 953.68 = 10,953.68

Decision: Option II is worth investing as the net present value is positive andhigher as compared to Option I.

Question 15

NavJeevani hospital is considering to purchase a machine for medical projectional radiography which is priced at ₹ 2,00,000. The projected life of the machine is 8 years and has an expected salvage value of ₹ 18,000 at the end of 8th year. The annual operating cost of the machine is ₹ 22,500. It is expected to generate revenues of ₹ 1,20,000 per year for eight years. Presently, the hospital is outsourcing the radiography work to its neighbour Test Center and is earning commission income of ₹ 36,000 per annum, net of taxes.

Required: ANALYSE whether it would be profitable for the hospital to purchase the machine. Give your recommendation under:

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(i) **Net Present Value method**

(ii) **Profitability Index method**

Consider tax @30%. PV factors at 10% are given below:

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8
0.909	0.826	0.751	0.683	0.621	0.564	0.513	0.467

Answer 15

1. **Determination of Cash inflows**

Particulars	(₹)
Sales Revenue	1,20,000
Less: Operating Cost	22,500
	97,500
Less: Depreciation (₹ 2,00,000 – ₹ 18,000)/8	22,750
Net Income	74,750
Less: Tax @ 30%	22,425
Earnings after Tax (EAT)	52,325
Add: Depreciation	22,750
Cash inflow after tax per annum	75,075
Less: Loss of Commission Income	36,000
Net Cash inflow after tax per annum	39,075
In 8th Year :	
New Cash inflow after tax	39,075
Add: Salvage Value of Machine	18,000
Net Cash inflow in year 8	57,075

(i) **Calculation of Net Present Value (NPV)**

Year	CFAT (₹)	V Factor @10%	Present Value of Cash inflows (₹)
1 to 7	39,075	4.867	1,90,178.03
8	57,075	0.467	26,654.03
			2,16,832.06
Less: Cash Outflows			2,00,000.00
NPV			16,832.06

(ii) **Calculation of Profitability Index**

$$\text{Profitability Index} = \frac{\text{Sum of discounted cash in flows}}{\text{Present value of cash out flows}} = \frac{2,16,832.06}{2,00,000} = 1.084$$

Advise: Since the net present value (NPV) is positive and profitability index is also greater than 1, the hospital may purchase the machine.

Question 16

XYZ Ltd. is planning to introduce a new product with a project life of 8 years. Initial equipment cost will be ₹ 3.5 crores. Additional equipment costing₹ 25,00,000 will be purchased at the end of the third year from the cash inflow of

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this year. At the end of 8 years, the original equipment will have no resale value, but additional equipment can be sold for ₹ 2,50,000. A working capital of₹ 40,00,000 will be needed and it will be released at the end of eighth year. The project will be financed with sufficient amount of equity capital.

The sales volumes over eight years have been estimated as follows:

Year	1	2	3	4 -5	6 - 8
Units per year	72,000	1,08,000	2,60,000	2,70,000	1,80,000

A sales price of ₹ 240 per unit is expected and variable expenses will amount to 60% of sales revenue. Fixed cash operating costs will amount ₹ 36,00,000 per year. The loss of any year will be set off from the profits of subsequent two years. The company is subject to 30 per cent tax rate and considers 12 per cent to be an appropriate after-tax cost of capital for this project. The company follows straight line method of depreciation.

CALCULATE the net present value of the project and advise the management to take appropriate decision. The PV factors at 12% are

Year	1	2	3	4	5	6	7	8
PV Factor	0.893	0.797	0.712	0.636	0.567	0.507	0.452	0.404

Answer 16

Workings:

(a) **Calculation of annual cash flows (₹ in lakh)**

Year	Sales	VC	FC	Dep.	Profit	Tax	PAT	Dep.	Cash inflow
1	172.80	103.68	36	43.75	(10.63)			43.75	33.12
2	259.20	155.52	36	43.75	23.93	3.99*	19.94	43.75	63.69
3	624.00	374.40	36	43.75	169.85	50.955	118.895	43.75	162.645
4-5	648.00	388.80	36	48.25	174.95	52.485	122.465	48.25	170.715
6-8	432.00	259.20	36	48.25	88.55	26.565	61.985	48.25	110.235

(b) **Calculation of Depreciation**:

- On Initial equipment= $\frac{₹\,350\text{lakh}}{8\text{ year}}$ = 43.75 lakh

On additional equipment$\frac{(\text{Rs}.25-\text{Rs}.2.5);\text{laksh}}{5\text{ years}}$ =4.5 laks

(c) **Calculation of tax in 2nd Year:**

	₹ in lakh

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Profit for the year	23.93
Less: Set off of unabsorbed depreciation in 1st year	(10.63)
Taxable profit	13.30
Tax @30%	3.99

(d) Calculation of Initial cash outflow

	₹ in lakh
Cost of New Equipment	350
Add: Working Capital	40
Outflow	390

Calculation of NPV **(₹ in lakh)**

Year	**Cash flows**	**PV factor @12%**	**PV of cash-flows**	**Remark**
0	(390)	1.000	(390.00)	Initial equipment cost
1	33.12	0.893	29.57	
2	63.69	0.797	50.76	
3	162.645	0.712	115.80	
3	(25.00)	0.712	(17.80)	Additional equipment cost
4	170.715	0.636	108.57	
5	170.715	0.567	96.79	
6	110.235	0.507	55.89	
7	110.235	0.452	49.83	
8	110.235	0.404	44.53	
8	40.00	0.404	16.16	Release of working capital
8	2.50	0.404	1.01	Additional equipment salvage value
Net Present Value			161.11	

Advise: Since the project has a positive NPV, therefore, it should be accepted.

Question 17

A large profit making company is considering the installation of a machine to process the waste produced by one of its existing manufacturing process to be

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converted into a marketable product. At present, the waste is removed by a contractor for disposal on payment by the company of ₹ 150 lakh per annum for the next four years. The contract can be terminated upon installation of the aforesaid machine on payment of a compensation of ₹ 90 lakh before the processing operation starts. This compensation is not allowed as deduction for tax purposes. The machine required for carrying out the processing will cost ₹ 600 lakh. At the end of the 4th year, the machine can be sold for ₹ 60 lakh and the cost of dismantling and removal will be ₹ 45 lakh.Sales and direct costs of the product emerging from waste processing for 4 years are estimated as under:

(₹ In lakh)

Year	**1**	**2**	**3**	**4**
Sales	**966**	**966**	**1,254**	**1,254**
Material consumption	**90**	**120**	**255**	**255**
Wages	**225**	**225**	**255**	**300**
Other expenses	**120**	**135**	**162**	**210**
Factory overheads	**165**	**180**	**330**	**435**
Depreciation (as per income tax rules)	**150**	**114**	**84**	**63**

Initial stock of materials required before commencement of the processing operations is ₹ 60 lakh at the start of year 1. The stock levels of materials to be maintained at the end of year 1, 2 and 3 will be ₹ 165 lakh and the stocks at the end of year 4 will be nil. The storage of materials will utilise space which would otherwise have been rented out for ₹ 30 lakh per annum. Labour costs include wages of 40 workers, whose transfer to this process will reduce idle time payments of ₹ 45 lakh in the year- 1 and ₹ 30 lakh in the year- 2. Factory overheads include apportionment of general factory overheads except to the extent of insurance charges of ₹ 90 lakh per annum payable on this venture. Thecompany's tax rate is 30%.Consider cost of capital @ 14%, the present value factors of which is given belowfor four years:

Year	**1**	**2**	**3**	**4**
PV factors @14%	**0.877**	**0.769**	**0.674**	**0.592**

ADVISE the management on the desirability of installing the machine for processing the waste. All calculations should form part of the answer.

Answer 17

Statement of Operating Profit from processing of waste

(₹ in lakh)

Year	**1**	**2**	**3**	**4**
Sales (A)	966	966	1,254	1,254
Material consumption	90	120	255	255
Wages	180	195	255	300
Other expenses	120	135	162	210

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Factory overheads (insurance only)	90	90	90	90
Loss of rent on storage space (opportunity cost)	30	30	30	30
Depreciation (as per income tax rules)	150	114	84	63
Total cost (B)	660	684	876	948
Profit {(C)=(A) - (B)}	306	282	378	306
Less: Tax (30%)	91.8	84.6	113.4	91.8
Profit after Tax (PAT)	214.2	197.4	264.6	214.2

Statement of Incremental Cash Flows

(₹ in lakh)

Year	0	1	2	3	4
Cost of Machine	(600)				
Material stock	(60)	(105)	-	-	165
Compensation for contract	(90)	-	-	-	-
Contract payment saved	-	150	150	150	150
Tax on contract payment	-	(45)	(45)	(45)	(45)
Incremental profit	-	306	282	378	306
Depreciation added back	-	150	114	84	63
Tax on profits	-	(91.8)	(84.6)	(113.4)	(91.8)
Profit on sale of machinery (net)	-	-	-	-	15
Total incremental cash flows	(750)	364.2	416.4	453.6	562.2
Present value factor	1.00	0.877	0.769	0.674	0.592
Present value of cash flows	(750)	319.40	320.21	305.73	332.82
Net present value	528.16				

Advice: Since the net present value of cash flows is ₹ 528.16 lakh which is positive the management should install the machine for processing the waste.

Notes:

1. Material stock increases are taken in cash flows.
2. Idle time wages have also been considered.
3. Apportioned factory overheads are not relevant only insurance chargesof this project are relevant.
4. Sale of machinery - Net income after deducting removal expenses taken. Tax on Capital gains is ignored.

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5. Saving in contract payment and income tax thereon is considered in thecash flows.

Question 18

Xavly Ltd. has a machine which has been in operation for 3 years. The machine has a remaining estimated useful life of 5 years with no salvage value in the end. Its current market value is ₹ 2,00,000. The company is considering a proposal to purchase a new model of machine to replace the existing machine. The relevant information is as follows:

	Existing Machine	New Machine
Cost of machine	₹ 3,30,000	₹ 10,00,000
Estimated life	8 years	5 years
Salvage value	Nil	₹ 40,000
Annual output	30,000 units	75,000 units
Selling price per unit	₹ 15	₹ 15
Annual operating hours	3,000	3,000
Material cost per unit	₹ 4	₹ 4
Labour cost per hour	₹ 40	₹ 70
Indirect cash cost per annum	₹ 50,000	₹ 65,000

The company uses written down value of depreciation @ 20% and it has several other machines in the block of assets. The Income tax rate is 30 per cent and Xavly Ltd. does not make any investment, if it yields less than 12 per cent. ADVISE Xavly Ltd. whether the existing machine should be replaced or not. PV factors @12%:

Year	1	2	3	4	5
PVF	0.893	0.797	0.712	0.636	0.567

Answer 18

a) Calculation of Net Initial Cash Outflows:

	₹
Cost of new machine	10,00,000
Less: Sale proceeds of existing machine	2,00,000
Net initial cash outflows	8,00,000

b) Calculation of Base for depreciation

Particulars		₹
WDV of Existing Machine		
Cost of existing machine		3,30,000
Less: Depreciation for year 1	66,000	

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Depreciation for Year 2	52,800	
Depreciation for Year 3	42,240	1,61,040
WDV of Existing Machine (i)		**1,68,960**
Depreciation base of New Machine		
Cost of new machine		10,00,000
Add: WDV of existing machine		1,68,960
Less: Sales value of existing machine		2,00,000
Depreciation base of New Machine (ii)		9,68,960
Base for incremental depreciation [(ii) – (i)]		8,00,000

c) Calculation of annual Profit Before Tax and depreciation

Particulars	**Existing machine**	**New Machine**	**Differential**
(1)	**(2)**	**(3)**	**(4)=(3)–(2)**
Annual output	30,000 units	75,000 units	45,000 units
	₹	₹	₹
(A) Sales revenue @ ₹ 15per unit	4,50,000	11,25,000	6,75,000
(B) Less: Cost of Operation			
Material @ ₹ 4 per unit	1,20,000	3,00,000	1,80,000
Labour			
Old = 3,000 □ ₹ 40	1,20,000		90,000
New = 3,000 □ ₹ 70		2,10,000	
Indirect cash cost	50,000	65,000	15,000
Total Cost (B)	2,90,000	5,75,000	2,85,000
Profit Before Tax and depreciation (PBTD) (A – B)	1,60,000	5,50,000	3,90,000

d) Calculation of Incremental Net Present Value:

Year	**PBTD**	**Dep. @ 20%**	**PBT**	**Tax @ 30%**	**Net cash flow**	**PVF @12%**	**PV**
(1)	**(2)**	**(3)**	**(4=2-3)**	**(5)**	**(6=4-5+3)**	**(7)**	**(8=6 x 7)**
1	3,90,000	1,60,000	2,30,000	69,000.00	3,21,000.00	0.893	2,86,653.00
2	3,90,000	1,28,000	2,62,000	78,600.00	3,11,400.00	0.797	2,48,185.80
3	3,90,000	1,02,400	2,87,600	86,280.00	3,03,720.00	0.712	2,16,248.64
4	3,90,00	81,920	3,08,08	92,424.	2,97,576.	0.636	1,89,258.

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	0		0	00	00		34
5	3,90,000	65,536	3,24,464	97,339.20	2,92,660.80	0.567	1,65,938.67
							11,06,284.45
Add: PV of Salvage Value of new machine (₹ 40,000 x 0.567)							22,680.00
Less: Initial Cash Outflow							8,00,000.00
NPV							3,28,964.45

Advice: Since the incremental NPV is positive, existing machine should bereplaced.

Question 19

A & **Co. is contemplating whether to replace an existing machine or to spend money on overhauling it. A & Co. currently pays no taxes. The replacement machine costs ₹ 90,000 now and requires maintenance of ₹ 10,000 at the end of every year for eight years. At the end of eight years it would have a salvage valueof ₹ 20,000 and would be sold. The existing machine requires increasing amountsof maintenance each year and its salvage value falls each year as follows:**

Year	Maintenance (₹)	Salvage (₹)
Present	0	40,000
1	10,000	25,000
2	20,000	15,000
3	30,000	10,000
4	40,000	0

The opportunity cost of capital for A & Co. is 15%. REQUIRED:
When should the company replace the machine?
(Note: Present value of an annuity of Re. 1 per period for 8 years at interest rate of 15% : 4.4873; present value of Re. 1 to be received after 8 years at interest rate of 15% : 0.3269).

Answer 19

1. **A & Co. Equivalent cost of (EAC) of new machine**

		₹
(i)	Cost of new machine now	90,000
	Add: PV of annual repairs @ ₹ 10,000 per annum for 8 years (₹ 10,000 ×4.4873)	44,873
		1,34,873
	Less: PV of salvage value at the end of 8 years (₹20,000×0.3269)	6,538
		1,28,335
	Equivalent annual cost (EAC) (₹ 1,28,335/4.4873)	28,600

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PV of cost of replacing the old machine in each of 4 yearswith new machine

Scenario	Year	Cash Flow	PV @ 15%	PV
		(₹)		(₹)
Replace Immediately	0	(28,600)	1.00	(28,600)
		40,000	1.00	40,000
				11,400
Replace in one year	1	(28,600)	0.870	(24,882)
	1	(10,000)	0.870	(8,700)
	1	25,0000	0.870	21,750
				(11,832)
Replace in two years	1	(10,000)	0.870	(8,700)
	2	(28,600)	0.756	(21,622)
	2	(20,000)	0.756	(15,120)
	2	15,000	0.756	11,340
				(34,102)
Replace in three years	1	(10,000)	0.870	(8,700)
	2	(20,000)	0.756	(15,120)
	3	(28,600)	0.658	(18,819)
	3	(30,000)	0.658	(19,740)
	3	10,000	0.658	6,580
				(55,799)
Replace in four years	1	(10,000)	0.870	(8,700)
	2	(20,000)	0.756	(15,120)
	3	(30,000)	0.658	(19,740)
	4	(28,600)	0.572	(16,359)
	4	(40,000)	0.572	(22,880)
				(82,799)

Advice: The company should replace the old machine immediately because the PV of cost of replacing the old machine with new machine is least.

Question 20

A chemical company is presently paying an outside firm ₹ 1 per gallon to dispose off the waste resulting from its manufacturing operations. At normal operating capacity, the waste is about 50,000 gallons per year. After spending ₹ 60,000 on research, the company discovered that the waste could be sold for ₹ 10 per gallon if it was processed further. Additional processing would, however, require an investment of ₹ 6,00,000 in new equipment, which would have an estimated life of 10 years with no salvage value. Depreciation would be calculated by straight line method. Except for the costs incurred in advertising ₹ 20,000 per year, no change in the present selling and administrative expenses is expected, if the new product is sold. The details of additional processing costs are as follows:

Variable : ₹ 5 per gallon of waste put into process. Fixed : (Excluding

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Depreciation) ₹ 30,000 per year.
There will be no losses in processing, and it is assumed that the total waste processed in a given year will be sold in the same year. Estimates indicate that 50,000 gallons of the product could be sold each year. The management when confronted with the choice of disposing off the waste or processing it further and selling it, seeks your ADVICE. Which alternative would you recommend? Assume that the firm's cost of capital is 15% and it pays on an average 50% Tax on its income.
You should consider Present value of Annuity of ₹ 1 per year @ 15% p.a. for 10 years as 5.019.

Answer 20

1. **Evaluation of Alternatives:**
   Savings in disposing off the waste

Particulars	**(₹)**
Outflow (50,000 × ₹ 1)	50,000
Less: tax savings @ 50%	25,000
Net Outflow per year	**25,000**

Calculation of Annual Cash inflows in Processing of waste Material

Particulars	**Amount (₹)**	**Amount (₹)**
Sale value of waste (₹ 10 × 50,000 gallon)		5,00,000
Less: Variable processing cost(₹ 5 × 50,000 gallon)	2,50,000	
Less: Fixed processing cost	30,000	
Less: Advertisement cost	20,000	
Less: Depreciation	60,000	(3,60,000)
Earnings before tax (EBT)		**1,40,000**
Less: Tax @ 50%		(70,000)
Earnings after tax (EAT)		70,000
Add: Depreciation		60,000
Annual Cash inflows		**1,30,000**

Total Annual Benefits = Annual Cash inflows + Net savings (adjusting tax) in

disposal cost

= ₹ 1,30,000 + ₹ 25,000 = ₹ 1,55,000

Calculation of Net Present Value

Year	**Particulars**	**Amount (₹)**

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0	Investment in new equipment	(6,00,000)
1 to 10	Total Annual benefits × PVAF (10 years, 15%) ₹ 1,55,000 × 5.019	7,77,945
	Net Present Value	1,77,945

Recommendation: Processing of waste is a better option as it gives a positiveNet Present Value.

Note- Research cost of ₹ 60,000 is not relevant for decision making as it issunk cost.

Question 21

Manoranjan Ltd is a News broadcasting channel having its broadcasting Centre in Mumbai. There are total 200 employees in the organisation including top management. As a part of employee benefit expenses, the company serves tea or coffee to its employees, which is outsourced from a third-party. The company offers tea or coffee three times a day to each of its employees. 120 employees prefer tea all three times, 40 employees prefer coffee all three times and remaining prefer tea only once in a day. The third-party charges ₹ 10 for each cup of tea and ₹ 15 for each cup of coffee. The company works for 200 days in a year.

Looking at the substantial amount of expenditure on tea and coffee, the finance department has proposed to the management an installation of a master tea and coffee vending machine which will cost ₹ 10,00,000 with a useful life of five years. Upon purchasing the machine, the company will have to enter into an annual maintenance contract with the vendor, which will require a payment of ₹ 75,000 every year. The machine would require electricity consumption of 500 units p.m. and current incremental cost of electricity for the company is ₹ 12 per unit. Apart from these running costs, the company will have to incur the following consumables expenditure also:

(1) **Packets of Coffee beans at a cost of ₹ 90 per packet.**

(2) **Packet of tea powder at a cost of ₹ 70 per packet.**

(3) **Sugar at a cost of ₹ 50 per Kg.**

(4) **Milk at a cost of ₹ 50 per litre.**

(5) **Paper cup at a cost of 20 paise per cup.**

Each packet of coffee beans would produce 200 cups of coffee and same goes for tea powder packet. Each cup of tea or coffee would consist of 10g of sugar on an average and 100 ml of milk.

The company anticipate that due to ready availability of tea and coffee through vending machines its employees would end up consuming more tea and coffee.

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It estimates that the consumption will increase by on an average 20% for all class of employees. Also, the paper cups consumption will be 10% more than the actual cups served due to leakages in them.

The company is in the 25% tax bracket and has a current cost of capital at 12% per annum. Straight line method of depreciation is allowed for the purpose of taxation. You as a financial consultant is required to ADVISE on the feasibility of acquiring the vending machine.

PV factors @ 12%:

Year	1	2	3	4	5
PVF	0.8929	0.7972	0.7118	0.6355	0.5674

Answer 21

1. **Computation of CFAT (Year 1 to 5)**

Particulars		Amount (₹)
(a) Savings in existing Tea & Coffee charges	(120 × 10 ×3) + (40 ×15 × 3) + (40 ×10 × 1) x 200 days	11,60,000
(b) AMC of machine		(75,000)
(c) Electricity charges	500 ×12 ×12	(72,000)
(d) Coffee Beans	(W.N.) 144 × 90	(12,960)
(e) Tea Powder	(W.N.) 480 × 70	(33,600)
(f) Sugar	(W.N.) 1248 × 50	(62,400)
(g) Milk	(W.N.) 12480 × 50	(6,24,000)
(h) Paper Cup	(W.N.) 1,37,280 × 0.2	(27,456)
(i) Depreciation	10,00,000/5	(2,00,000)
Profit before Tax		**52,584**
(-) Tax @ 25%		(13,146)
Profit after Tax		**39,438**
Depreciation		2,00,000
CFAT		**2,39,438**

2. **B. Computation of NPV**

Year	Particulars	CF	PVF @ 12%	PV
0	Cost of machine	(10,00,000)	1	(10,00,000)
1-5	CFAT	2,39,438	3.6048	8,63,126
Net Present Value				**(1,36,874)**

Since NPV of the machine is negative, it should not be purchased. Working Note:

Computation of Qty of consumable

No. of Tea Cups = [(120 × 3 × 200 days) + (40 × 1 × 200 days) × 1.2 = 96,000

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No. of Coffee cups = 40 × 3 × 200 days × 1.2 = 28,800

No. of coffee beans packet = $\frac{28,800}{200}$ = 144

No. of Tea powder packets = $\frac{96,000}{200}$ = 480

Qty of Sugar $\frac{(96000+28,800)6,000}{1,000\ g}$ = 1248 kgs

Qty of milk = $\frac{(96000+28,800)6,000}{1,000\ g}$ = 12,480 litres

No. of Paper cups = (96,000 + 28,800)× 1.1 = 1,37,280

Question 22 illustration

ABC Ltd is evaluating the purchase of a new machinery with a depreciable base of₹ 1,00,000; expected economic life of 4 years and change in earnings before taxes and depreciation of ₹ 45,000 in year 1, ₹ 30,000 in year 2, ₹ 25,000 in year 3 and ₹ 35,000 in year 4. Assume straight-line depreciation and a 20% tax rate. You are required to COMPUTE relevant cash flows.

Answer 22

Depreciation = ₹ 1,00,000 ÷4 = ₹ 25,000

Amount in (₹)

	Years			
	1	**2**	**3**	**4**
Earnings before tax and depreciation	45,000	30,000	25,000	35,000
Less: Depreciation	(25,000)	(25,000)	(25,000)	(25,000)
Earnings before tax	20,000	5,000	0	10,000
Less: Tax @20%	(4,000)	(1,000)	0	(2,000)
Earnings after tax	16,000	4,000	0	8,000
Add: Depreciation	25,000	25,000	25,000	25,000
Net Cash flow	41,000	29,000	25,000	33,000

Question 23 illustration

A project requiring an investment of ₹ 10,00,000 and it yields profit after tax and depreciation which is as follows:

Years	**Profit after tax and depreciation (₹)**
1	**50,000**
2	**75,000**
3	**1,25,000**
4	**1,30,000**
5	**80,000**
Total	**4,60,000**

Suppose further that at the end of the 5th year, the plant and machinery of the project can be sold for ₹ 80,000. DETERMINE Average Rate of Return.

Answer 23

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In this case the rate of return can be calculated as follows:

$$\frac{\text{Total Profit} \div \text{No. of years}}{\text{Averageinvestment / Initial Initial Investment}} \times 100 = 9.2\%$$

(a) If Initial Investment is considered then,

$$= \frac{\text{Rs.}4{,}60{,}000 \div 5 \text{ years}}{\text{Rs.}10{,}00{,}000} \times 100 = \frac{\text{Rs.}92{,}000}{\text{Rs.}10{,}00{,}000} = 9.2\%$$

This rate is compared with the rate expected on other projects, had the same funds been invested alternatively in those projects. Sometimes, the management compares this rate with the minimum rate (called-cut off rate). For example, management may decide that they will not undertake any project which has an average annual yield after tax less than 20%. Any capital expenditure proposal which has an average annual yield of less than 20%, will be automatically rejected.

(b) If Average investment is considered, then,

$$= \frac{\text{Rs.}92{,}000}{\text{Averageinvestment}} \times 100 = \frac{\text{Rs.}92{,}000}{\text{Rs.}5{,}40{,}000} = 17.4\%$$

Where,

Average Investment = ½ (Initial investment – Salvage value) + Salvage value
= ½ (₹ 10,00,000 – ₹ 80,000) + ₹ 80,000

= ₹ 4,60,000 + ₹ 80,000 = ₹ 5,40,000

Question 24 illustration

COMPUTE the net present value for a project with a net investment of ₹ 1,00,000 and net cash flows for year one is ₹ 55,000; for year two is ₹ 80,000 and for year three is₹ 15,000. Further, the company's cost of capital is 10%. [PVIF @ 10% for three years are 0.909, 0.826 and 0.751]

Answer 24

Year	Net Cash Flows (₹)	PVIF @ 10%	Discounted Cash Flows (₹)
0	(1,00,000)	1.000	(1,00,000)
1	55,000	0.909	49,995
2	80,000	0.826	66,080
3	15,000	0.751	11,265
Net Present Value			27,340

Recommendation: Since the net present value of the project is positive, the company should accept the project.

Question 25 illustration

ABC Ltd. is a small company that is currently analyzing capital expenditure proposals for the purchase of equipment; the company uses the net present value technique to evaluate projects. The capital budget is limited to ₹ 500,000 which ABC Ltd. believes is the maximum capital it can raise. The initial investment and

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projected net cash flows for each project are shown below. The cost of capital of ABC Ltd is 12%. You are required to COMPUTE the NPV of the different projects.

	Project A (₹)	Project B (₹)	Project C (₹)	Project D (₹)
Initial Investment	200,000	190,000	250,000	210,000
Project Cash Inflows:				
Year 1	50,000	40,000	75,000	75,000
2	50,000	50,000	75,000	75,000
3	50,000	70,000	60,000	60,000
4	50,000	75,000	80,000	40,000
5	50,000	75,000	100,000	20,000

Answer 25

Calculation of net present value:

Period	PV factor	Project A (₹)	Project B (₹)	Project C (₹)	Project D (₹)
0	1.000	(2,00,000)	(1,90,000)	(2,50,000)	(2,10,000)
1	0.893	44,650	35,720	66,975	66,975
2	0.797	39,850	39,850	59,775	59,775
3	0.712	35,600	49,840	42,720	42,720
4	0.636	31,800	47,700	50,880	25,440
5	0.567	28,350	42,525	56,700	11,340
Net Present Value		(19,750)	25,635	27,050	(3,750)

Question 26 illustration

Suppose we have three projects involving discounted cash outflow of ₹ 5,50,000, ₹ 75,000 and ₹ 1,00,20,000 respectively. Suppose further that the sum of discounted cash inflows for these projects are ₹ 6,50,000, ₹ 95,000 and ₹ 1,00,30,000 respectively. CALCULATE the desirability factors for the three projects.

Answer 26

The desirability factors for the three projects would be as follows:

1. $\frac{Rs.6,50,000}{Rs.5,50,000} = 1.18$
2. $\frac{Rs.95,000}{Rs.75,000} = 1.27$
3. $\frac{Rs.1,00,30,000}{Rs1,00,20,000} = 1.001$

It can be seen that in absolute terms, project 3 gives the highest cash inflows yetits desirability factor is low. This is because the outflow is also very high.

Question 27 illustration

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A Ltd. is evaluating a project involving an outlay of ₹ 10,00,000 resulting in an annual cash inflow of ₹ 2,50,000 for 6 years. Assuming salvage value of the project is zero; DETERMINE the IRR of the project.

Answer 27

First of all, we shall find an approximation of the payback period:

$\frac{10,00,000}{2,50,000}=4$

Now, we shall search this figure in the PVAF table corresponding to 6-year row.

The value 4 lies between values 4.111 and 3.998, correspondingly discounting rates are 12% and 13% respectively.

NPV @ 12% and 13% is:

NPV12%= (10,00,000) + 4.111 × 2,50,000 = +27,750

NPV13%= (10,00,000) + 3.998 × 2,50,000 = -500

The internal rate of return is, thus, more than 12% but less than 13%. The exact rate can be obtained by interpolation:

Question 28 illustration

CALCULATE the internal rate of return of an investment of ₹ 1,36,000 which yields the following cash inflows:

Year	Cash Inflows (₹)
1	30,000
2	40,000
3	60,000
4	30,000
5	20,000

Answer 28

Let us discount cash flows by 10%.

Year	Cash Inflows (₹)	unting factor at 10%	Present Value (₹)
1	30,000	0.909	27,270
2	40,000	0.826	33,040
3	60,000	0.751	45,060
4	30,000	0.683	20,490
5	20,000	0.621	12,420
Total present value			1,38,280
Less: Initial Investment			1,36,000
NPV			+2,280

₹The NPV calculated @ 10% is positive. Therefore, a higher discount rate is suggested, say, 12%.

Year	Cash Inflows (₹)	ting factor at 12%	Present Value (₹)
1	30,000	0.893	26,790
2	40,000	0.797	31,880
3	60,000	0.712	42,720

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4	30,000	0.636	19,080
5	20,000	0.567	11,340
Total present value			1,31,810
Less: Initial Investment			1,36,000
NPV			- 4,190

The internal rate of return is, thus, more than 10% but less than 12%. The exact rate can be obtained by interpolation:

IRR

IRR = 10.704%

Question 29 illustration

A company proposes to install machine involving a capital cost of ₹ 3,60,000. The life of the machine is 5 years and its salvage value at the end of the life is nil. The machine will produce the net operating income after depreciation of ₹ 68,000 per annum. The company's tax rate is 45%.The Net Present Value factors for 5 years are as under:

Discounting rate	**14**	**15**	**16**	**17**	**18**
Cumulative factor	**3.43**	**3.35**	**3.27**	**3.20**	**3.13**

You are required to COMPUTE the internal rate of return of the proposal.

Answer 29

Computation of Cash inflow per annum ₹

Particulars	(₹)
Net operating income per annum	68,000
Less: Tax @ 45%	(30,600)
Profit after tax	37,400
Add: Depreciation (₹ 3,60,000 / 5 years)	72,000
Cash inflow	1,09,400

The IRR of the investment can be found as follows:

NPV = - ₹ 3,60,000 + ₹ 1,09,400 (PVAF5, r) = 0

or $PVAF_5$,r (Cumulative factor) = $\frac{Rs.3,60,000}{Rs.1,09,400}$= 3.29

Computation of Internal Rate of Return

	Discounting Rate	
	15%	16%
Cumulative factor	3.35	3.27
PV of Inflows (₹)	3,66,490 (₹ 1,09,400×3.35)	3,57,738 (₹ 1,09,400×3.27)
Less: Initial outlay (₹)	3,60,000	3,60,000
NPV (₹)	6,490	(2,262)

IRR = 15 + $\left[\frac{6,490,}{6,490+2,262}\right]$ × (16 – 15) =15 + 0.74 = 15.74%.

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Question 30 illustration

An investment of ₹ 1,36,000 yields the following cash inflows (profits before depreciation but after tax). DETERMINE MIRR considering 8% as cost of capital.

Year	(₹)
1	30,000
2	40,000
3	60,000
4	30,000
5	20,000
	1,80,000

Answer 30

Year 0 – Cash outflow = ₹ 1,36,000

The MIRR is calculated on the basis of investing the inflows at the cost of capital. The table below shows the value of the inflows, if they are immediately reinvested at 8%.

Year	**Cash flow**	**@ 8% reinvestment rate factor**	**(₹)**
1	30,000	1.3605*	40,815
2	40,000	1.2597	50,388
3	60,000	1.1664	69,984
4	30,000	1.0800	32,400
5	20,000	1.0000	20,000
			2,13,587

* Investment of ₹ 1 at the end of the year 1 is reinvested for 4 years (at the end of 5 years) shall become $1(1.08)^4 = 1.3605$. Similarly, reinvestment rate factor for remaining years shall be calculated. Please note that the investment at the end of 5th year shall be reinvested for zero year, hence, reinvestment rate factor shall be 1.

The total cash outflow in year 0 (₹ 1,36,000) is compared with the possible inflow at year 5 and the resulting figure = $\frac{1,36,000}{2,13,587}$ = 0.6367 is the discount factor in year 2,13,587 By looking at the year 5 row in the present value tables, you will see that this gives a return of 9%. This means that the ₹ 2,13,587 received in year 5 is equivalent to ₹ 1,36,000 in year 0 if the discount rate is 9%. Alternatively, we can compute MIRR as follows:

Total return $=\frac{2,13,587}{1,36,000}$

MIRR$=\sqrt[\frac{1}{5}]{1.5705 - 1 = 9\%}$

Question 31 illustration

Suppose there are two Project A and Project B are under consideration. The cash flows associated with these projects are as follows:

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Year	Project A (₹)	Project B (₹)
0	(1,00,000)	(3,00,000)
1	50,000	1,40,000
2	60,000	1,90,000
3	40,000	1,00,000

Assuming Cost of Capital equal to 10%, IDENTIFY which project should be accepted as per NPV Method and IRR Method.

Answer 31

Net Present Value (NPV) of Projects

Year	Cash Inflows of Project A (₹)	Cash Inflows of Project B (₹)	Present Value Factor @ 10%	PV of Project A (₹)	PV of Project B (₹)
0	(1,00,000)	(3,00,000)	1.000	(1,00,000)	(3,00,000)
1	50,000	1,40,000	0.909	45,450	1,27,260
2	60,000	1,90,000	0.826	49,560	1,56,940
3	40,000	1,00,000	0.751	30,040	75,100
NPV				25,050	59,300

Internal Rate of Returns (IRR) of projects

Since by discounting cash flows at 10%, we are getting values very far from zero. Therefore, let us discount cash flows using 20% discounting rate.

Year	Cash Inflows of Project A (₹)	Cash Inflows of Project B (₹)	Present Value Factor @ 20%	PV of Project A (₹)	PV of Project B (₹)
0	(1,00,000)	(3,00,000)	1.000	(1,00,000)	(3,00,000)
1	50,000	1,40,000	0.833	41,650	1,16,620
2	60,000	1,90,000	0.694	41,640	1,31,860
3	40,000	1,00,000	0.579	23,160	57,900
NPV				6,450	6,380

Even by discounting cash flows at 20%, we are getting values far from zero. Therefore, let us discount cash flows using 25% discounting rate.

Year	Cash Inflows of Project A (₹)	Cash Inflows of Project B (₹)	Present Value Factor @ 25%	PV of Project A (₹)	PV of Project B (₹)
0	(1,00,000)	(3,00,000)	1.000	(1,00,000)	(3,00,000)
1	50,000	1,40,000	0.800	40,000	1,12,000
2	60,000	1,90,000	0.640	38,400	1,21,600
3	40,000	1,00,000	0.512	20,480	51,200

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NPV	(1,120)	(15,200)

The internal rate of return is, thus, more than 20% but less than 25%. The exact rate can be obtained by interpolation:

$$IRR_A = 20\% \frac{6{,}450}{6{,}450-(1{,}120)} \times (25\% - 20\%) = 20\% + \left[\frac{6{,}450}{7{,}570} \times 5\%\right] = 2426\%$$

$$IRR_B = 20\% \frac{6{,}380}{6{,}380-(15{,}200)} \times (25\% - 20\%) = 20\% + \left[\frac{6{,}380}{21{,}580} \times 5\%\right] = 21.48\%$$

Overall Position

	Project A	Project B
NPV @ 10%	₹ 25,050	₹ 59,300
IRR	24.26%	21.48%

Thus, there is contradiction in ranking by two methods.

Question 32 illustration

Suppose ABC Ltd. is considering two Project X and Project Y for investment. The cash flows associated with these projects are as follows:

Year	**Project X (₹)**	**Project Y (₹)**
0	**(2,50,000)**	**(3,00,000)**
1	**2,00,000**	**50,000**
2	**1,00,000**	**1,00,000**
3	**50,000**	**3,00,000**

Assuming Cost of Capital be 10%, IDENTIFY which project should be accepted as per NPV Method and IRR Method.

Answer 32

Net Present Value of Projects

Year	Cash Inflows of Project X (₹)	Cash Inflows of Project Y (₹)	Present Value Factor @ 10%	PV of Project X (₹)	PV of Project Y (₹)
0	(2,50,000)	(3,00,000)	1.000	(2,50,000)	(3,00,000)
1	2,00,000	50,000	0.909	1,81,800	45,450
2	1,00,000	1,00,000	0.826	82,600	82,600
3	50,000	3,00,000	0.751	37,550	2,25,300
NPV				51,950	53,350

Internal Rate of Returns of projects

Since, by discounting cash flows at 10%, we are getting values far from zero. Therefore, let us discount cash flows using 20% discounting rate.

Year	Cash Inflows of Project X (₹)	Cash Inflows of Project Y (₹)	Present Value Factor @ 20%	PV of Project X (₹)	PV of Project Y (₹)

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0	(2,50,000)	(3,00,000)	1.000	(2,50,000)	(3,00,000)
1	2,00,000	50,000	0.833	1,66,600	41,650
2	1,00,000	1,00,000	0.694	69,400	69,400
3	50,000	3,00,000	0.579	28,950	1,73,700
NPV				14,950	(15,250)

Since, by discounting cash flows at 20% we are getting that value of Project X is positive and value of Project Y is negative. Therefore, let us discount cash flows of Project X using 25% discounting rate and Project Y using discount rate of 15%.

Year	Cash Inflows of Project X (₹)	Present Value Factor @ 25%	PV of Project X (₹)	Cash Inflows of Project Y (₹)	Present Value Factor @ 15%	PV of Project Y (₹)
0	(2,50,000)	1.000	(2,50,000)	(3,00,000)	1.000	(3,00,000)
1	2,00,000	0.800	1,60,000	50,000	0.870	43,500
2	1,00,000	0.640	64,000	1,00,000	0.756	75,600
3	50,000	0.512	25,600	3,00,000	0.658	1,97,400
NPV			(400)			16,500

The internal rate can be obtained by interpolation:

$$IRR_X = 20\% + \frac{14{,}950}{14{,}950 - (400)} \times (25\% - 20\%)$$

$$= 20\% + \left[\frac{14{,}950}{15{,}350} \times 5\right] = 24.87\%$$

$$IRR_B = 15\% + \frac{16{,}500}{16{,}500 - (-15{,}250)} \times (20\% - 15\%)$$

$$= 15\% + \left[\frac{16{,}500}{31{,}750} \times 5\right] = 17.60\%$$

Overall Position

	Project A	Project B
NPV @ 10%	₹ 51,950	₹ 53,350
IRR	24.87%	17.60%

Thus, there is contradiction in ranking by two methods.

Question 33 illustration

Suppose MVA Ltd. is considering two Project A and Project B for investment. The cash flows associated with these projects are as follows:

Year	**Project A (₹)**	**Project B (₹)**
0	**(5,00,000)**	**(5,00,000)**

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1	**7,50,000**	**2,00,000**
2	**0**	**2,00,000**
3	**0**	**7,00,000**

Assuming Cost of Capital equal to 12%, ANALYSE which project should be accepted as per NPV Method and IRR Method?

Answer 33

Net Present Value of Projects

Year	Cash Inflows of Project A (₹)	Cash Inflows of Project B (₹)	Present Value Factor @ 12%	PV of Project A (₹)	PV of Project B (₹)
0	(5,00,000)	(5,00,000)	1.000	(5,00,000)	(5,00,000)
1	7,50,000	2,00,000	0.893	6,69,750	1,78,600
2	0	2,00,000	0.797	0	1,59,400
3	0	7,00,000	0.712	0	4,98,400
NPV				1,69,750	3,36,400

Internal Rate of Returns of projects

Let us discount cash flows using 50% discounting rate.

Year	Cash Inflows of Project A (₹)	Cash Inflows of Project B (₹)	Present Value Factor @ 50%	PV of Project A (₹)	PV of Project B (₹)
0	(5,00,000)	(5,00,000)	1.000	(5,00,000)	(5,00,000)
1	7,50,000	2,00,000	0.667	5,00,250	1,33,400
2	0	2,00,000	0.444	0	88,800
3	0	7,00,000	0.296	0	2,07,200
NPV				250	(70,600)

Since, IRR of project A shall be 50% as NPV is very small. Further, by discounting cash flows at 50%, we are getting NPV of Project B negative. Therefore, let us discount cash flows of Project B using 15% discounting rate.

Year	Cash Inflows of Project B (₹)	Present Value Factor @ 15%	PV of Project B (₹)
0	(5,00,000)	1.000	(5,00,000)
1	2,00,000	0.870	1,74,000
2	2,00,000	0.756	1,51,200
3	7,00,000	0.658	4,60,600
NPV			2,85,800

The internal rate can be obtained by interpolation:

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$$IRR_B = 15\% + \frac{2,85,800}{2,85,800 - (-70,600)} \times (50\% - 15\%)$$

$$= 15\% + \left[\frac{2,85,800}{3,56,400} \times 5\right] = 43.07\%$$

Overall Position

	Project A	Project B
NPV @ 12%	₹ 1,69,750	₹ 3,36,400
IRR	50.00%	43.07%

Thus, there is contradiction in ranking by two methods.

Question 34 illustration

Shiva Limited is planning its capital investment programme for next year. It has five projects all of which give a positive NPV at the company cut-off rate of 15 percent, the investment outflows and present values being as follows:

Project	**Investment (₹)**	**NPV @ 15% (₹)**
A	**(50,000)**	**15,400**
B	**(40,000)**	**18,700**
C	**(25,000)**	**10,100**
D	**(30,000)**	**11,200**
E	**(35,000)**	**19,300**

The company is limited to a capital spending of ₹ 1,20,000.

You are required to ILLUSTRATE the returns from a package of projects within the capital spending limit. The projects are independent of each other and are divisible (i.e., part- project is possible).

Answer 34

Computation of NPVs per ₹ 1 of Investment and Ranking of the Projects

Project	Investment	NPV @ 15%	PV per ₹ 1 invested	Ranking
	₹ '000	₹ '000		
A	(50)	15.4	0.31	5
B	(40)	18.7	0.47	2
C	(25)	10.1	0.40	3
D	(30)	11.2	0.37	4
E	(35)	19.3	0.55	1

Building up of a Programme of Projects based on their Rankings

Project	Investment	NPV @ 15%
	₹ 000	₹ 000
E	(35)	19.3

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B	(40)	18.7	
C	(25)	10.1	
D	(20)	7.5	(2/3 of project total)
	120	55.6	

Thus, Project A should be rejected and only two-third of Project D be undertaken. If the projects are not divisible then other combinations can be examined as:

	Investment	NPV @ 15%
	₹ 000	₹ 000
E + B + C	100	48.1
E + B + D	105	49.2

In this case E + B + D would be preferable as it provides a higher NPV despite D ranking lower than C.

Question 35 illustration

R Pvt. Ltd. is considering modernizing its production facilities and it has two proposals under consideration. The expected cash flows associated with these projects and their NPV as per discounting rate of 12% and IRR is as follows:

Year	**Cash Flow**	
	Project A (₹)	**Project B (₹)**
0	**(40,00,000)**	**(20,00,000)**
1	**8,00,000**	**7,00,000**
2	**14,00,000**	**13,00,000**
3	**13,00,000**	**12,00,000**
4	**12,00,000**	**0**
5	**11,00,000**	**0**
6	**10,00,000**	**0**
NPV @12%	**6,49,094**	**5,15,488**
IRR	**17.47%**	**25.20%**

IDENTIFY which project should R Pvt. Ltd. accept?

Answer 35

Although from NPV point of view, Project A appears to be better but from IRR point of view, Project B appears to be better. Since, both projects have unequal lives, selection on the basis of these two methods shall not be proper. In such situation, we shall use any of the following method:

(i) Replacement Chain (Common Life) Method:

Since the life of the Project A is 6 years and Project B is 3 years, to equalize lives, we can have second opportunity of investing in project B after one time investing. The position of cash flows in such situation shall be as follows:

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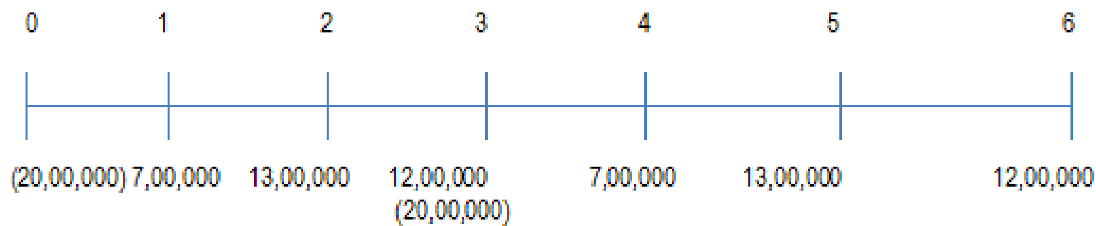

NPV of extended life of 6 years of Project B shall be ₹ 8,82,403 and IRR of 25.20%. Accordingly, with extended life NPV of Project B it appears to be more attractive.

(ii) Equivalent Annualized Criterion:

The method discussed above has one drawback when we have to compare two projects with one has a life of 3 years and other has 5 years. In such case, the above method shall require analysis of a period of 15 years i.e. common multiple of these two values. The simple solution to this problem is use of Equivalent Annualized Criterion involving following steps:

(a) Compute NPV using the WACC or discounting rate.

(b) Compute Present Value Annuity Factor (PVAF) of discounting factor used above for the period of each project.

(c) Divide NPV computed under step (a) by PVAF as computed under step (b) and compare the values.
Accordingly, for proposal under consideration:

	Project A	Project B
NPV @ 12%	₹ 6,49,094	₹ 5,15,488
PVAF @12%	4.112	2.402
Equivalent Annualized Criterion	₹ 1,57,854	₹ 2,14,608

Thus, Project B should be selected.

Question 36 illustration

Alpha Company is considering the following investment projects:

	Cash Flows (₹)			
Projects	**C0**	**C1**	**C2**	**C3**
A	**-10,000**	**+10,000**		
B	**-10,000**	**+7,500**	**+7,500**	
C	**-10,000**	**+2,000**	**+4,000**	**+12,000**
D	**-10,000**	**+10,000**	**+3,000**	**+3,000**

(a) **ANALYSE and rank the projects according to each of the following methods: (i) Payback, (ii) ARR, (iii) IRR and (iv) NPV, assuming discount rates of 10 and 30 per cent.**

(b) **Assuming the projects are independent, which one should be accepted? If the projects are mutually exclusive, IDENTIFY which project is the best?**

Answer 36

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(a)

i. Payback Period

Project A: ₹ 10,000/₹ 10,000= 1 year

Project B: ₹ 10,000/₹ 7,500= $1\frac{1}{3}$ years

Project C: 2 years+ $\frac{Rs.10,000-Rs.6,000}{Rs.12,000}$= $2\frac{1}{3}$ years

Project D: 1 year

ii. ARR (Figures in ₹)

Project A: = $\frac{(10,000-10,000)1/2}{(10,000)1/2}$

Project B:= $\frac{(15,000-10,000)1/2}{(10,000)1/2}=\frac{2,500}{5,000}=50\%$

Project C:= $\frac{(18,000-10,000)1/3}{(10,000)1/2}=\frac{2,667}{5,000}=53\%$

Project D:= $\frac{(16,000-10,000)1/3}{(10,000)1/2}=\frac{2,000}{5,000}=40\%$

Note: This net cash proceed includes recovery of investment also. Therefore, net cash earnings are found by deducting initial investment.

iii. IRR

Project A:	The net cash proceeds in year 1 are just equal to investment. Therefore, r = 0%.
Project B:	This project produces an annuity of ₹ 7,500 for two years. Therefore, the required PVAF is: ₹ 10,000/₹ 7,500 = 1.33. This factor is found under 32% column. Therefore, r = 32%
Project C:	Since cash flows are uneven, the trial and error method will be followed. Using 20% rate of discount, the NPV is + ₹ 1,389. At 30% rate of discount, the NPV is - ₹ 633. The true rate of return should be less than 30%. At 27% rate of discount, it is found that the NPV is - ₹ 86 and + ₹ 105 at 26%. Through interpolation, we find r = 26.5%
Project D:	In this case also by using the trial and error method, itis found that at 37.6% rate of discount, NPV becomes almost zero. Therefore, r = 37.6%.

iv. NPV

Project A:

at 10% -10,000+10,000×0.909 = -910

at 30% -10,000+10,000×0.769 = -2,310

Project B:

at 10% -10,000+7,500(0.909+0.826) = +3,013

at 30% -10,000+7,500(0.769+0.592) = +208

Project C:

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at 10% -10,000+2,000×0.909+4,000×0.826+12,000×0.751= +4,134

at 30% -10,000+2,000×0.769+4,000×0.592+12,000×0.455 =- 633

Project D:

at 10% -10,000+10,000×0.909+3,000×(0.826+0.751) =+ 3,821

at 30% -10,000+10,000×0.769+3,000×(0.592+0.455) =+ 831

The projects are ranked as follows according to the various methods:

Projects	**PBP**	**ARR**	**IRR**	**NPV (10%)**	**NPV (30%)**
A	1	4	4	4	4
B	2	2	2	3	2
C	3	1	3	1	3
D	1	3	1	2	1

(b) Payback and ARR are theoretically unsound method for choosing between the investment projects. Between the two time-adjusted (DCF) investment criteria, NPV and IRR, NPV gives consistent results. If the projects are independent (and there is no capital rationing), either IRR or NPV can be used since the same set of projects will be accepted by any of the methods. In the present case, except Project A all the three projects should be accepted if the discount rate is 10%. Only Projects B and D should be undertaken if the discount rate is 30%.

If it is assumed that the projects are mutually exclusive, then under the assumption of 30% discount rate, the choice is between B and D (A and C are unprofitable). Both criteria IRR and NPV give the same results – D is the best. Under the assumption of 10% discount rate, ranking according to IRR and NPV conflict (except for Project A). If the IRR rule is followed, Project D should be accepted. But the NPV rule tells that Project C is the best. The NPV rule generally gives consistent results in conformity with the wealth maximization principle. Therefore, Project C should be accepted following the NPV rule.

Question 37 illustration

The expected cash flows of three projects are given below. The cost of capital is 10 per cent.

(a) **CALCULATE the payback period, net present value, internal rate of return and accounting rate of return of each project.**

(b) **IDENTIFY the rankings of the projects by each of the four methods.**

(₹ in '000)

Period	**Project A (₹)**	**Project B (₹)**	**Project C (₹)**
0	(5,000)	(5,000)	(5,000)
1	900	700	2,000
2	900	800	2,000

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3	900	900	2,000
4	900	1,000	1,000
5	900	1,100	
6	900	1,200	
7	900	1,300	
8	900	1,400	
9	900	1,500	
10	900	1,600	

Answer 37

(a) **Payback Period Method:**

A = 5 + (500/900) = 5.56

years B = 5 + (500/1,200)

= 5.42 years C = 2 +

(1,000/2,000) = 2.5 years

Net Present Value Method:

NPV_A = (-5,000) + (900×6.145) = (5,000) + 5,530.5 = ₹ 530.5

NPV_B is calculated as follows:

Year	Cash flow (₹)	10% discount factor	Present value (₹)
0	(5000)	1.000	(5,000)
1	700	0.909	636
2	800	0.826	661
3	900	0.751	676
4	1000	0.683	683
5	1100	0.621	683
6	1200	0.564	677
7	1300	0.513	667
8	1400	0.467	654
9	1500	0.424	636
10	1600	0.386	618
			1591

NPV_C is calculated as follows:

Year	Cash flow (₹)	10% discount factor	Present value (₹)
0	(5000)	1.000	(5,000)
1	2000	0.909	1,818
2	2000	0.826	1,652
3	2000	0.751	1,502
4	1000	0.683	683
			655

Internal Rate of Return

Project A

NPV at 12% = (5,000) + 900 □ 5.650

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= (5,000) + 5085 = 85

NPV at 13% = (5,000) + 900 □ 5.426

= (5,000) + 4,883.40 = -116.60

$IRR_A = \left[\frac{85}{85+116.60}\right] \times (13-12)$=12+0.42 = 12.42%.

Project B

IRR_B

Year	Cash flow (₹)	10% discount factor	Present value (₹)	16% discount factor	Present value (₹)
0	(5,000)	1.000	(5,000)	1.000	(5,000)
1	700	0.909	636	0.862	603
2	800	0.826	661	0.743	595
3	900	0.751	676	0.641	577
4	1,000	0.683	683	0.552	552
5	1,100	0.621	683	0.476	524
6	1,200	0.564	677	0.410	493
7	1,300	0.513	667	0.354	460
8	1,400	0.467	654	0.305	427
9	1,500	0.424	636	0.263	394
10	1,600	0.386	618	0.227	363
			1,591		(12)

Interpolating: IRR_B=10%+$\frac{1,591}{(1,591+12)} \times (16\% - 10\%) = 10\% + 5.94\% = 15.94\%$

Project C

IRR_C

Year	Cash flow (₹)	15% discount factor	Present value (₹)	18% discount factor	Present value (₹)
0	(5,000)	1.000	(5,000)	1.000	(5,000)
1	2,000	0.870	1,740	0.847	1,694
2	2,000	0.756	1,512	0.718	1,436
3	2,000	0.658	1,316	0.609	1,218
4	1,000	0.572	572	0.516	516
			140		(136)

Interpolating: IRR_C=15%+$\frac{140}{(140+136)} \times (18\% - 15\%) = 15\% + 1.25\% = 16.52\%$

Accounting Rate of Return:

ARR_A: Average capital employed $= \frac{5,000}{2} = Rs. 25,00$

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Average accounting profit= $=\frac{(9,000-5,000)}{10} = Rs.4,00$

$ARR_A = \frac{(400 \times 100)}{25,00} = 16\ Per\ cent$

ARR_B Average accounting profit= $=\frac{(11,500-5,000)}{10} = Rs.650$

$ARR_B = \frac{(650 \times 100)}{25,00} = 26\ Per\ cent$

ARR_C Average accounting profit= $=\frac{(7,000-5,000)}{4} = Rs.500$

$ARR_C = \frac{(500 \times 100)}{25,00} = 22\ Per\ ce$

(b) Summary of Results

	A	B	C
Payback (years)	5.5	5.4	2.5
NPV (₹)	530.50	1,591	655
IRR (%)	12.42	15.94	16.52
ARR (%)	16	26	20

Comparison of Rankings

Method	Payback	NPV	IRR	ARR
1	C	B	C	B
2	B	C	B	C
3	A	A	A	A

Question 38 illustration

X Limited is considering purchasing of new plant worth ₹ 80,00,000. The expected netcash flows after taxes and before depreciation are as follows:

Year	Net Cash Flows (₹)
1	14,00,000
2	14,00,000
3	14,00,000
4	14,00,000
5	14,00,000
6	16,00,000
7	20,00,000
8	30,00,000
9	20,00,000
10	8,00,000

The rate of cost of capital is 10%.You are required to CALCULATE:

(i) **Pay-back period**
(ii) **Net present value at 10 discount factor**
(iii) **Profitability index at 10 discount factor**
(iv) **Internal rate of return with the help of 10% and 15% discount factorThe following present value table is given for you:**

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Year	esent value of ₹ 1 at 10% discount rate	esent value of ₹ 1 at 15% discount rate
1	0.909	0.87
2	0.826	0.756
3	0.751	0.658
4	0.683	0.572
5	0.621	0.497
6	0.564	0.432
7	0.513	0.376
8	0.467	0.327
9	0.424	0.284
10	0.386	0.247

Answer 38

(i) **Calculation of Pay-back Period**

Cash Outlay of the Project = ₹ 80,00,000

Total Cash Inflow for the first five years = ₹ 70,00,000

Balance of cash outlay left to be paid back in the 6th year ₹ 10,00,000 Cash inflow for 6th year = ₹ 16,00,000

So, the payback period is between 5th and 6th years, i.e.,

5 years + $\frac{Rs..10,00,000}{Rs..16,00,00}$ = 5.625 years or 5 years 7.5 months

(ii) **Calculation of Net Present Value (NPV) @ 10% discount rate:**

Year	Net Cash Inflow (₹)	Present Value at Discount Rate of 10%	Present Value (₹)
	(a)	(b)	(c) = (a)× (b)
1	14,00,000	0.909	12,72,600
2	14,00,000	0.826	11,56,400
3	14,00,000	0.751	10,51,400
4	14,00,000	0.683	9,56,200
5	14,00,000	0.621	8,69,400
6	16,00,000	0.564	9,02,400
7	20,00,000	0.513	10,26,000
8	30,00,000	0.467	14,01,000
9	20,00,000	0.424	8,48,000
10	8,00,000	0.386	3,08,800
			97,92,200

Net Present Value (NPV) = Cash Outflow – Present Value of Cash Inflows

= ₹ 80,00,000 – ₹ 97,92,200 = 17,92,200

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(iii) Calculation of Profitability Index @ 10% discount rate:

$$\text{Profitability Index} = \frac{\text{Present Value of Cash inflows}}{\text{Cost of the investment}}$$

$$= \frac{₹97,92,200}{=₹\ 80,,00,000} = 1.224$$

(iv) Calculation of internal rate of return

Net present value @ 10% interest rate factor has already been calculated in (ii) above, we will calculate Net present value @15% rate factor.

Year	Net Cash Inflow (₹)	Present Value at Discount Rate of 15%	Present Value (₹)
	(a)	(b)	(c) = (a)× (b)
1	14,00,000	0.870	12,18,000
2	14,00,000	0.756	10,58,400
3	14,00,000	0.658	9,21,200
4	14,00,000	0.572	8,00,800
5	14,00,000	0.497	6,95,800
6	16,00,000	0.432	6,91,200
7	20,00,000	0.376	7,52,000
8	30,00,000	0.327	9,81,000
9	20,00,000	0.284	5,68,000
10	8,00,000	0.247	1,97,600
			78,84,000

Net Present Value at 15% = ₹ 78,84,000 – ₹ 80,00,000 = ₹ -1,16,000

As the net present value @ 15% discount rate is negative, hence internal rateof return falls in between 10% and 15%. The correct internal rate of return canbe calculated as follows:

$$\text{IRR} = L + \frac{NPV_L}{NPV_L - NPV_H}(H - L)$$

$$10\% + \frac{Rs..17,92,200}{Rs..17,92,200 - (-Rs.1,16,000)}(15\% - 10\%)$$

$$10\% \frac{Rs.17,92,200}{Rs.19,08,200} \times 5\% = 14.17\%$$

Question 39 illustration

HMR Ltd. is considering replacing a manually operated old machine with a fully automatic new machine. The old machine had been fully depreciated for tax purpose buthas a book value of ₹ 2,40,000 on 31st March 2021. The machine has begun causing problems with breakdowns and it cannot fetch more than ₹ 30,000 if sold in the marketat present. It will have no realizable value after 10 years. The company has been offered₹ 1,00,000 for the old machine as a trade in on the new machine which has a price (before allowance for trade in) of ₹ 4,50,000. The expected life of new machine is 10 yearswith salvage value of ₹ 35,000.Further, the

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company follows straight line depreciation method but for tax purpose, written down value method depreciation @ 7.5% is allowed taking that this is the only machine in the block of assets.

Given below are the expected sales and costs from both old and new machine:

	Old machine (₹)	New machine (₹)
Sales	8,10,000	8,10,000
Material cost	1,80,000	1,26,250
Labour cost	1,35,000	1,10,000
Variable overhead	56,250	47,500
Fixed overhead	90,000	97,500
Depreciation	24,000	41,500
PBT	3,24,750	3,87,250
Tax @ 30%	97,425	1,16,175
PAT	2,27,325	2,71,075

From the above information, ANALYSE whether the old machine should be replaced or not if required rate of return is 10%? Ignore capital gain tax.

PV factors @ 10%:

Year	1	2	3	4	5	6	7	8	9	10
PVF	0.909	0.826	0.751	0.683	0.621	0.564	0.513	0.467	0.424	0.386

Answer 39

Workings:

1. **Calculation of Base for depreciation or Cost of New Machine**

Particulars	(₹)
Purchase price of new machine	4,50,000
Less: Sale price of old machine	1,00,000
	3,50,000

2. **Calculation of Profit before tax as per books**

Particulars	machine(₹)	machine(₹)	erence(₹)
PBT as per books	3,24,750	3,87,250	62,500
Add: Depreciation as perbooks	24,000	41,500	17,500
Profit before tax and depreciation (PBTD)	3,48,750	4,28,750	80,000

Calculation of Incremental NPV

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Year	PVF @ 10%	PBTD (₹)	Dep. @ 7.5% (₹)	PBT (₹)	@ 30%(₹)	Cash Inflows (₹)	PV of Cash Inflows (₹)
	(1)	(2)	(3)	(4)	(5) = (4) x 0.30	(6) = (4) – (5) + (3)	(7) = (6) x (1)
1	0.909	80,000.00	26,250.00	53,750.00	16,125.00	63,875.00	58,062.38
2	0.826	80,000.00	24,281.25	55,718.75	16,715.63	63,284.38	52,272.89
3	0.751	80,000.00	22,460.16	57,539.84	17,261.95	62,738.05	47,116.27
4	0.683	80,000.00	20,775.64	59,224.36	17,767.31	62,232.69	42,504.93
5	0.621	80,000.00	19,217.47	60,782.53	18,234.76	61,765.24	38,356.21
6	0.564	80,000.00	17,776.16	62,223.84	18,667.15	61,332.85	34,591.73
7	0.513	80,000.00	16,442.95	63,557.05	19,067.12	60,932.88	31,258.57
8	0.467	80,000.00	15,209.73	64,790.27	19,437.08	60,562.92	28,282.88
9	0.424	80,000.00	14,069.00	65,931.00	19,779.30	60,220.70	25,533.58
10	0.386	80,000.00	13,013.82	66,986.18	20,095.85	59,904.15	23,123.00
							3,81,102.44
Add: PV of Salvage value of new machine (₹ 35,000 □ 0.386)							13,510.00
Total PV of incremental cash inflows							3,94,612.44
Less: Cost of new machine							3,50,000.00
Incremental Net Present Value							44,612.44

Analysis: Since the Incremental NPV is positive, the old machine should be replaced.

Question 40 illustration

XYZ Ltd. is presently all equity financed. The directors of the company have been evaluating investment in a project which will require ₹ 270 lakhs capital expenditure on new machinery. They expect the capital investment to provide annual cash flowsof ₹ 42 lakhs indefinitely which is net of all tax adjustments. The discount rate whichit applies to such investment decisions is 14% net.

The directors of the company believe that the current capital structure fails to take advantage of tax benefits of debt and propose to finance the new project with undated perpetual debt secured on the company's assets. The company

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intends toissue sufficient debt to cover the cost of capital expenditure and the after tax cost of issue.

The current annual gross rate of interest required by the market on corporate undated debt of similar risk is 10%. The after tax costs of issue are expected to be ₹ 10 lakhs. Company's tax rate is 30%.

You are REQUIRED to:

(i) **Calculate the adjusted present value of the investment,**

(ii) **Calculate the adjusted discount rate and**

(iii) **Explain the circumstances under which this adjusted discount rate may be usedto evaluate future investments.**

Answer 40

(i) **Calculation of Adjusted Present Value of Investment (APV)**

Adjusted PV = Base Case PV + PV of financing decisions associated with the project

Base Case NPV for the project:

(-) ₹ 270 lakhs + (₹ 42 lakhs / 0.14) = (-) ₹ 270 lakhs + ₹ 300 lakhs= ₹ 30

Issue costs = ₹ 10 lakhs

Thus, the amount to be raised= ₹ 270 lakhs + ₹ 10 lakhs

= ₹ 280 lakhs

Annual tax relief on interest payment= ₹ 280 X 0.1 X 0.3

= ₹ 8.4 lakhs in perpetuity

The value of tax relief in perpetuity= ₹ 8.4 lakhs / 0.1

= ₹ 84 lakhs

Therefore, APV= Base case PV – Issue Costs + PV of Tax Relief on debt interest

= ₹ 30 lakhs – ₹ 10 lakhs + 84 lakhs = ₹ 104 lakhs

(ii) **Calculation of Adjusted Discount Rate (ADR)**

Annual Income / Savings required to allow an NPV to zeroLet the annual income be x.

(-) ₹280 lakhs X (Annual Income / 0.14) = (-) ₹104 lakhs Annual Income / 0.14 = (-) ₹ 104 + ₹ 280 lakhs

Therefore, Annual income= ₹ 176 X 0.14 = ₹ 24.64 lakhs

Adjusted discount rate= (₹ 24.64 lakhs / ₹280 lakhs) X 100

= 8.8%

(iii) **Useable circumstances**

This ADR may be used to evaluate future investments only if the business risk of the new venture is identical to the one being evaluated here and theproject is to be financed by the same method on the same terms. The effect on the company's cost of capital of introducing debt into the capital structure cannot be ignored.

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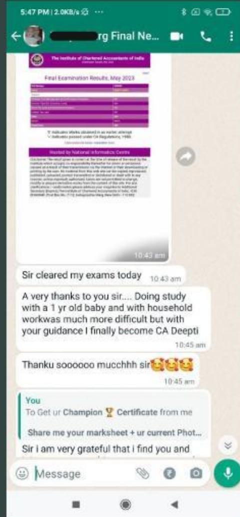

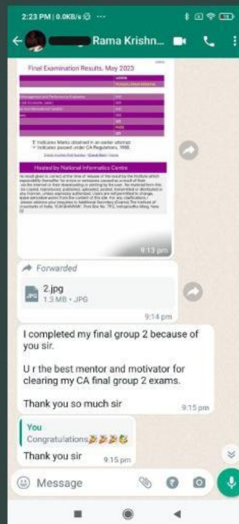

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Chapter 8
Dividend Decisions

Attempt wise Distribution

Q & A													
Attempts	May' 18	Nov' 18	May' 19	Nov '19	May' 20	Nov' 20	Jan '21	Jul' 21	Dec '21	May' 22	Nov' 22	May '23	Nov' 23
MTP	Q24	Q10, Q16, Q23, Q27	Q7, Q20, Q31			Q28		Q13, Q15, Q17				Q4, Q30	Q5
PYP			Q6	Q3			Q1		Q8	Q9		Q11	
RTP	Q22	Q29	Q21			Q25		Q19	Q2	Q12	Q18	Q14	Q26

Section A

Question 1

The following information is taken from ABC Ltd.

Net Profit for the year	**Rs.30,00,000**
12% Preference share capital	**Rs.1,00,00,000**
Equity share capital (Share of Rs.10 each)	**Rs.60,00,000**
Internal rate of return on investment	**22%**
Cost of Equity Capital	**18%**
Retention Ratio	**75%**

Calculate the market price of the share using:

(1) **Gordon's Model**

(2) **Walter's Model (PYP 5 Marks, Jan'21)**

Answer 1

Market price per share by-

(1) Gordon's Model:

Present market price per share (P_0)*= $\frac{D_0(1+g)}{k_e-g}$

OR

Present market price per share (P_0)= $\frac{D_1}{k_e-g}$

P_0 = Present market price per share.

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g = Growth rate (br) = 0.75 X 0.22 = 0.165

b = Retention ratio (i.e., % of earnings retained) r = Internal rate of return (IRR)

D_0 = E x (1 – b) = 3 X (1 – 0.75) = 0.75

E = Earnings per share

P_0

$= \frac{0.75\ (1+0.165)}{0.18-0.165} = \frac{0.874}{0.015} =$ ₹ 58.27 approx.

*Alternatively, Po can be calculated as $= \frac{E(1-b)}{K-br}$ = ₹ 50.

(2) Walter's Model:

$$P = \frac{D + \frac{r}{k_e}(E-D)}{k_e}$$

$$\frac{0.75 + \frac{0.22}{0.18}(3-0.75)}{0.18} = Rs.19.44$$

Workings:

1. Calculation of Earnings per share

Particulars	Amount (Rs.)
Net Profit for the year	30,00,000
Less: Preference dividend (12% of Rs.1,00,00,000)	(12,00,000)
Earnings for equity shareholders	18,00,000
No. of equity shares (Rs.60,00,000/₹10)	6,00,000
Therefore, Earnings per share Earning for equity shareholders / No. of equity shares	Rs.18,00,000/6,00,000 = Rs.3.00

2. Calculation of Dividend per share

Particulars	
Earnings per share	Rs.3
Retention Ratio (b) Dividend pay-out ratio (1-b)	75% 25%
Dividend per share (Earnings per share x Dividend pay-out ratio)	Rs.3 x 0.25 = ₹ 0.75

Question 2

Rex Ltd has 20 lakh equity shares outstanding at the start of the accounting year 2023. The existing market price per share is ₹ 300. Expected dividend is ₹ 20 per

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share. The rate of capitalization appropriate to the risk class to which the company belongs is 20%.
CALCULATE the market price per share when expected dividends are: (a) declared, and (b) not declared, based on the Miller – Modigliani approach.
CALCULATE number of shares to be issued by the company at the end of the accounting year on the assumption that the net income for the year is ₹ 5 crore; investment budget is ₹ 8 crores, when (a) Dividends are declared, and (b) Dividends are not declared.
PROVE that the market value of the shares at the end of the accounting year will remain unchanged irrespective of whether (a) Dividends are declared, or (ii) Dividends are not declared.
WHAT is the implied growth rate in dividends as per Gordon's model, if expected dividend payment is considered imminent? (RTP Nov '21)

Answer 2

(i) Calculation of market price per share

According to Miller – Modigliani (MM) Approach:

$P_0 = \frac{P_1+D_1}{1+k_e}$

Where,

Existing market price (Po) = ₹ 300

Expected dividend per share (D1) = ₹ 20

Capitalization rate (ke) = 0.20 Market price at year end (P1) = ?

a. If expected dividends are declared,

then 300=(P1+20)/(1+0.2)

300 x 1.2 = P1+20

P1= 340

b. If expected dividends are not declared,

then 300=(P1+0)/(1+0.2)

300 x 1.2 = P1

P1= 360

(ii) Calculation of number of shares to be issued

	(a)	**(b)**
	Dividends are declared. (₹ lakh)	**Dividends are not Declared (₹ lakh)**

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Net income	500	500
Total dividends	(400)	-
Retained earnings	100	500
Investment budget	800	800
Amount to be raised by new issues	700	300
Relevant market price (₹ per share)	340	360
No. of new shares to be issued (in lakh) (₹ 700 ÷ 340; ₹ 300 ÷ 360)	2.0588	0.8333

(iii) Calculation of market value of the shares

	(a)	(b)
Particulars	**Dividends are declared**	**Dividends are not Declared**
Existing shares (in lakhs)	20.00	20.00
New shares (in lakhs)	2.0588	0.8333
Total shares (in lakhs)	22.0588	20.8333
Market price per share (₹)	340	360
Total market value of shares at the end of the year (₹ in lakh)	22.0588 × 340 = 7,500 (approx.)	20.8333 × 360 = 7,500 (approx.)

Hence, it is proved that the total market value of shares remains unchanged irrespective of whether dividends are declared, or not declared.

P0=D1/(Ke-g)

300 = 20/(0.2-g)

0.2-g = 20/300

0.2-g = 0.0667

G = 0.133333 **g = 13.3333%**

Question 3

Following figures and information were extracted from the company A Ltd.

Earnings of the company	**Rs.10,00,000**
Dividend paid	**Rs.6,00,000**
No. of shares outstanding	**2,00,000**

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Price Earnings Ratio	10
Rate of return on investment	20%

You are required to calculate:
Current Market price of the share
Capitalization rate of its risk class
What should be the optimum pay-out ratio?
What should be the market price per share at optimal pay-out ratio? (use Walter's Model) (PYP 5 Marks, Nov'19)

Answer 3

(i) **Current Market price of shares (applying Walter's Model)**

The EPS of the firm is ₹Rs.5 (i.e., Rs 10,00,000 / 2,00,000).

- Rate of return on Investment (r) = 20%.
- The Price Earnings (P/E) Ratio is given as 10, so capitalization rate (Ke), may be taken at the inverse of P/E Ratio. Therefore, Ke is 10% or .10 (i.e., 1/10).
- The firm is distributing total dividends of Rs.6,00,000 among 2,00,000 shares, giving a dividend per share of Rs.3.

The value of the share as per Walter's model may be found as follows: Walter's model is given by-

$$P=\frac{D+\frac{r}{k_e}(E-D)}{k_e}$$

Where,

P = Market price per share. E = Earnings per share = Rs. 5 D = Dividend per share = Rs.3

R = Return earned on investment = 20 % Ke = Cost of equity capital = 10% or .10

$$P=\frac{3+\frac{0.20}{0.10}(5-3)}{0.10}=\text{Rs.}70$$

Current Market Price of shares can also be calculated as follows

$$\text{Price Earnings (P/E) Ratio}=\frac{Market\ Price\ of\ Shares}{Earnings\ per\ Shares}$$

$$\text{Or, } 10=\frac{Market\ Price\ of\ Shares}{Rs.10,00,000/2,00,000}$$

$$\text{Or, } 10=\frac{Market\ Price\ of\ Shares}{Rs.5}$$

Market Price of Share = ₹Rs.50

(ii) **Capitalization rate (k_e) of its risk class is 10% or .10 (i.e., 1/10).**

(iii) **Optimum dividend pay-out ratio**

According to Walter's model when the return on investment is more than the cost of equity capital (10%), the price per share increases as the dividend pay-out ratio decreases. Hence, the optimum dividend pay-out ratio in this case is nil or 0 (zero).

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(iv) **Market price per share at optimum dividend pay-out ratio**

At a pay-out ratio of zero, the market value of the company's share will be:

$$P=\frac{0+\frac{0.20}{0.10}(5-0)}{0.10}=\text{Rs.}100$$

Question 4

EXPLAIN the determinants of dividend decisions. (MTP 5 Marks April '23)

Answer 4

The dividend policy is affected by the following factors:

1. **Availability of funds**: If the business is in requirement of funds, then retained earnings could be a good source. The reason being the saving of floatation cost and prevention of dilution of control which happens in case of new issue of equity shares to public.
2. **Cost of capital**: If the financing requirements are to be executed through debt (relatively cheaper source of finance), then it would be preferable to distribute more dividend. On the other hand, if the financing is to be done through fresh issue of equity shares, then it is better to use retained earnings as much as possible.
3. **Capital structure**: An optimum Debt Equity ratio should also be considered for the dividend decision.
4. **Stock price:** Stock price here means market price of the shares. Generally, higher dividends increase market value of shares and low dividends decrease the value.
5. **Investment opportunities in hand:** The dividend decision is also affected if there are investment opportunities in hand. In that situation, the company may prefer to retain more earnings.
6. **Internal rate of return (IRR):** If the internal rate of return (IRR) is more than the cost of retained earnings (Kr), it is better to distribute the earnings as much as possible.
7. **Trend of industry**: The investors depend on some industries for their regular dividend income. Therefore, in such cases, the firms have to pay dividend in order to survive in the market.
8. **Expectation of shareholders**: The shareholders can be categorised into two categories: (i) those who invests for regular income, & (ii) those who invests for growth. Generally, the investor prefers current dividend over the future growth.
9. **Legal constraints:** Section 123 of the Companies Act, 2013 which provides for declaration of dividend sates that Dividend shall be declared or paid by a company for any financial year only:
   (a) out of the profits of the company for that year arrived at after providing for depreciation in accordance with the relevant provisions, or
   (b) out of the profits of the company for any previous financial year or years arrived at after providing for depreciation in accordance with the relevant provisions and remaining undistributed, or
   (c) out of both, or
   (d) out of money provided by the Central Government or a State Government for the payment of dividend by the company in pursuance of a guarantee given by that Government.

   It may be noted that, while computing the profits for payment of dividends any

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amount representing unrealised gains, notional gains or revaluation of assets and any change in carrying amount of an asset or of a liability on measurement of the asset or the liability at fair value shall be excluded.

10. **Taxation:** Before 1st April 2020, as per Section 115-O of Income Tax Act, 1961, dividend was subject to dividend distribution tax (DDT) in the hands of the company. Dividend on which DDT was paid, was to be exempted in the hands of the shareholder u/s 10(34). However, as per amendment made by the Finance Act 2020, the exemption u/s 10(34) shall not apply to dividend received on or after 1st April 2020 and the dividend income from shares held as investment shall be taxable under the head of 'Other income' at the applicable slab rate.

Question 5

A&R Ltd. is a large-cap multinational company listed in BSE in India with a face value of ₹ 100 per share. The company is expected to grow @ 15% p.a. for next four years then 5% for an indefinite period. The shareholders expect 20% return on their share investments. Company paid ₹ 120 as dividend per share for the FY 2020-21. The shares of the company traded at an average price of ₹ 3,122 on last day. FIND out the intrinsic value of per share and state whether shares are overpriced or underpriced. (MTP 5 Marks Oct '23)

Answer 5

As per Dividend discount model, the price of share is calculated as follows:

$$P=\frac{D_1}{(1+K_e)^1}+\frac{D_2}{(1+K_e)^2}+\frac{D_3}{(1+K_e)^3}+\frac{D_4}{(1+K_e)^4}+\frac{D_5}{(1-g)}+\frac{1}{(1+K_e)^4}+$$

Where,

P = Price per share

K_e = Required rate of return on equity

g = Growth rate

$$=\frac{Rs.120\times1.15}{(1+0.2)^1}+\frac{Rs.138\times1.15}{(1+0.2)^2}+\frac{Rs.158.7\times1.15}{(1+0.2)^3}+\frac{Rs.182\times1.15}{(1+0.2)^4}+\frac{Rs.209.88\times1.05}{(0.2-0.05)}+\frac{1}{(1+0.2)^4}$$

P= 115 + 110.2 + 105.6 + 101.2 + 708.50 = ₹1,140.50

Intrinsic value of share is ₹ 1,140.50 as compared to latest market price of ₹3,122. Market price of a share is overpriced by ₹1,981.50

Question 6

The following information is supplied to you:

Total Earning	**Rs.40 Lakhs**
No. of Equity Shares (of Rs.100 each)	**4,00,000**
Dividend Per Share	**Rs.4**
Cost of Capital	**16%**
Internal rate of return on investment	**20%**

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Retention ratio	**60%**

Calculate the market price of a share of a company by using:
Walter's Formula
Gordon's Formula (PYP 5 Marks, May'19)

Answer 6

Earning Per share(E) $=\frac{40 Lakh}{4,00,000}$=Rs.10

Calculation of Market price per share by

i. **Walter's formula:** Market Price(P)= P=$\frac{D+\frac{r}{k_e}(E-D)}{k_e}$

Where,

P = Market Price of the share.

E = Earnings per share.

D = Dividend per share.

k_e = Cost of equity/ rate of capitalization/ discount rate. R = Internal rate of return/ return on investment

$$P=\frac{0+\frac{0.20}{0.16}(10-4)}{0.16}=\frac{4+7.5}{0.16}=Rs.71.88$$

ii. Gordon's formula: When the growth is incorporated in earnings and dividend, the present value of market price per share (Po) is determined as follows

Gordon's theory:

$P_0=\frac{E(1-b)}{K-br}$

Where,

P_0 = Present market price per share.

E = Earnings per share

b = Retention ratio (i.e. % of earnings retained)

r = Internal rate of return (IRR)

Growth rate (g) = br

$$Now\ P_0=\frac{10(1-60)}{.16(.60\times.20)}=\frac{4}{.04}=Rs.100$$

Question 7

LIST the factors determining the dividend policy of a company. (MTP 3 Marks, March'19)

Answer 7

Factors Determining the Dividend Policy of a Company

(i) Liquidity: In order to pay dividends, a company will require access to cash. Even very profitable companies might sometimes have difficulty in paying dividends if resources are tied up in other forms of assets.

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(ii) Repayment of debt: Dividend payout may be made difficult if debt is scheduled for repayment.

(iii) Stability of Profits: Other things being equal, a company with stable profits is more likely to pay out a higher percentage of earnings than a company with fluctuating profits.

(iv) Control: The use of retained earnings to finance new projects preserves the company's ownership and control. This can be advantageous in firms where the present disposition of shareholding is of importance.

(v) Legal consideration: The legal provisions lay down boundaries within which a company can declare dividends.

(vi) Likely effect of the declaration and quantum of dividend on market prices.

(vii) Tax considerations and Others such as dividend policies adopted by units similarly placed in the industry, management attitude on dilution of existing control over the shares, fear of being branded as incompetent or inefficient, conservative policy Vs non-aggressive one.

(viii) Inflation: Inflation must be taken into account when a firm establishes its dividend policy.

Question 8

X Ltd. is a multinational company. Current market price per share is ₹ 2,185. During the F.Y. 2020-21, the company paid ₹ 140 as dividend per share. The company is expected to grow @ 12% p.a. for next four years, then 5% p.a. for an indefinite period. Expected rate of return of shareholders is 18% p.a.

(i) **Find out intrinsic value per share.**

(ii) **State whether shares are overpriced or underpriced.**

Year	1	2	3	4	5
Discounting Factor @ 18%	0.847	0.718	0.608	0.515	0.436

(PYP 5 Marks Dec '21)

Answer 8

As per Dividend discount model, the price of share is calculated as follows:

$$P = \frac{D_1}{(1+K_e)^1} + \frac{D_2}{(1+K_e)^2} + \frac{D_3}{(1+K_e)^3} + \frac{D_4}{(1+K_e)^4} + \frac{D_4(1+g)}{(K_e-g)^1} \times \frac{1}{(1+K_e)^4}$$

Where,

P = Price per share

k_e = Required rate of return on equity

g = Growth rate

$$P = \frac{Rs.140\ X\ 1.12}{(1+0.18)^1} + \frac{Rs.156.80\ X\ 1.12}{(1+0.18)^2} + \frac{Rs.175.62\ X\ 1.12}{(1+0.18)^3} + \frac{Rs.196.69\ X\ 1.12}{(1+0.18)^4} + \frac{Rs.220.29\ (1+0.05)}{(0.18-0.05)} \times \frac{1}{(1+0.18)^4}$$

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P= 132.81 + 126.10 + 119.59 + 113.45 + 916.34 = ₹ 1,408.29

Intrinsic value of share is ₹ 1,408.29 as compared to latest market price of ₹2,185. Market price of share is over-priced by ₹ 776.71.

Question 9

Briefly explain the assumptions of Walter's Model. (PYP 4 Marks May'22)

Answer 9

Assumptions of Walter's Model

- All investment proposals of the firm are to be financed through retained earnings only.
- 'r' rate of return & 'Ke' cost of capital are constant.
- Perfect capital markets: The firm operates in a market in which all investors are rational and information is freely available to all.
- No taxes or no tax discrimination between dividend income and capital appreciation (capital gain). It means there is no difference in taxation of dividend income or capital gain. This assumption is necessary for the universal applicability of the theory, since, the tax rates may be different in different countries.
- No floatation or transaction cost: Similarly, these costs may differ country to country or market to market.
- The firm has perpetual life.

Question 10

M Ltd. belongs to a risk class for which the capitalization rate is 10%. It has 25,000 outstanding shares and the current market price is Rs. 100. It expects a net profit of Rs. 2,50,000 for the year and the Board is considering dividend of Rs. 5 per share.

M Ltd. requires to raise Rs. 5,00,000 for an approved investment expenditure. ANALYSE, how the MM approach affects the value of M Ltd. if dividends are paid or not paid (MTP 5 Marks, Aug'18)

Answer 10

A When dividend is paid
(a) Price per share at the end of year 1
100 =1/1.10= (Rs. 5 + P1)
110 = Rs. 5 + P1
P1 = 105
(b) Amount required to be raised from issue of new shares
Rs.5,00,000 – (Rs.2,50,000 – Rs.1,25,000)
Rs.5,00,000 – Rs.1,25,000 = Rs.3,75,000
(c) Number of additional shares to be issued
3,75,000/105 = 75,000/11 shares or say 3,572 shares
(d) Value of M Ltd.
(Number of shares × Expected Price per share)
i.e., (25,000 + 3,572) × Rs.105 = Rs.30,00,060

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B When dividend is not paid
(a) Price per share at the end of year 1
$= P\ 100 = \frac{p_1}{1.10}$ P1 = 110
(b) Amount required to be raised from issue of new shares Rs.5,00,000 – 2,50,000 = 2,50,000
(c) Number of additional shares to be issued
2,50,000 /110=25,000 /11 = Shares or Say 2,273 Shares
(d)Value of M Ltd.,
(25,000 + 2273) × Rs.110
= Rs.30,00,030
Whether dividend is paid or not, the value remains the same.

Question 11

(a) **Following information are given for a company:**

Earnings per share	**₹ 10**
P/E ratio	**12.5**
Rate of return on investment	**12%**
Market price per share as per Walter's Model	**₹ 130**

You are required to calculate:

(i) **Dividend payout ratio.**

(ii) **Market price of share at optimum dividend payout ratio.**

(iii) **P/E ratio, at which the dividend policy will have no effect on the price of share.**

(iv) **Market price of share at this P/E ratio.**

(v) **Market price of share using Dividend growth model. (PYP 5 Marks May '23)**

Answer 11

i) The EPS of the firm is ₹ 10, r =12%. The P/E Ratio is given at 12.5 and the cost of capital (Ke) may be taken as the inverse of P/E ratio. Therefore, Ke is 8% (i.e., 1/12.5). The value of the share is ₹ 130 which may be equated with Walter Model as follows:

$$P = \frac{D + \frac{r}{K_e}(E-D)}{K_e} \text{ or } P = \frac{D + \frac{12}{8\%}(10-D)}{8\%}$$

or [D+1.5(10-D)]/0.08=130

or D+15-1.5D=10.4

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or -0.5D=-4.6

So, D = ₹ 9.2

The firm has a dividend pay-out of 92% (i.e., 9.2/10).

ii) Since the rate of return of the firm (r) is 12% and it is more than the Ke of 8%, therefore, by distributing 92% of earnings, the firm is not following an optimal dividend policy. The optimal dividend policy for the firm would be to pay zero dividend and in such a situation, the market price would be:

$$P = \frac{0+\frac{12}{8\%}(10-0)}{8\%}$$

P = ₹ 187.5

So, theoretically the market price of the share can be increased by adopting a zero pay-out.

iii) The P/E ratio at which the dividend policy will have no effect on the value of the share is such at which the Ke would be equal to the rate of return (r) of the firm. The Ke would be 12% (= r) at the P/E ratio of 1/12%=8.33. Therefore, at the P/E ratio of 8.33, the dividend policy would have no effect on the value of the share.

iv) If the P/E is 8.33 instead of 12.5, then the Ke which is the inverse of P/E ratio, would be 12% and in such a situation ke= r and the market price, as per Walter's model would be:

$$P = \frac{D+\frac{r}{K_e}(E-D)}{K_e} = \frac{9.2+\frac{0.12}{0.12}(10-9.2)}{0.12} = 83.33$$

v) Dividend Growth Model applying growth on dividend

Ke = 8%, r = 12%, D0 = 9.2, b = 0.08

g = b.r

g = 0.08 x 0.12=0.96%

$D_1 = D_0$ (1+g) = 9.2 (1+0.0096) = ₹ 9.2883

$P = \frac{D_1}{(K_e-g)}$ = 9.2883/(0.08 – 0.0096) = 9.2883/0.0704 = ₹ 131.936

Alternative Alternatively, without applying growth on dividend

$$P = \frac{E(1-b)}{K_e-b_r} = \frac{10(1-0.08)}{0.08-(0.08\times0.12)} = 130.68$$

Question 12

The following figures have been collected from the annual report of ABC Ltd. for the current financial year:

Net Profit	**₹ 75 lakhs**

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Outstanding 12% preference shares	**₹ 250 lakhs**
No. of equity shares	**7.50 lakhs**
Return on Investment	**20%**
Cost of capital i.e. (Ke)	**16%**

(a) **COMPUTE the approximate dividend pay-out ratio so as to keep the share price at ₹ 42 by using Walter's model?**

(b) **DETERMINE the optimum dividend pay-out ratio and the price of the share at such pay-out.**

(c) **PROVE that the dividend pay-out ratio as determined above in (b) is optimum by using random pay-out ratio. (RTP May 22)**

Answer 12

	₹ in lakhs
Net Profit	75
Less: Preference dividend	30
Earning for equity shareholders	45
Earning per share 6.00	= 45/7.5 = ₹

(a) Let, the dividend per share be D to get share price of ₹ 42

$$P = \frac{D + \frac{r}{Ke}(E-D)}{K_e}$$

$$\text{Rs. } 42 = \frac{D + \frac{0.20}{0.16}(6-D)}{0.16}$$

$$6.72 = \frac{0.16D + 1.2 - 0.20D}{0.16}$$

0.04D = 1.2 – 1.0752

D = 3.12

$$\text{D/P ratio} = \frac{DPS}{EPS} \text{ X } 100 = \frac{3.12}{6} \text{ X } 100 = 52\%$$

So, the required dividend payout ratio will be = 52%

(b) Since r > K_e, the optimum dividend pay-out ratio would 'Zero' (i.e. D = 0), Accordingly, value of a share:

$$P = \frac{D + \frac{r}{K_e}(E-D)}{K_e}$$

$$P = \frac{0 + \frac{0.20}{0.16}(6-0)}{0.16} = \text{Rs. } 46.875$$

(c) The optimality of the above pay-out ratio can be proved by using 25%, 50%, 75% and 100% as pay- out ratio:

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At 25% pay-out ratio

$$P = \frac{1.5+\frac{0.20}{0.16}(6-1.5)}{0.16} = \textbf{Rs. 44.531}$$

At 50% pay-out ratio

$$P = \frac{3+\frac{0.20}{0.16}(6-3)}{0.16} = \textbf{Rs. 42.188}$$

At 75% pay-out ratio

$$P = \frac{4.5+\frac{0.20}{0.16}(6-4.5)}{0.16} = \textbf{Rs. 39.844}$$

At 100% pay-out ratio

$$P = \frac{6+\frac{0.20}{0.16}(6-6)}{0.16} = \textbf{Rs. 37.50}$$

From the above it can be seen that price of share is maximum when dividend pay-out ratio is 'zero' as determined in (b) above.

Question 13

The following information is given:

Dividend per share (DPS)	**Rs. 9**
Cost of capital (Ke)	**19%**
Internal rate of return on investment	**24%**
Retention Ratio	**25%**

CALCULATE the market price per share by using:

(v) **Walter's formula**

(vi) **Gordon's formula (Dividend Growth model) (MTP 5 Marks, March 21)**

Answer 13

(a) Working:

Calculation of Earnings per share (EPS):

$$EPS = \frac{DPS}{Divident\ Payout\ Retio}$$

$$EPS = \frac{Rs.9}{1-0.25} = Rs.12$$

Market price per share by

(xi) Walter's model:

$$P = \frac{D+\frac{r}{K_e}(E-D)}{K_e}$$

$$= \frac{Rs.9+\frac{0.24}{0.19}(Rs.12-Rs.9)}{0.19}$$

= Rs. 67.31

(xii) Gordon's model (Dividend Growth model): $P_{o=}$

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$=\frac{D_0(1+g)}{K_e-g}$

Where,

Po = Present market price per share.

g = Growth rate (br) = 0.25 × 0.24 = 0.06 b = Retention ratio

k = Cost of Capital

r = Internal rate of return (IRR) D0 = Dividend per share

E = Earnings per share

$=\frac{Rs.9(1+0.06)}{0.19-0.06}$

$\frac{Rs0.54}{0.13}$ = Rs.73.38

Alternatively,

Po=$\frac{E-(1-b)}{K-br}$

$\frac{Rs12(1-0.25)}{0.19-0.06}$== Rs. 69.23

Question 14

Rambo Limited Has 1,00,000 equity shares outstanding for the year 2022. The current market price of the shares is ₹ 100 each. Company is planning to pay dividend of ₹ 10 per share. Required rate of return is 15%. Based on Modigliani-Miller approach, calculate the market price of the share of the company when the recommended dividend is 1) declared and 2) not declared. How many new shares are to be issued by the company at the end of the year on the assumption that net income for the year is ₹ 40 Lac and the investment budget is ₹ 50,00,000 when dividend is declared, or dividend is not declared.

PROOF that the market value of the company at the end of the accounting year will remain same whether dividends are distributed or not distributed. (RTP May 23)

Answer 14

CASE 1: Value of the firm when dividends are not paid.

Step 1: Calculate price at the end of the period

K_e = 15% P_o = Rs. 100 D_1 = 0

$P_o = \frac{P_1+D_1}{1+K_e}$

Rs. 100 = $\frac{P_1+0}{1+0.15}$

P_1 = Rs. 115

Step 2: Calculation of funds required for investment

Earning	₹ 40,00,000
Dividend distributed	Nil
Fund available for investment	₹ 40,00,000

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Total Investment	₹ 50,00,000
Balance Funds required	₹ 50,00,000 - ₹ 40,00,000 = ₹ 10,00,000

Step 3: Calculation of No. of shares required to be issued for balance funds

No. of shares = Funds required/P_1

Δn = ₹10,00,000/₹115

Step 4: Calculation of value of firm

nP_0 = [(n+Δn)P1-I+E]/(1+Ke)

nP_0 = [(100000+1000000/₹115) ₹115 - ₹5000000 + ₹4000000]/(1.15)

= ₹1,00,00,000

CASE 2: Value of the firm when dividends are paid.

Step 1: Calculate price at the end of the period

K_e = 15% P_o = Rs. 100 D_1 = 0

$$P_o = \frac{P_1+D_1}{1+K_e}$$

$$\text{Rs. } 100 = \frac{P_1+10}{1+0.15}$$

P_1 = Rs. 105

Step 2: Calculation of funds required for investment

Earning	₹ 40,00,000
Dividend distributed	10,00,000
Fund available for investment	₹ 30,00,000
Total Investment	₹ 50,00,000
Balance Funds required	₹ 50,00,000 - ₹ 30,00,000 = ₹ 20,00,000

Step 3: Calculation of No. of shares required to be issued for balance fund

No. of shares= Funds Required/P1

Δn = ₹2000000/₹105

Step 4: Calculation of value of firm

nP_0 = [(n+Δn)P1 – I+E]/(1+Ke)

nP_0 = [(100000 + 2000000/₹105) ₹105 – ₹5000000 + ₹4000000]/(1.15)= ₹1,00,00,000

Thus, it can be seen from the above calculations that the value of the firm remains the same in either case.

Question 15

The following data is available in respect of N Ltd. for the year ended 31st March, 2021:

	Rs. (in Crore)

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Share capital (@ Rs. 10 per share)	25.00
Reserves	15.00
Profit after tax (PAT)	3.70
Dividends paid	3.00
P/E ratio	26.70

Using Walter's Model:

(v) **COMMENT on the firm's dividend policy;**

(vi) **DETERMINE the optimum payout ratio and**

(vii) **DETERMINE the P/E ratio at which dividend payout will have no effect on share price. (MTP 5 Marks, April'21)**

Answer 15

1. Earnings per share (E)= $\frac{PAT}{No\ of\ Shares}$=$\frac{Rs.3.7\ Crores}{2.5\ Crores\ shares} = Rs. 1.48$
2. Return on Investment (r)=

$$=\frac{Pat}{Net\ Worth} \times 100 = \frac{Rs.3.7 Crores}{Rs(25.15) Crores} \times 100 = 9.25\%$$

Dividend per share (D)=

$$=\frac{Dividend\ Paid}{No\ of\ shares} = \frac{Rs. 3\ Crores}{2.5\ Crores\ Shares} = Rs. 1.2$$

Dividend payout ratio=

$$=\frac{Dividend\ Paid}{pat} \times 100 = \frac{Rs. 3\ Crores}{3.7 Crores} \times 100 = 81.08\%$$

3. Current Market Price(Po)= = P/E Ratio x E = 26.7 x Rs. 1.48 = Rs. 39.52

4. Growth rate (g)= b x r = (1 - 0.8108) x 0.0925 = 1.75%

5. Cost of Capital(Ke)= $\frac{D_{(1+g)}}{P_o} = \frac{Rs.1.2(1+0.0175)}{Rs.39.52}$ + 0.0175=4.84

I. The value of the share as per Walter's model:

$$=\frac{D+\frac{r}{k_{1D452}}(E-D)}{k_e} = \frac{1.2+\frac{0.0925}{0.0484}(1.48-1.2)}{0.048} = Rs. 3558$$

The firm has a dividend payout of 81.08% (i.e., Rs. 3 crores) out of Profit after tax of Rs. 3.7 crores with value of the share at Rs. 35.85. The rate of return on investment (r) is 9.25% and it is more than the Ke of 4.84%, therefore, by distributing 81.08% of earnings, the firm is not following an optimal dividend policy.

II. Under Walter's model, when return on investment is more than cost of capital (r > Ke), the market share price will be maximum if 100% retention policy is followed. So, the optimal payout ratio would be to pay zero dividend and in such a situation, the market price would be:

$$P=\frac{0+\frac{0.0925}{0.0485}(1.48-0)}{0.0484}=Rs.5844$$

III. The P/E ratio at which dividend payout will have no effect on share price is at which the Ke would be equal to the rate of return (r) of the firm i.e. 9.25%.

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6. So, Ke=$\frac{D_{(1+g)}}{P_o}$=$\frac{Rs.1.2(1+0.0175)}{p_o}$+0.0175

p_o=Rs.16.28
Therefore, at the P/E ratio of 11, the dividend payout will have no effect on share price.

$$\frac{p_o}{e} = \frac{Rs.16.28}{Rs.1.48} = 11 times$$

Question 16

STATE two advantages of Walter Model of Dividend Decision. (MTP 2 Marks, Aug'18)

Answer 16

Advantages of Walter Model

1. The formula is simple to understand and easy to compute.
2. It can envisage different possible market prices in different situations and considers internal rate of return, market capitalization rate and dividend payout ratio in the determination of market value of shares.

Question 17

In March, 2021 Tiruv Ltd.'s share was sold for Rs. 219 per share. A long term earnings growth rate of 11.25% is anticipated. Tiruv Ltd. is expected to pay dividend of Rs. 5.04 per share.

(i) DETERMINE the rate of return an investor can expect to earn assuming that dividends are expected to grow along with earnings at 11.25% per year in perpetuity?

(ii) It is expected that Tiruv Ltd. will earn about 15% on book equity and shall retain 60% of earnings. In this case, whether, there would be any change in growth rate and cost of equity? ANALYSE. (MTP 5 Marks, April'21)

Answer 17

(i) According to Dividend Discount Model approach the firm's expected or required return on equity is computed as follows:

Ke=$\frac{D_1}{p_0}$+g

Where,

Ke = Cost of equity share capital

D1 = Expected dividend at the end of year 1 P0 = Current market price of the share.

g = Expected growth rate of dividend.

Therefore, Ke

=$\frac{\mathbf{5.04}}{\mathbf{219}} + \mathbf{0.1125} = \mathbf{13.55\%}$

(ii) With rate of return on retained earnings (r) of 15% and retention ratio (b) of 60%, new growth rate will be as follows:

g = br = 0.60 x 0.15 = 0.09 or 9%

Accordingly, dividend will also get changed and to calculate this, first we shall calculate previous retention ratio (b1) and then EPS assuming that rate of return

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on retained earning (r) is same.
With previous Growth Rate of 11.25% and r =15%, the retention ratio comes out to be: 0.1125 = b1 x 0.15

b1 = 0.75 and payout ratio = 0.25
With 0.25 payout ratio, the EPS will be as follows:
EPS = $\frac{5.04}{0.25} = Rs0.25$

With new payout ratio of 40% (1 – 0.60) the new dividend will be: D1 = Rs. 20.16 x 0.40 = Rs. 8.064

Accordingly new Ke will be:

$= k_e \frac{8.064}{219}$=0.09 = 12.68%

Question 18

Ordinary shares of a listed company are currently trading at ₹ 10 per share with two lakh shares outstanding. The company anticipates that its earnings for next year will be ₹ 5,00,000. Existing cost of capital for equity shares is 15%. The company has certain investment proposals under discussion which will cause an additional 26,089 ordinary shares to be issued if no dividend is paid or an additional 47,619 ordinary shares to be issued if dividend is paid. Applying the MM hypothesis on dividend decisions, CALCULATE the amount of investment and dividend that is under consideration by the company. (RTP Nov'22)

Answer 18

P_0 = ₹ 10 n = 2,00,000, E = ₹ 5,00,000

K_e = 15%, Δn = 26,089, I = ?

$= P_0 = \frac{P_1}{(1+K_e)}$

$= 10 = \frac{P_1}{1.15}$

∴ P_1 = 11.5

$\Delta n = \frac{I-E+nD_1}{P_1}$

$26,089 = \frac{1-5,00,000}{11.5}$

I = 8,00,024

Now,

P_0 = ₹ 10, n = ₹ 2,00,000,

E = ₹ 5,00,000, I = 8,00,024, K_e = 15%, Δn 47,619, D_1 = ?

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$= \boldsymbol{P_0} = \frac{P_1 + D_1}{1 + K_e}$

$= \boldsymbol{P_1} = \frac{P_1 + D_1}{1.15}$

$\boldsymbol{P_1} + \boldsymbol{D_1} = 11.5$

$\therefore P_1 = 11.5 - \boldsymbol{D_1}$ 1

$\because \Delta n = \frac{I - E + nD_1}{P_1}$

$47,619 = \frac{8,00,024 - 5,00,000 + 2,00,000 D_1}{P_1}$

$47,619\ P_1 = 2,00,000\ D_1 + 3,00,024$

From 1,

$47619\ (11.5 – D_1) = 2,00,000\ D_1 + 3,00,024$

$5,47,618.5 – 47,619\ \ D_1 = 2,00,000 D_1 + 3,00,024$

$\therefore 2,47,594.5 = 2,00,000 D_1 + 47,619\ D_1$

$\therefore 2,47,594.5 = 2,47,619\ D_1$

$\therefore D_1 = \frac{2,47,594.5}{2,47,619} = 0.99 \approx$ ₹ 1

$\therefore P_1 = 11.5 – D1$

$P_1 = 11.5 – 1$

$P_1 = 10.5$

$\therefore n.P_0\ \frac{(\Delta n)P_1 - I + E}{1 + K_e}$

$= \frac{(2,00,000 + 47,619)(10.5) - 8,00,024 + 5,00,000}{1.15}$

$n.\ P_0$ = ₹19,99,979 ≈ ₹20,00,000

Using direct calculation,

$n.\ P_0$ = 2,00,000 ×10 = ₹ 20,00,000

Question 19

The following information is supplied to you:

Particulars	₹
Total Earnings	**5,00,000**
Equity shares (of ₹ 100 each)	**50,00,000**

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Dividend paid	3,75,000
Price/ Earnings ratio	12.5

Applying Walter's Model:

(iii) ANALYSE whether the company is following an optimal dividend policy.

(iv) COMPUTE P/E ratio at which the dividend policy will have no effect on the value of the share.

(v) Will your decision change, if the P/E ratio is 8 instead of 12.5? ANALYSE. (RTP May '21)

Answer 19

(i) The EPS of the firm is ₹ 10 (i.e. ₹ 5,00,000/ 50,000). r = 5,00,000/ 50,00,000 = 10%.

The P/E Ratio is given at 12.5 and the cost of capital, Ke, may be taken at the inverse of P/E ratio. Therefore, Ke is 8 (i.e., 1/12.5). The firm is distributing total dividends of ₹ 3,75,000 among 50,000 shares, giving a dividend per share of ₹ 7.50. The value of
the share as per Walter's model may be found as follows:

$$p = \frac{D + \frac{r}{k_e}(E - D)}{K_e} = \frac{7.5 + \frac{0.1}{0.08}(10. - 7.5)}{0.08} = \mathbf{132.81}$$

The firm has a dividend payout of 75% (i.e., ₹ 3,75,000) out of total earnings of ₹ 5,00,000. Since, the rate of return of the firm, r, is 10% and it is more than the Ke of 8%, therefore, by distributing 75% of earnings, the firm is not following an optimal dividend policy. The optimal dividend policy for the firm would be to pay zero dividend and in such a situation, the market price would be,

$$\frac{0 + \frac{0.1}{0.08}(10 - 0)}{0.08} = \mathbf{156.21}$$

So, theoretically, the market price of the share can be increased by adopting a zero payout.

(ii) The P/E ratio at which the dividend policy will have no effect on the value of the share is such at which the Ke would be equal to the rate of return, r, of the firm. The Ke would be 10% (= r) at the P/E ratio of 10. Therefore, at the P/E ratio of 10, the dividend policy would have no effect on the value of the share.

(iii) If the P/E is 8 instead of 12.5, then the Ke which is the inverse of P/E ratio, would be 12.5 and in such a situation ke> r and the market price, as per Walter's model would be:

$$P = \frac{D + \frac{r}{k_e}(E - D)}{K_e} = \frac{7.5 + \frac{0.1}{0.125}(10. - 7.5)}{0.125} = \mathbf{76}$$

Question 20

With the help of following figures CALCULATE the market price of a share of a company by using:

(i) Walter's formula

(ii) Dividend growth model (Gordon's formula)

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Earnings per share (EPS)	**Rs. 10**
Dividend per share (DPS)	**Rs. 6**
Cost of capital (k)	**20%**
Internal rate of return on investment	**25%**
Retention Ratio	**60%**

[MTP 5 Marks, March'19)

Answer 20

Market price per share by

(i) **Walter's formula**: $= P = \frac{6+\frac{0.25}{0.20}(10-6)}{0.20}$

p=Rs.55

(ii) **Gordon's formula (Dividend Growth model):** When the growth is incorporated in earnings and dividend, the present value of market price per share (Po) is determined as follows:

Gordon's theory:

P0 $=\frac{E_1(1-b)}{k_e-r}$

Where,

P0 = Price per share

E1 = Earnings per share

b = Retention ratio; (1 - b = Payout ratio)

Ke = Cost of capital r = IRR

br = Growth rate (g)

P0=

$\frac{10(1-0.60)}{0.20-(0.60\times0.25)}=\frac{4}{0.05}=Rs.80$

Question 21

The annual report of XYZ Ltd. provides the following information for the Financial Year 2019-20:

Particulars	Amount (₹)
Net Profit	**78 lakhs**
Outstanding 15% preference shares	**120 lakhs**
No. of equity shares	**6 lakhs**
Return on Investment	**20%**
Cost of capital i.e. (Ke)	**16%**

CALCULATE price per share using Gordon's Model when dividend pay-out is-

(i) **30%;**
(ii) **50%;**
(iii) **100%.**

(MTP 5 Marks Oct'22, RTP May '19)

Answer 21

Price per share according to Gordon's Model is calculated as follows:

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Particulars	Amount in ₹
Net Profit	78 lakhs
Less:Preference dividend(120 lakhs@15%)	18 lakhs
Earnings for equity shareholders	60 lakhs
Earnings Per Share	60 lakhs/6 lakhs = ₹ 10.00

Price per share according to Gordon's Model is calculated as follows:

$$P_0 = \frac{E_1(1-b)}{K_e - br}$$

Here, E1 = 10, Ke = 16%

(i) **When dividend pay-out is 30%**

$$\boldsymbol{P_0} = \frac{\mathbf{10 \times 0.3}}{0.16-(0.70\times0.2)} = \frac{\mathbf{3}}{0.16-0.14} == ₹150$$

(ii) **When dividend pay-out is 50%**

$$\boldsymbol{P_0} = \frac{\mathbf{10 \times 0.5}}{0.16-(0.5\times0.2)} = \frac{\mathbf{5}}{0.16-0.10} = ₹83.33$$

(iii) **When dividend pay-out is 100%**

$$\boldsymbol{P_0} = \frac{\mathbf{10 \times 1}}{0.16-(0\times0.2)} = \frac{\mathbf{10}}{0.16} = ₹\ 62.5$$

Question 22

The following information relates to Navya Ltd:

Earnings of the company	**₹ 20,00,000**
Dividend pay-out ratio	**60%**
No. of Shares outstanding	**4,00,000**
Rate of return on investment	**15%**
Equity capitalization rate	**12%**

Required:

(i) **DETERMINE what would be the market value per share as per Walter's model.**

(ii) **COMPUTE optimum dividend pay-out ratio according to Walter's model and the market value of company's share at that pay-out ratio. (RTP May '18)**

Answer 22

Navya Ltd.

(i) Walter's model is given by –

$$P = \frac{D+(E-D)(\frac{r}{K_e})}{K_e}$$

Where,

P = Market price per share,

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E = Earnings per share = ₹20,00,000 ÷ 4,00,000 = ₹ 5

D = Dividend per share = 60% of 5 = ₹ 3

r = Return earned on investment = 15% K_e = Cost of equity capital = 12%

$$\therefore\ P = \frac{3+(5-3)\times\frac{0.15}{0.12}}{0.12} = \frac{3+2\times\frac{0.15}{0.12}}{0.12} = \text{Rs. } 45.83$$

(ii) According to Walter's model when the return on investment is more than the cost of equity capital, the price per share increases as the dividend pay-out ratio decreases. Hence, the optimum dividend pay-out ratio in this case is Nil. So, at a payout ratio of zero, the market value of the company's share will be:-

$$\frac{0+(5-0)\times\frac{0.15}{0.12}}{0.12} = \text{Rs. } 52.08$$

Question 23

STATE the advantages of Stock-Splits. (MTP 2 Marks, Oct'18)

Answer 23

Various advantages of Stock Spills are as follows:

- It makes the share affordable to small investors.
- Number of shares may increase the number of shareholders; hence the potential of investment may increase.

Question 24

A company had paid dividend of ₹ 2 per share last year. The estimated growth of the dividends from the company is estimated to be 5% p.a. DETERMINE the estimated market price of the equity share if the estimated growth rate of dividends (i) rises to 8%, and (ii) falls to 3%. Also COMPUTE the present market price of the share, given that the required rate of return of the equity investors is 15.5%. (MTP 5 Marks, March'18)

Answer 24

In this case the company has paid dividend of ₹2 per share during the last year. The growth rate (g) is 5%. Then, the current year dividend (D1) with the expected growth rate of 5% will be ₹ 2.10

The share price is = Po D1=$\frac{D_1}{K_e - g}$

$\frac{Rs.2.16}{0.115-0.05} = 20$

(i) In case the growth rate rises to 8% then the dividend for the current year (D1) would be ₹ 2.16 and market price would be- =$\frac{Rs.2.16}{0.115-0.08}$

= ₹ 28.80

(ii) In case growth rate falls to 3% then the dividend for the current year (D 1) would be ₹2.06 and market price would be-

$\frac{Rs.2.6}{0.115-0.03}$=16.48

So, the market price of the share is expected to vary in response to change in expected growth rate is dividends.

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Question 25

Following information is given for WN Ltd.:

Earnings	**₹ 30 per share**
Dividend	**₹ 9 per share**
Cost of capital	**15%**
Internal Rate of Return on investment	**20%**

You are required to CALCULATE the market price per share using-

(iii) **Gordon's formula**

(iv) **Walter's formula (MTP 5 Marks Sep'22, RTP Nov '20)**

Answer 25

As per Gordon's Model, Price per share is computed using the formula:

$$= P_0 = \frac{E_1(1-b)}{1-br}$$

Where,

P0 = Price per share
E1 = Earnings per share
b = Retention ratio; (1 - b = Pay-out ratio)
K_e = Cost of capital r = IRR

br = Growth rate (g)

Applying the above formula, price per share

$$P_0 = \frac{30 \times 0.3^*}{0.15 - 0.70 \times 0.2} = \frac{9}{0.01}$$

*Dividend pay-out ratio $\frac{₹9}{₹30}$ = 0.3 or 30%

As per Walter's Model, Price per share is computed using the formula:

$$P = \frac{D + \frac{r}{K_e}(E-D)}{K_e}$$

Where,

P = Market Price of the share E = Earnings per share

D = Dividend per share

Ke = Cost of equity/ rate of capitalization/ discount rate r = Internal rate of return/ return on investment Applying the above formula, price per share

$$P = \frac{9+\frac{0.20}{0.15}(30-9)}{0.15} = \frac{₹37}{0.15} = ₹\ 246.67$$

Question 26

HM Ltd. is listed on Bombay Stock Exchange which is currently been evaluated by Mr. A on certain parameters.

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Mr. A collated following information:

(a) **The company generally gives a quarterly interim dividend. ₹ 2.5 per share is the last dividend declared.**

(b) **The company's sales are growing by 20% on a 5-year Compounded Annual Growth Rate (CAGR) basis, however the company expects following retention amounts against probabilities mentioned as contention is dependent upon cash requirements for the company. Rate of return is 10% generated by the company.**

Situation	Prob.	Retention Ratio
A	30%	50%
B	40%	60%
C	30%	50%

(c) **The current risk-free rate is 3.75% and with a beta of 1.2 company is having a risk premium of 4.25%.**

You are required to help Mr. A in calculating the current market price using Gordon's formula. (RTP Nov '23)

Answer 26

Market price using Gordon's formula

$P_0 = \frac{D_0(1+g)}{K_e - g}$

D_0 = 2.5×4 = 10 per share (annual)

g = br or retention ratio x rate of

return Calculation of expected

retention ratio

Situation	Prob.	Retention Ratio	Expected Retention Ratio
A	30%	50%	0.15
B	40%	60%	0.24
C	30%	50%	0.15
Total			0.54

g = 0.54 × 0.10= 0.054 or 5.4%

$P_0 = \frac{D_0(1+g)}{K_e - g}$

$P_0 = \frac{10(1+0.054)}{0.0885-0.054} = \frac{10.54}{0.0345}$ = 305.51

Ke = Risk free rate + (Beta x Risk Premium)

= 3.75% + (1.2 x 4.25%) = 8.85%

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Question 27

RST Ltd. has a capital of Rs. 10,00,000 in equity shares of Rs. 100 each. The shares are currently quoted at par. The company proposes to declare a dividend of Rs. 10 per share at the end of the current financial year. The capitalization rate for the risk class of which the company belongs is 12%. COMPUTE the market price of the share at the end of the year, if

(xi) **a dividend is not declared?**

(xii) **a dividend is declared?**

(xiii) **assuming that the company pays the dividend and has net profits of Rs.5,00,000 and makes new investments of Rs.10,00,000 during the period, how many new shares must be issued? Use the MM model. (MTP 5 Marks, Oct'18)**

Answer 27

As per MM model, the current market price of equity share is:

$$=p_0 \frac{1}{1+k_e} \times (D_1 + P_1)$$

(i) **If the dividend is not declared:**

$$100 = \frac{1}{1+0.12} = (0+ P1)$$

$$=100 = \frac{p_1}{1.12} = P1 = Rs.112$$

The Market price of the equity share at the end of the year would be Rs.112.

(ii) **If the dividend is declared:**

$$100 = \frac{1}{1+0.12} = (0+ P1)$$

$$100 = \frac{10+p_1}{1.12} \times (10+ P1)$$

112 = 10 + P1

P1 = 112 – 10 = Rs.102

The market price of the equity share at the end of the year would be Rs.102.

(iii) In case the firm pays dividend of Rs.10 per share out of total profits of Rs. 5,00,000 and plans to make new investment of Rs. 10,00,000, the number of shares to be issued may be found as follows:

Total Earnings	Rs.5,00,000
- Dividends paid	(1,00,000)
Retained earnings	4,00,000
Total funds required	10,00,000
Fresh funds to be raised	6,00,000
Market price of the share	102

Number of shares to be issued (Rs.6,00,000 / 102) 5,882.35 or, the firm would issue 5,883 shares at the rate of Rs.102

Question 28

ZX Ltd. has a paid-up share capital of Rs.1,00,00,000, face value of Rs.100 each. The current market price of the shares is Rs.100 each. The Board of

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Directors of the company has an agenda of meeting to pay a dividend of 50% to its shareholders. The company expects a net income of Rs.75,00,000 at the end of the current financial year. Company also plans for a capital expenditure for the next financial year for a cost of Rs.95,00,000, which can be financed through retained earnings and issue of new equity shares.
Company's desired rate of investment is 15%.
Required:
Following the Modigliani- Miller (MM) Hypothesis, DETERMINE value of the company when:
(i) **It does not pay dividend and**
(ii) **It does pay dividend [MTP 10 Marks, May'20 & Sep '23]**

Answer 28

As per MM Hypothesis, value of firm/ company is calculated as below:

Vf or nP_0 $= \frac{(n+\Delta n)p_1 - l + E}{(1+k_e)}$

Vf	=	Value of firm in the beginning of the period
n	=	number of shares in the beginning of the period
Δn	=	number of shares issued to raise the funds required
I	=	Amount required for investment

(i) Value of the ZX Ltd. when dividends are not paid.

Vf or nP_0 $= \frac{(n+\Delta n)p_1 - l + E}{(1+k_e)}$

$= \frac{\left[1{,}00{,}000+\frac{20{,}00{,}000}{115}\right] \times Rs.115 - Rs.95{,}00{,}000 + Rs.75{,}000{,}000}{(1+0.15)}$

$= \frac{Rs.1{,}35{,}00{,}000 - Rs.95{,}00{,}000 + Rs.75{,}00{,}000}{(1+0.15)}$ == Rs.1,00,00,000

Working notes:

1. Price of share at the end of the period (P1)

$P_0 = \frac{P_1 + D_1}{1+K_e}$

$100 = \frac{P_1+0}{1+0.15}$ = or, P_1= 115

2. Calculation of funds required for investment

Earnings	Rs.75,00,000
Dividend distributed	Nil
Fund available for investment	Rs.75,00,000
Total Investment	Rs.95,00,000
Balance Funds required	Rs.20,00,000

3. Calculation of no. of shares required to be issued for balance fund

No. of shares (Δn) $= \frac{Funds\ required}{Price\ at\ end\ p_1} = \frac{2{,}00{,}000}{115} = Shares$

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= Vf or nP₀ $= \frac{(n+\Delta n)p_1 - l + E}{(1+k_e)}$

$= \frac{\left[1{,}00{,}000 + \frac{70{,}00{,}000}{65}\right] \times Rs.65 - Rs.95{,}00{,}000 + Rs.75{,}000{,}000}{(1+0.15)}$

$= \frac{Rs.1{,}35{,}00{,}000 - Rs.95{,}00{,}000 + Rs.75{,}00{,}000}{(1+0.15)}$ = Rs.1,00,00,000

Working notes:

Price of share at the end of the period (P1)

$P_0 = \frac{P_1 + D_1}{1+K_e}$

$100 = \frac{P_1 + 50}{1+0.15}$ = or, $P_1 = 65$

Calculation of funds required for investment

Earnings	Rs.75,00,000
Dividend distributed	Rs.50,00,000
Fund available for investment	Rs.25,00,000
Total Investment	Rs.95,00,000
Balance Funds required	Rs.70,00,000

Calculation of no. of shares required to be issued for balance fund

No. of shares (Δn) $= \frac{Funds\ required}{Price\ at\ end\ p_1} = \frac{70{,}00{,}000}{65} = 1{,}07{,}693\ shares(approx.)$

Note- As per MM-hypothesis of dividend irrelevance, value of firm remains same irrespective of dividend paid. In the solution, there may be variation in value, which is due to rounding off error.

Question 29

The earnings per share of a company is ₹ 10 and the rate of capitalization applicable to it is 10 per cent. The company has three options of paying dividend i.e. (i) 50%, (ii) 75% and (iii) 100%.

CALCULATE the market price of the share as per Walter's model if it can earn a return of 15, (b) 10 and (c) 5 per cent on its retained earnings. (RTP Nov '18)

Answer 29

Market Price (P) per share as per Walter's Model is:

$$P = \frac{D + \frac{r}{K_e}(E-D)}{K_e}$$

Where, P = Price of Share

r = Return on investment or rate of earning

K_e= Rate of Capitalization or Cost of Equity

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Calculation of Market Price (P) under the following dividend payout ratio and earning rates:

		(i)	(ii)	(iii)
	Rate of Earning (r)	DP ratio 50%	DP ratio 75%	DP ratio 100%
(a)	15%	$\frac{5+\left(\frac{0.15}{0.10}\right)(10-5)}{0.10} = \frac{12.5}{0.10} =$ Rs. 125	$\frac{7.5+\left(\frac{0.15}{0.10}\right)(10-7.5)}{0.10}$ $= \frac{11.25}{0.10}$ = Rs. 112.5	$\frac{10+\left(\frac{0.15}{0.10}\right)(10-10)}{0.10}$ $= \frac{10}{0.10}$ = Rs. 100
(b)	10%	$\frac{5+\left(\frac{0.10}{0.10}\right)(10-5)}{0.10} = \frac{10}{0.10} =$ Rs. 100	$\frac{7.5+\left(\frac{0.10}{0.10}\right)(10-7.5)}{0.10}$ $= \frac{10}{0.10}$ = Rs. 100	$\frac{10+\left(\frac{0.10}{0.10}\right)(10-10)}{0.10}$ $= \frac{10}{0.10}$ = Rs. 100
(c)	5%	$\frac{5+\left(\frac{0.05}{0.10}\right)(10-5)}{0.10} = \frac{7.5}{0.10} =$ Rs. 75	$\frac{7.5+\left(\frac{0.05}{0.10}\right)(10-7.5)}{0.10}$ $= \frac{8.75}{0.10}$ = Rs. 87.5	$\frac{10+\left(\frac{0.05}{0.10}\right)(10-10)}{0.10}$ $= \frac{10}{0.10}$ = Rs. 100

Question 30

Rex Ltd has 20 lakh equity shares outstanding at the start of the accounting year 2023. The existing market price per share is ₹ 300. Expected dividend is ₹ 20 per share. The rate of capitalization appropriate to the risk class to which the company belongs is 20%.

CALCULATE the market price per share when expected dividends are: (a) declared, and (b) not declared, based on the Miller – Modigliani approach.

CALCULATE number of shares to be issued by the company at the end of the accounting year on the assumption that the net income for the year is ₹ 5 crore; investment budget is ₹ 8 crores, when (a) Dividends are declared, and (b) Dividends are not declared.

PROVE that the market value of the shares at the end of the accounting year will remain unchanged irrespective of whether (a) Dividends are declared, or (ii) Dividends are not declared.

WHAT is the implied growth rate in dividends as per Gordon's model, if expected dividend payment is considered imminent? (MTP 10 Marks April '23)

Answer 30

(iv) Calculation of market price per share

According to Miller – Modigliani (MM) Approach:

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$P_0 = \frac{P_1+D_1}{1+k_e}$

Where,

Existing market price (Po) = ₹ 300

Expected dividend per share (D1) = ₹ 20

Capitalization rate (ke) = 0.20 Market price at year end (P1) = ?

c. If expected dividends are declared,

then 300=(P1+20)/(1+0.2)

300 x 1.2 = P1+20

P1= 340

d. If expected dividends are not declared,

then 300=(P1+0)/(1+0.2)

300 x 1.2 = P1

P1= 360

(v) Calculation of number of shares to be issued

	(a)	(b)
	Dividends are declared. (₹ lakh)	**Dividends are not Declared (₹ lakh)**
Net income	500	500
Total dividends	(400)	-
Retained earnings	100	500
Investment budget	800	800
Amount to be raised by new issues	700	300
Relevant market price (₹ per share)	340	360
No. of new shares to be issued (in lakh) (₹ 700 ÷ 340; ₹ 300 ÷ 360)	2.0588	0.8333

(vi) Calculation of market value of the shares

	(a)	(b)
Particulars	**Dividends are**	**Dividends are not**

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	declared	Declared
Existing shares (in lakhs)	20.00	20.00
New shares (in lakhs)	2.0588	0.8333
Total shares (in lakhs)	22.0588	20.8333
Market price per share (₹)	340	360
Total market value of shares at the end of the year (₹ in lakh)	22.0588 × 340 = 7,500 (approx.)	20.8333 × 360 = 7,500 (approx.)

Hence, it is proved that the total market value of shares remains unchanged irrespective of whether dividends are declared, or not declared.

P0=D1/(Ke-g)

= 20/(0.2-g)

0.2-g = 20/300

0.2-g = 0.0667

G = 0.133333 **g = 13.3333%**

Question 31

The following information is supplied to you:

Particulars	₹
Total Earnings	**5,00,000**
Equity shares (of ₹ 100 each)	**50,00,000**
Dividend paid	**3,75,000**
Price/ Earnings ratio	**12.5**

Applying Walter's Model:

(vi) **ANALYSE whether the company is following an optimal dividend policy.**

(vii) **COMPUTE P/E ratio at which the dividend policy will have no effect on the value of the share.**

(viii) **Will your decision change, if the P/E ratio is 8 instead of 12.5? ANALYSE. (MTP 5 Marks Nov'21 & April '19)**

Answer 31

(iv) The EPS of the firm is ₹ 10 (i.e. ₹ 5,00,000/ 50,000). r = 5,00,000/ 50,00,000 = 10%.

The P/E Ratio is given at 12.5 and the cost of capital, K_e, may be taken at the inverse of P/E ratio. Therefore, K_e is 8 (i.e., 1/12.5). The firm is distributing total dividends of ₹ 3,75,000 among 50,000 shares, giving a dividend per share

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of ₹ 7.50. The value of the share as per Walter's model may be found as follows:

$$p = \frac{D + \frac{r}{k_e}(E-D)}{K_e} = \frac{7.5 + \frac{0.1}{0.08}(10.-7.5)}{0.08} = \mathbf{132.81}$$

The firm has a dividend payout of 75% (i.e., ₹ 3,75,000) out of total earnings of ₹ 5,00,000. Since, the rate of return of the firm, r, is 10% and it is more than the Ke of 8%, therefore, by distributing 75% of earnings, the firm is not following an optimal dividend policy. The optimal dividend policy for the firm would be to pay zero dividend and in such a situation, the market price would be,

$$\frac{0 + \frac{0.1}{0.08}(10-0)}{0.08} = \mathbf{156.21}$$

So, theoretically, the market price of the share can be increased by adopting a zero payout.

(v) The P/E ratio at which the dividend policy will have no effect on the value of the share is such at which the Ke would be equal to the rate of return, r, of the firm. The Ke would be 10% (= r) at the P/E ratio of 10. Therefore, at the P/E ratio of 10, the dividend policy would have no effect on the value of the share.

(vi) If the P/E is 8 instead of 12.5, then the Ke which is the inverse of P/E ratio, would be 12.5 and in such a situation k_e> r and the market price, as per Walter's model would be:

$$P = \frac{D + \frac{r}{k_e}(E-D)}{K_e} = \frac{7.5 + \frac{0.1}{0.125}(10.-7.5)}{0.125} = \mathbf{76}$$

Section B

Question 1

Which one of the following is the assumption of Gordon's Model?

(a) Ke > g

(b) Retention ratio, (b), once decide upon, is constant

(c) Firm is an all equity firm

(d) All of the above

Answer 1: (d)

Question 2

What should be the optimum Dividend pay-out ratio, when r = 15% & Ke = 12%:

(a) 100%

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(b) 50%

(c) Zero

(d) None of the above.

Answer 2: (c)

Question 3

Which of the following is the irrelevance theory?

(a) Walter model

(b) Gordon model

(c) M.M. hypothesis

(d) Linter's model

Answer 3: (c)

Question 4

If the company's D/P ratio is 60% & ROI is 16%, what should be the growth rate?

(a) 5%

(b) 7%

(c) 6.4%

(d) 9.6%

Answer 4: (c)

Question 5

If the shareholders prefer regular income, how does this affect the dividend decision:

(a) It will lead to payment of dividend

(b) It is the indicator to retain more earnings

(c) It has no impact on dividend decision

(d) Can't say

Answer 5: (a)

Question 6

Mature companies having few investment opportunities will show high payout ratios, this statement is:

(a) False

(b) True

(c) Partial true

(d) None of these

Answer 6: (b)

Question 7

Which of the following is the limitation of Linter's model?

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(a) This model does not offer a market price for the shares.

(b) The adjustment factor is an arbitrary number and not based on any scientific criterion or methods.

(c) Both (a) & (b)

(d) None of the above.

Answer 7: (c)

Question 8

What are the different options other than cash used for distributing profits to shareholders?

(a) Bonus shares

(b) Stock split

(c) Both (a) and (b)

(d) None of the above

Answer 8: (a)

Question 9

Which of the following statement is correct with respect to Gordon's model?

(a) When IRR is greater than cost of capital, the price per share increases and dividend pay-out decreases.

(b) When IRR is greater than cost of capital, the price per share decreases and dividend pay-out increases.

(c) When IRR is equal to cost of capital, the price per share increases and dividend pay-out decreases.

(e) When IRR is lower than cost of capital, the price per share increases and dividend pay-out decreases.

Answer 9: (a)

Question 10

Compute EPS according to Graham & Dodd approach from the given information:

Market price	`56
Dividend pay-out ratio	60%
Multiplier	2

(a) `30

(b) `56

(c) `28

(d) `84

Answer 10: (a)

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Question 11

Which among the following is not an assumption of Walter's Model?

(a) Rate of return and cost of capital are constant

(b) Information is freely available to all

(c) There is discrimination in taxes

(d) The firm has perpetual life

Answer 11: (c)

Question 12

STATE dividend decision? Briefly EXPLAIN the factors which govern this decision.

Answer 12

Dividend is that part of Profit After Tax (PAT) which is **distributed to the shareholders** of the company. Further, the profit earned by a company after paying taxes can be used for:

i. Distribution of dividend, or

ii. Retaining as surplus for future growth

Dividend policy of a firm is governed by:

(i) Long Term Financing Decision:

As we know that one of the financing options is 'Equity'. Equity can either be raised externally through issue of new equity shares or can be generated internally through retained earnings. For Equity, retained earnings are preferable because they do not involve any floatation costs (issue expenses).

But whether to retain or distribute the profits, forms the basis of this decision. Further, payment of cash dividend reduces the amount of funds required to finance profitable investment opportunities thereby restricting its financing options.

In this backdrop, the decision is based on the following:

1. Whether the organization has opportunities in hand to invest the profit, if retained?
2. Whether the return on such investment (ROI) will be higher than the expectations of shareholders i.e. Ke?

(ii) Wealth Maximization Decision:

Under this decision, we are facing the problem as to what amount of dividend shall be distributed i.e. the Dividend Payout ratio (D/P) in relation to Market price of the shares (MPS)? This decision is based on the following:

1. Because of market imperfections and uncertainty, shareholders give more importance to near dividends than future dividends and capital gains. Payment of dividends influences the market price of the share directly. Higher dividends increase the value of shares and low dividends decrease it. A proper balance has to be struck between these two approaches.

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2. When the firm increases its retained earnings, shareholders' dividends decreases and consequently market price is affected. Use of retained earnings to finance profitable investments increases the future earnings per share. This is because, shareholders expect that profitable investments made by the company may lead to higher return for them in future. On the other hand, increase in dividends may cause the firm to forego investment opportunities for lack of funds and thereby decrease the futureearnings per share.

   Thus, management should develop a dividend policy **which divides net earnings into dividends and retained earnings** in an optimum way so as to achieve the objective of wealth maximization for shareholders. Such a policy willbe influenced by investment opportunities available to the firm and value of dividends as against capital gains to shareholders.

Question 13

EXPLAIN the advantages and disadvantages of the stock dividend.

Answer 13

Advantages of Stock Dividend

There are many advantages both to the shareholders and company. Some of the main advantages are listed as under:

(1) To Shareholders:

(a) No tax is payable by shareholders on stock dividend received from domestic company as it is not treated as dividend but capital asset underIncome Tax Act, 1961.

(b) Policy of paying fixed dividend per share and its continuation even after declaration of stock dividend will increase total cash dividend of the shareholders in future.

(2) To Company:

(a) Conservation of cash for meeting profitable investment opportunities.

(b) Suitable in case of cash deficiency and restrictions imposed by lenders to pay cash dividend.

Limitations of Stock Dividend

Limitations of stock dividend to shareholders and company are as follows:

1. **To Shareholders:** Stock dividend does not affect the wealth of shareholders and therefore it has no value for them. This is because the declaration of stock dividend is a method of capitalising the past earnings of the shareholders and isa formal way of recognising earnings which the shareholders already own. It merely divides the company's ownership into a large number of share certificates. James Porterfield regards stock dividends as a division of corporatepie into a larger number of pieces. Stock dividend does not give any extra or special benefit to the shareholder. His proportionate ownership in the companydoes not change at all. Stock dividend creates a favourable psychological impacton the shareholders and is greeted by them on the ground that it gives an indication of the company's growth.

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2. **To Company:** Stock dividends are costlier to administer than cash dividends. It is disadvantageous if periodic small stock dividends are declared by the company as earnings.

Question 14

DISCUSS the practical considerations in dividend policy.

Answer 14

The practical considerations in dividend policy of a company are briefly discussed below:

(a) Financial Needs of a Company: Retained earnings can be a source of finance for creating profitable investment opportunities. As we discussed earlier, when internal rate of return of a company is greater than return required by shareholders,it would be advantageous for the shareholders to re-invest their earnings.

Risk and financial obligations increase if a company raises capital through issue of new shares where floatation costs are involved.

In this respect, a comparison between growth companies and mature companies has been given as follows:

Mature Companies	Growth Companies
1. Mature companies having few investment opportunities will show high payout ratios;	1. Growth companies have low payout ratios. They are in need of funds to finance fast growing fixed assets.
2. Share prices of such companies are sensitive to any changes in dividend payout.	2. Distribution of earnings reduces the funds of the company. They retain all the earnings and declare bonus shares to offset the dividend requirements of the shareholders.
3. A small portion of the earnings iskept to meet emergent and occasional financial needs.	3. These companies increase the amount of dividends gradually as the profitable investment opportunitiesstart falling.

(b) Constraints on Paying Dividends

(i) ***Legal***: Please see point no. (9) under the heading, "Determinants of Dividend Decisions".

(ii) ***Liquidity***: Payment of dividends means outflow of cash. Ability to pay dividendsdepends on cash and liquidity position of the firm. A mature company does nothave much investment opportunities, nor its funds tied up in permanent workingcapital and, therefore has a sound cash position. A growth oriented company inspite of having good profits need funds to expand its operations and permanentworking capital and therefore it is less likely to declare dividends.

(iii) ***Access to the Capital Market***: By paying large dividends, cash position is affected. So, if new shares have to be issued to raise funds for financing investment programmes and if the existing shareholders cannot buy additional shares, then their control is diluted. In such a situation, payment of dividends may be withheld and earnings are utilised for financing firm's investmentopportunities.

(iv) ***Investment Opportunities***: If investment opportunities are inadequate, it is better to pay dividends and raise external funds whenever necessary for such opportunities.

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(c) Desire of Shareholders: The desire of shareholders (whether they prefer regular income by way of dividend or maximize their wealth by way of gaining on sale of the shares) is also an important point to be considered by the companies. The small shareholders are concerned with regular dividend income, hence, some select group of companies paying regular and liberal dividend.

As compared to those shareholders who prefer regular dividend as source of income, there are shareholders who prefer to gain on sale of shares at times when shares command higher price in the market. However, capital gain on sale of shares attracts tax on such gain and rates vary on the basis of holding period.

The dividend policy, thus pursued by the company should strike a balance on the desires of the shareholders. Also, the dividend policy once established should be continued as long as possible without interfering with the needs of the companyto create a positive clientele effect.

(d) Stability of Dividends: Stability in dividend can be maintained by fixing the amount or rate of dividend irrespective of the earnings of the company. The stable dividend policies may include:

(e) ***Constant Dividend per Share*****:** Shareholders are given fixed amount of dividend irrespective of actual earnings. The amount of dividend may increase or decreaselater on depending upon the financial health of the company but it is generally maintained for a considerable period of time.

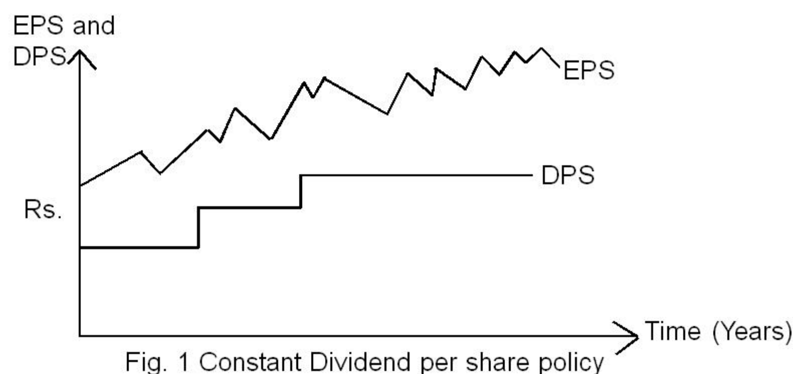

Fig. 1 Constant Dividend per share policy

To maintain a constant dividend amount, it is necessary to create a reserve like Dividend Equalisation Reserve Fund earmarked by marketable securities for accumulation of surplus earnings and to use it for paying dividends in those years where the company's performance is not good. This policy treats commonshareholders at par with preference shareholders without giving them any preferred opportunities within the firm. It is preferred by persons and institutionsthat depend on dividend income to meet their living and operating expenses.

(f) ***Constant Percentage of Net Earnings*****:** The ratio of dividend to earnings is known as Payout ratio. Some companies follow a policy of constant Payout ratio
i.e. paying fixed percentage on net earnings every year. To quote from Page 74 of the annual report 2011 of Infosys Technologies Limited,

"The Dividend Policy is to distribute up to 30% of the Consolidated Profit after Tax (PAT)

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of the Infosys Group as Dividend."

Contrary to this, Warren Buffet (amongst the richest persons of the world) says:

"We will either pay large dividends or none at all if we can't obtain more money through re-investment (of those funds). There is no logic to regularly paying out 10% or 20% of earnings as dividends every year."

Such a policy (as mentioned by Warren Buffet) envisages that the amount of dividend fluctuates in direct proportion to earnings. If a company adopts 40% payout ratio, then 40% of every rupee of net earnings will be paid out. If a company earns `2 per share, dividend per share will be 80 paise and if it earns `1.50 per share, dividend per share will be 60 paise.

Hence, such a policy is related to company's ability to pay dividends. For losses incurred, no dividend shall be paid. Internal financing with retained earnings is automatic. At any given payout ratio, amount of dividend and any addition to retained earnings increase with increased earnings and decrease with decreased earnings. This policy has a conservative approach and provides a guarantee against over/underpayment. Management is not allowed to pay dividend if profits are not earned in current year. Conversely, dividend is not allowed to be foregone if profits are earned.

(i) ***Small Constant Dividend per Share plus Extra Dividend:*** The amount of dividend is set at high level and the policy is adopted for companies with stable earnings. For companies with fluctuating earnings, the policy is to pay a minimum dividend per share with a step up feature. The small amount of dividend is fixed to reduce the possibility of missing dividend payment. By paying extra dividend in period of prosperity, it enables the company to pay constant amount of dividend regularly without default and allows flexibility for supplementing shareholders' income when company's earnings are higher than usual, without committing to make larger payments as part of further fixed dividend. This policy allows some shareholders to plan on set amounts of cash and at the same time be pleased when extra dividends are announced.

A firm following policy of stable dividend in Figure 1 will command higher market price for shares than the firm which varies dividend with cyclical fluctuation in earnings as in Figure 2.

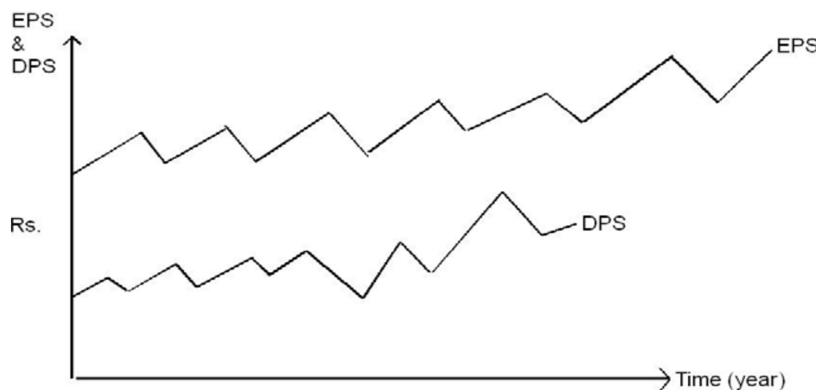

Fig. 2 Dividend policy at Constant Payout ratio

There is, however, a danger for a company with a pattern of stable dividends missing

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dividend payment in a year as this break will have severe effect on investors than failure to pay dividend by a company with unstable dividend policy. It is prudent for companies to maintain stability of dividends during lean periods. The dividend rate is to be fixed at a conservative figure so that it can be maintained even in such periods. To give benefit of company's prosperity, extra dividend can be declared. If the company fails to pay extra dividend, it does not have a depressing effect on investors.

Question 15

LIST out the assumptions of irrelevance theory.

Answer 15

MM hypothesis is based on the following assumptions:

- **Perfect capital markets:** The firm operates in a market in which all investors are rational and information is freely available to all.
- **No taxes:** There are no taxes or no tax discrimination between dividend income and capital appreciation (capital gain). It means there is no difference in taxation of dividend income or capital gain. This assumption is necessary for the universal applicability of the theory, since the tax rates may be different in different countries.
- **Fixed investment policy:** It is necessary to assume that all investment should be financed through equity only, since implication after using debt as a source of finance may be difficult to understand. Further, the impact will be different in different cases.
- **No floatation or transaction cost:** Similarly, these costs may differ from country to country or market to market.
- **Risk of uncertainty does not exist**. Investors are able to forecast future prices and dividend with certainty and one discount rate is appropriate for all securities and all time periods.

Question 16

EXPLAIN the parameters Linter's model of dividend policy. Also explain the reasons of its criticism.

Answer 16

Linter's model has two parameters:

i. The target payout ratio,

ii. The spread at which current dividends adjust to the target.

Criticism of Linter's Model

- This model **does not offer a market price** for the shares.
- The **adjustment factor is an arbitrary number** and not based on any scientific criterion or method.

Question 17

State the meaning of stock split. Explain its advantages and disadvantages.

Answer 17

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Stock split means splitting **one share into many,** say, one share of ` 500 in to 5 shares of ` 100. Stock splits is a tool used by the companies to regulate the prices of shares i.e. if a share price increases beyond a limit, it may become less tradable, for e.g. suppose a company's share price increases from ` 50 to ` 1000 over the years, it is possible that it might goes out of range of many investors.

Advantages of Stock Splits

1. It makes the **share affordable** to small investors.
2. **Number of shares may increase** the number of shareholders; hence thepotential of investment may increase.

Limitations of Stock Splits

1. **Additional expenditure** needs to be incurred on the process of stock split.
2. **Low share price may attract speculators** or short term investors, which are generally not preferred by any company.

Question 18

The dividend payout ratio of H Ltd. is 40%. If the company follows traditional approach to dividend policy with a multiplier of 9, COMPUTE P/E ratio.

Answer 18

The P/E ratio i.e. price earnings ratio can be computed with the help of thefollowing formula:

P/E ratio=$\frac{MPS}{EPS}$

Since the D/P ratio is 40%,D = 40% of E i.e. 0.4E

Hence,

Market price per share (P) using Graham & Dodd's model:

$=P_0 = M\left[D + \frac{E}{3}\right]$

$=P_0 = 9\left[0.4E + \frac{E}{3}\right]$

$P_0 = 9\left[\frac{1.2E+E}{3}\right]$=3(2.2E)

P0 = 6.6E

$\frac{P}{E}$=6.6.e.i. P/E ratio is 6.6 times

Question 19

M Ltd. belongs to a risk class for which the capitalization rate is 10%. It has 25,000 outstanding shares and the current market price is ` 100. It expects anet profit of ` 2,50,000 for the year and the Board is considering dividend of` 5 per share.M Ltd. requires to raise ` 5,00,000 for an approved investment expenditure.

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ILLUSTRATE, how the MM approach affects the value of M Ltd. if dividends are paid or not paid.

Answer 19

Given,

Cost of Equity (Ke)	10%
Number of shares in the beginning (n)	25,000
Current Market Price (P0)	`100
Net Profit (E)	`2,50,000
Expected Dividend (D1)	`5 per share
Investment (I)	`5,00,000

Case 1 - When dividends are paid	Case 2 - When dividends are not paid
Step 1 $P_0 = \frac{P_1 + D_1}{1 + K_e}$ $100 = \frac{P_1 + 5}{1 + 0.10}$ $P_1 = 110 - 5 = 105$	**Step 1** $P_0 = \frac{P_1 + D_1}{1 + K_e}$ $100 = \frac{P_1 + 0}{1 + 0.10}$ $P_1 = 110 - 5 = 110$
Step 2 Calculation of funds required = Total Investment + (Net profit -Dividend) = 5,00,000 + (2,50,000 - 1,25,000) = 3,75,000	**Step 2** Calculation of funds required = Total Investment + (Net profit -Dividend) = 5,00,000 + (2,50,000 - 0) = 2,50,000
Step 3 No. of shares required to be issuedfor balance fund No of Shares $= \frac{\text{Funds required}}{\text{Price at end}(P_1)}$ $\Delta n = \frac{3,75,000}{105} = 3,571.4285$	**Step 3** No. of shares required to be issuedfor balance fund No of Shares $= \frac{\text{Funds required}}{\text{Price at end}(P_1)}$ $\Delta n = \frac{2,50,000}{110} = 2,272.73$

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Step 4 Calculation of value of firm $VF=\frac{(n+\Delta n)P_1-I+E}{(1+K_e)}$ $VF=\frac{\left[25,00,000+\frac{3,75,000}{105}\right]105-5,00,000+2,50,000}{(1+.10)}$ = ` 25,00,000	**Step 4** Calculation of value of firm $VF=\frac{(n+\Delta n)P_1-I+E}{(1+K_e)}$ $VF=\frac{\left[25,00,000+\frac{3,75,000}{105}\right]105-5,00,000+2,50,000}{(1+.10)}$ = ` 25,00,000

Question 20

The following information is supplied to you:

	`
Total Earnings	**2,00,000**
No. of equity shares (of ` 100 each)	**20,000**
Dividend paid	**1,50,000**
Price/ Earnings ratio	**12.5**

Applying Walter's Model:

(i) **ANALYSE whether the company is following an optimal dividend policy.**

(ii) **COMPUTE P/E ratio at which the dividend policy will have no effect on the value of the share.**

(iii) **Will your decision change, if the P/E ratio is 8 instead of 12.5? ANALYSE.**

Answer 20

The EPS of the firm is ` 10 (i.e., ` 2,00,000/ 20,000), r = ` 2,00,000/ (20,000 shares × ` 100) = 10%. The P/E Ratio is given at 12.5 and the cost of capital (K_e) may be taken at the inverse of P/E ratio. Therefore, K_e is 8 (i.e., 1/12.5). The firm is distributing total dividends of ` 1,50,000 among 20,000 shares, giving a dividend per share of ` 7.50. the value of the share as per Walter's model may be found as follows:

$$P=\frac{D+\frac{r}{K_e}(E-D)}{K_e}=\frac{7.5+\frac{0.1}{0.08}(10-7.5)}{0.08}=Rs.132.81$$

The firm has a dividend payout of 75% (i.e., ` 1,50,000) out of total earnings of ` 2,00,000. Since, the rate of return of the firm (r) is 10% and it is more than the K_e of 8%, therefore, by distributing 75% of earnings, the firm is not following an optimal dividend policy. The optimal dividend policy for

the firm would be to pay zero dividend and in such a situation, the market price would be:

$$\frac{0+\frac{0.1}{0.08}(10-0)}{0.08}= \text{` } 156.25$$

So, theoretically the market price of the share can be increased by adopting a zero payout.

(ii) The P/E ratio at which the dividend policy will have no effect on the value of the share is such at which the K_e would be equal to the rate of return (r) of the firm.

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The Ke would be 10% (= r) at the P/E ratio of 10. Therefore, at the P/E ratio of 10, the dividend policy would have no effect on the value of the share.

(iii) If the P/E is 8 instead of 12.5, then the Ke which is the inverse of P/E ratio, would be 12.5 and in such a situation ke> r and the market price, as per Walter's model would be:

$$P=\frac{D+\frac{r}{K_e}(E-D)}{K_e}=\frac{7.5+\frac{0.1}{0.125}(10-7.5)}{0.125}=Rs.76$$

Question 21

With the help of following figures CALCULATE the market price of a share ofa company by using:

(i) Walter's formula

(ii) Dividend growth model (Gordon's formula)

Earnings per share (EPS)	**` 10**
Dividend per share (DPS)	**` 6**
Cost of capital (Ke)	**20%**
Internal rate of return on investment	**25%**
Retention Ratio	**40%**

Answer 21

Market price per share by

(i) Walter's model

$$P=\frac{D+\frac{r}{K_e}(E-D)}{K_e}=\frac{6+\frac{0.25}{0.20}(10-6)}{0.20}=Rs.55$$

(ii) Gordon's model

Present market price per share $(P_0)=\frac{E(1-b)}{k-br}$

$$=(P_0)=\frac{10(1-0.04)}{0.20+(0.4\times0.25}=\frac{6}{0.1}=Rs.60$$

Question 22

The annual report of XYZ Ltd. provides the following information for the Financial Year 2020-21:

Particulars	**Amount (`)**
Net Profit	**50 lakhs**
Outstanding 15% preference shares	**100 lakhs**
No. of equity shares	**5 lakhs**
Return on Investment	**20%**
Cost of capital i.e. (Ke)	**16%**

CALCULATE price per share using Gordon's Model when dividend pay-out is:

(i) 25%;
(ii) 50%;
(iii) 100%.

Answer 22

per share according to Gordon's Model is calculated as follows:

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Particulars	Amount in `
Net Profit	50 lakhs
Less: Preference dividend	15 lakhs
Earnings for equity shareholders	35 lakhs
Earnings per share	35 lakhs/5 lakhs = `7.00

Price per share according to Gordon's Model is calculated as follows:

$$(P_0) = \frac{E_1(1-b)}{K_e - br}$$

Here, E_1 = 7, K_e = 16%

(i) When dividend pay-out is 25%

$$(P_0) = \frac{7 \times 0.25}{0.16-(0.75 \times 0.2)} = \frac{1.75}{0.16-0.15} = Rs.175$$

(ii) When dividend pay-out is 50%

$$(P_0) = \frac{7 \times 0.25}{0.16-(0.5 \times 0.2)} = \frac{1.75}{0.16-0.10} = Rs.58.33$$

(iii) When dividend pay-out is 100%

$$(P_0) = \frac{7 \times 1}{0.16-(0 \times 0.2)} = \frac{7}{0.16} = Rs.43.75$$

Question 23

A&R Ltd. is a large-cap multinational company listed in BSE in India with a face value of ` 100 per share. The company is expected to grow @ 15% p.a. for next four years then 5% for an indefinite period. The shareholders expect 20% return on their share investments. Company paid ` 120 as dividend per share for the FY 2020-21. The shares of the company traded at an average price of ` 3,122 on last day. FIND out the intrinsic value of per share and state whether shares are overpriced or underpriced.

Answer 23

As per Dividend discount model, the price of share is calculated as follows:

$$P = \frac{D_1}{(1+K_e)^1} + \frac{D_2}{(1+K_e)^2} + \frac{D_3}{(1+K_e)^3} + \frac{D_4}{(1+K_e)^4} + \frac{D_5}{(1-g)} + \frac{1}{(1+K_e)^4} +$$

Where,

P = Price per share

K_e = Required rate of return on equity

g = Growth rate

$$= \frac{Rs.120 \times 1.15}{(1+0.2)^1} + \frac{Rs.138 \times 1.15}{(1+0.2)^2} + \frac{Rs.158.7 \times 1.15}{(1+0.2)^3} + \frac{Rs.182 \times 1.15}{(1+0.2)^4} + \frac{Rs.209.88 \times 1.05}{(0.2-0.05)} + \frac{1}{(1+0.2)^4}$$

P= 115 + 110.2 + 105.6 + 101.2 + 708.50 = `1,140.50

Intrinsic value of share is ` 1,140.50 as compared to latest market price of `3,122. Market price of a share is overpriced by `1,981.50

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Question 24

In May 2020, shares of RT Ltd. was sold for ` 1,460 per share. A long term earnings growth rate of 7.5% is anticipated. RT Ltd. is expected to pay dividend of `20 per share.

(i) **CALCULATE rate of return an investor can expect to earn assuming that dividends are expected to grow along with earnings at 7.5% per year in perpetuity?**

(ii) **It is expected that RT Ltd. will earn about 10% on retained earnings and shall retain 60% of earnings. In this case, STATE whether, there would be any change in growth rate and cost of Equity?**

Answer 24

I. According to Dividend Discount Model approach, the firm's expected or required return on equity is computed as follows:

$K_e = \frac{D_1}{P_0} + g$

$= K_e = \frac{20(1+0.075)}{1,460} + 7.5\%$ = 0.0147 +0.075 = 0.0897 or 8.97%

II. With rate of return on retained earnings (r) is 10% and retention ratio (b) is 60%, new growth rate will be as follows:

g = br = 0.10 × 0.60 = 0.06

Accordingly, dividend will also get changed and to calculate this, first we shall calculate previous retention ratio (b1) and then EPS assuming that rate of return on retained earnings (r) is same.

With previous Growth Rate of 7.5% and r =10%, the retention ratio comesout to be:

0.075 = b1 × 0.10

b1 = 0.75 and payout ratio = 0.25

With 0.25 payout ratio the EPS will be as follows:

$\frac{Rs.20}{0.25}$=Rs.80

With new 0.40 (1 – 0.60) payout ratio, the new dividend will beD1 = `80 × 0.40 = `32

Accordingly, new K_e will be

$= K_e = \frac{32}{1,460} + 6.0\%$

or, K_e = 8.19%

Question 25

Aakash Ltd. has 10 lakh equity shares outstanding at the start of the accounting year 2021. The existing market price per share is Rs.150. Expected dividend is Rs. 8 per share. The rate of capitalization appropriate to the risk class to which the company belongs is 10%.

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(i) **CALCULATE the market price per share when expected dividends are: (a) declared, and (b) not declared, based on the Miller – Modigliani approach.**

(ii) **CALCULATE number of shares to be issued by the company at the end of the accounting year on the assumption that the net income for the year is Rs.3 crore, investment budget is Rs. 6 crores, when (a) Dividends are declared, and (b) Dividends are not declared.**

(iii) **PROOF that the market value of the shares at the end of the accounting year will remain unchanged irrespective of whether (a) Dividends are declared, or (ii) Dividends are not declared.**

Answer 25

(i) Calculation of market price per share

According to Miller – Modigliani (MM) Approach:

$$P_0=\frac{P_1+D_1}{1+K_e}$$

Where,

Existing market price (P_0)= Rs.150

Expected dividend per share (D_1)= Rs. 8

Capitalization rate (k_e)= 0.10

Market price at year end (P_1)= to be determined

(a) If expected dividends are declared, then

$$\text{Rs.}150=\frac{P_1+\text{Rs.}8}{1+0.10}$$

$$\therefore P_1=\text{Rs.}157$$

(b) If expected dividends are not declared, then

$$\text{Rs.}150=\frac{P_1+0}{1+0.10}$$

$$\therefore P_1=\text{Rs.}165$$

(ii) Calculation of number of shares to be issued

	(a) Dividends are declared (₹ lakh)	**(b) Dividends are not Declared (₹ lakh)**
Net income	300	300
Total dividends	(80)	-
Retained earnings	220	300
Investment budget	600	600
Amount to be raised by new issues	380	300
Relevant market price (` per share)	157	165
No. of new shares to be issued (in lakh)(` 380 ÷ 157; Rs. 300 ÷ 165)	2.42	1.82

(iii) Calculation of market value of the shares

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	(a) Dividends are declared	(b) Dividends are not Declared
Existing shares (in lakhs)	10.00	10.00
New shares (in lakhs)	2.42	1.82
Total shares (in lakhs)	12.42	11.82
Market price per share (`)	157	165
Total market value of shares at the end of the year (` in lakh)	12.42 × 157 **= 1,950 (approx.)**	11.82 × 165 **=1,950 (approx.)**

Hence, it is proved that the total market value of shares remains unchanged irrespective of whether dividends are declared, or not declared.

Question 26: illustration

AB Engineering Ltd. belongs to a risk class for which the capitalization rate is 10%. It currently has outstanding 10,000 shares selling at ` 100 each. The firm is contemplating the declaration of a dividend of ` 5 share at the end of the current financial year. It expects to have a net income of ` 1,00,000 and has a proposal for making new investments of ` 2,00,000. CALCULATE the value of the firm when dividends (i) are not paid (ii) are paid.

Answer 26

CASE 1: Value of the firm when dividends are not paid.

Step 1: Calculate price at the end of the period

K_e= 10%, P_0= 100, D_1= 0

$$P_0=\frac{P_1+D_1}{1+K_e}$$

$$100=\frac{P_1+0}{1+0.10} \gg P_1=110$$

Step 2: Calculation of funds required for investment

Earning	` 1,00,000
Dividend distributed	Nil
Fund available for investment	` 1,00,000
Total Investment	` 2,00,000
Balance Funds required	` 2,00,000 - ` 1,00,000 = ` 1,00,000

Step 3: Calculation of No. of shares required to be issued for balance funds

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No. of shares $= \frac{Funds\ required}{Price\ at\ end(P_1)} = \Delta n = \frac{1,00,000}{110}$

Step 4: Calculation of value of firm

$$nP_0 = \frac{(n+\Delta n)P_1 - l + E}{1+K_e}$$

$$nP_0 = \frac{\left[10,000 + \frac{Rs.1,00,000}{Rs.110}\right] \times Rs.110 - Rs.2,00,000 + Rs.1,00,000}{(1+0.10)}$$

=Rs.1,00,000

CASE 2: Value of the firm when dividends are paid.

Step 1: Calculate price at the end of the period Ke = 10%, P_0= 100, D_1= 5

$$P_0 = \frac{P_1 + D_1}{1+K_e}$$

$$100 = \frac{P_1 + 5}{1+0.10} \gg P_1 = 105$$

Step 2: Calculation of funds required for investment

Earning	` 1,00,000
Dividend distributed	` 50,000
Fund available for investment	` 50,000
Total Investment	` 2,00,000
Balance Funds required	` 2,00,000 - ` 50,000 = ` 1,50,000

Step 3: Calculation of No. of shares required to be issued for balance fund
No. of shares

No. of shares $= \frac{Funds\ required}{Price\ at\ end(P_1)} = \Delta n = \frac{1,50,000}{Rs.105}$

Step 4: Calculation of value of firm

$$nP_0 = \frac{(n+\Delta n)P_1 - l + E}{1+K_e}$$

$$nP_0 = \frac{\left[10,000 + \frac{Rs.1,50,000}{Rs.105}\right] \times Rs.105 - Rs.2,00,000 + Rs.1,00,000}{(1+0.10)}$$

=Rs.10,00,000

Thus, it can be seen from the above illustration that the value of the firm remains the same in either case.

Question :27 illustration

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XYZ Ltd. earns ` 10/ share. Capitalization rate and return on investment are 10% and 12% respectively. DETERMINE the optimum dividend payout ratio and the price of the share at the payout

Answer 27

Since r > Ke , the optimum dividend pay-out ratio would 'Zero' (i.e. D = 0), Accordingly, value of a share:

$$P = \frac{D + \frac{r}{K_e}(E - D)}{K_e}$$

$$P = \frac{0 + \frac{0.12}{0.10}(10 - 0)}{0.10}$$

The optimality of the above payout ratio can be proved by using 25%, 50%, 75% and 100% as pay- out ratio:

At 25% pay-out ratio

$$P = \frac{2.5 + \frac{0.12}{0.10}(10 - 2.5)}{0.10} = Rs.115$$

At 50% pay-out ratio

$$P = \frac{5 + \frac{0.12}{0.10}(10 - 5)}{0.10} = Rs.110$$

At 75% pay-out ratio

$$P = \frac{7.5 + \frac{0.12}{0.10}(10 - 7.5)}{0.10} = Rs.105$$

At 100% pay-out ratio

$$P = \frac{10 + \frac{0.12}{0.10}(10 - 10)}{0.10} = Rs.100$$

Question 28: illustration

The following figures are collected from the annual report of XYZ Ltd.:

Net Profit	**` 30 lakhs**
Outstanding 12% preference shares	**` 100 lakhs**
No. of equity shares	**3 lakhs**
Return on Investment	**20%**
Cost of capital i.e. (Ke)	**16%**

COMPUTE the approximate dividend pay-out ratio so as to keep the share price at` 42 by using Walter's model?

Answer 28

	` in lakhs
Net Profit	30
Less: Preference dividend	12

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Earning for equity shareholders	18
Earning per share	18/3 = ` 6.00

Let, the dividend per share be D to get share price of ` 42

$$P=\frac{D+\frac{r}{K_e}(E-D)}{K_e}$$

$$Rs.42=\frac{0+\frac{0.20}{0.16}(6-D)}{0.16}$$

$$6.72=\frac{0.16D+1.2-0.20D}{0.16}$$

0.04D = 1.2 – 1.0752

D = 3.12

D/P ratio $=\frac{DPS}{EPS}\times 100=\frac{3.12}{6}=52\%$

So, the required dividend payout ratio will be = 52%

Question 29: illustration

The **following figures are collected from the annual report of XYZ Ltd.:**

Net Profit	**` 30 lakhs**
Outstanding 12% preference shares	**` 100 lakhs**
No. of equity shares	**3 lakhs**
Return on Investment	**20%**
Cost of capital i.e. (Ke)	**16%**

CALCULATE price per share using Gordon's Model when dividend pay-out is (i) 25%; (ii) 50% and (iii) 100%.

Answer 29

	` in lakhs
Net Profit	30
Less: Preference dividend	12
Earning for equity shareholders	18
Earning per share	18/3 = ` 6.00

Price per share according to Gordon's Model is calculated as follows:

$$(P_0)=\frac{E_1(1-b)}{K_e-br}$$

Here, E1 = 6, Ke = 16%

(i) When dividend pay-out is 25%

$$P_0=\frac{6\times 0.25}{0.16-(0.75\times 0.2)}=\frac{1.5}{0.16-0.15}=150$$

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(ii) When dividend pay-out is 50%

$$P_0 = \frac{6\times0.5}{0.16-(0.5\times0.2)} = \frac{3}{0.16-0.10} = 50$$

(iii) When dividend pay-out is 100%

$$P_0 = \frac{6\times1}{0.16-(0\times0.2)} = \frac{6}{0.16} = 37.50$$

Question 30: illustration

X Ltd. is a no growth company, pays a dividend of ` 5 per share. If the cost of capital is 10%, COMPUTE the current market price of the share?

Answer 30

$$(P_0) = \frac{D}{K_e} = \frac{5}{0.10} = \text{Rs..}50$$

Question 31: illustration

XYZ is a company having share capital of ` 10 lakhs of ` 10 each. It distributed current dividend of 20% per annum. Annual growth rate in dividend expected is 2%. The expected rate of return on its equity capital is 15%. CALCULATE price of share applying Gordon's growth Model.

Answer 31

$$= \frac{D_{1(1+g)}}{P_0}$$

$$= \frac{2(1+0.02)}{0.15-0.02} = Rs.15.69$$

Question 32: illustration

A firm had paid dividend at ` 2 per share last year. The estimated growth of the dividends from the company is estimated to be 5% p.a. DETERMINE the estimated market price of the equity share if the estimated growth rate of dividends (i) rises to 8%, and (ii) falls to 3%. Also FIND OUT the present market price of the share, given that the required rate of return of the equity investors is 15%.

Answer 32

In the present situation, the current MPS is as follows:

$$P = \frac{D_{1(1+g)}}{P_0}$$

$$P = \frac{2(1+0.05)}{0.15-0.05} = Rs.21$$

(i) The impact of changes in growth rate to 8% on MPS will be as follows:

$$P = \frac{2(1+0.08)}{0.15-0.08} = Rs.30.86$$

(ii) The impact of changes in growth rate to 3% on MPS will be as follows:

$$P = \frac{2(1+0.03)}{0.15-0.03} = Rs.17.17$$

So, the market price of the share is expected to vary in response to change in expected growth rate of dividends.

Question 33: illustration

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The earnings per share of a company is ` 30 and dividend payout ratio is 60%. Multiplier is 2.
DETERMINE the price per share as per Graham & Dodd model.

Answer 33

Price per share (P)=m$\left[D + \frac{E}{3}\right]$

(P)=2$\left[30 \times 0.6 + \frac{30}{3}\right]$

P = 2(18 +10) = `56

Question 34: illustration

The following information regarding the equity shares of M Ltd. is given below:

Market price	` 58.33
Dividend per share	` 5
Multiplier	7

According to the Graham & Dodd approach to the dividend policy, COMPUTE the EPS.

Answer34

Price per share (P)=m$\left[D + \frac{E}{3}\right]$

Rs.58.33=7$\left[5 + \frac{E}{3}\right]$

105 + 7E = 175

Or, 7E = 175 -105 = `10

Therefore, EPS = `10

Question 35: illustration

Given the last year's dividend is ` 9.80, speed of adjustment of 45%, target payout ratio is 60% and EPS for current year ` 20. COMPUTE current year's dividend using Linter's model.

Answer 35

D_1 = D_0 + [(EPS ×Target payout) - D_0] × Af

D_1 = 9.80 + [(20 × 60%) – 9.80] × 0.45

D_1 = 9.80 + 0.99 = `10.79

Question 36: illustration

RST Ltd. has a capital of ` 10,00,000 in equity shares of ` 100 each. The shares are currently quoted at par. The company proposes to declare a dividend of ` 10 per share at the end of the current financial year. The capitalization rate for the risk class of which the company belongs is 12%. COMPUTE market price of the share at the end of the year, if

(i) **dividend is not declared**
(ii) **dividend is declared**

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Assuming that the company pays the dividend and has net profits of ` 5,00,000 and makes new investments of ` 10,00,000 during the period, CALCULATE number of new shares to be issued? Use the MM model.

Answer 36

Given,

Cost of Equity (Ke)	12%
Number of shares in the beginning (n)	10,000
Current Market Price (P0)	` 100
Net Profit (E)	` 5,00,000
Expected Dividend (D1)	` 10 per share
Investment (I)	` 10,00,000

Computation of market price per share, when:

(i) No dividend is declared:

$$P_0=\frac{P_1+D_1}{1+K_e}$$

$$100=\frac{P_1+0}{1+0.12}$$

$$p_1=112\text{-}0=\text{Rs.}112$$

(ii) Dividend is declared:

$$P_0=\frac{P_1+D_1}{1+K_e}$$

$$100=\frac{P_1+10}{1+0.12}$$

$$p_1=112\text{- }10=\text{Rs.}102$$

Calculation of number of shares required for investment

	`
Earning	5,00,000
Dividend distributed	1,00,000
Fund available for investment	4,00,000
Total Investment	10,00,000
Balance Funds required	10,00,000 - 4,00,000 = 6,00,000

No. of shares $=\frac{Funds\ required}{Price\ at\ \ end(P_1)}$

$$=\Delta n=\frac{6,00,000}{102}=5,88,2.35\ or\ 5,883\ shares$$

Question 37: illustration

The following information pertains to M/s XY Ltd.

Earnings of the Company	**` 5,00,000**
Dividend Payout ratio	**60%**
No. of shares outstanding	**1,00,000**
Equity capitalization rate	**12%**

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Rate of return on investment	15%

CALCULATE:

(i) Market value per share as per Walter's model.

(ii) Optimum dividend payout ratio according to Walter's model and the market value of Company's share at that payout ratio.

Answer 37

(i) As per Walter's model:

$$= \frac{D + \frac{r}{K_e}(E-D)}{K_e}$$

Where,

Market price per share. E = Earnings per share = `5

D = Dividend per share = `3

R = Return earned on investment = 15%Ke = Cost of equity capital = 12%

$$P = \frac{3 + \frac{0.15}{0.12}(5-3)}{0.12} = Rs.45.33$$

(i) According to Walter's model, when the return on investment is more than the cost of equity capital, the price per share increases as the dividend pay-out ratio decreases. Hence, the optimum dividend pay-out ratio in this case is nil.

So, at a pay-out ratio of zero, the market value of the company's share will be:

$$P = \frac{0 + \frac{0.15}{0.12}(5-0)}{0.12} = Rs.52.80$$

Question 38: illustration

Taking an example of three different firms i.e. growth, normal and declining, CALCULATE the share price using Gordon's model.

Factors	rowth Firm r > Ke	ormal Firm r = Ke	Declining Firm r < Ke
r (rate of return on retained earnings)	15%	10%	8%
Ke (Cost of Capital)	10%	10%	10%
E (Earning Per Share)	` 10	` 10	` 10
b (Retained Earnings)	0.6	0.6	0.6
1- b (Dividend Payout)	0.4	0.4	0.4

Answer 38

$$= (P_0) = \frac{E_1(1-b)}{K_e - br}$$

(i) Situation-1: Growth Firm r > K_e

$$P_0 = \frac{\mathbf{10(1-0.6)}}{\mathbf{0.10-0.15\times0.6}} = \frac{\mathbf{4}}{\mathbf{0.10\times0.09}} = Rs.400$$

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(ii) Situation-2: Normal Firm r = K_e

$$P_0 = \frac{10(1-0.6)}{0.10-0.10\times0.6} = \frac{4}{0.10\times0.06} = \text{Rs.}100$$

Situation-2: Normal Firm r <K_e

$$P_0 = \frac{10(1-0.6)}{0.10-0.8\times0.6} = \frac{4}{0.10\times0.048} = \text{Rs.}76.92$$

If the retention ratio (b) is changed from 0.6 to 0.4, the new share price will be as follows:

Growth Firm

$$P_0 = \frac{10(1-0.4)}{0.10-0.15\times0.4} = \frac{6}{0.10\times0.06} = \text{Rs.}150$$

Normal Firm

$$P_0 = \frac{10(1-0.4)}{0.10-0.10\times0.4} = \frac{6}{0.10\times0.04} = \text{Rs.}100$$

Declining Firm

$$P_0 = \frac{10(1-0.4)}{0.10-0.08\times0.4} = \frac{6}{0.10\times0.032} = \text{Rs.}88.24$$

From the above analysis, it can be concluded that:

When r > k, the market value increases with retention ratio. When r < k, the market value of share stands to decrease. When r = k, the market value is not affected by dividend policy.

The conclusion of the Gordon's model is similar to that of Walter's model.

Question 39: illustration

The following information is given below in case of Aditya Ltd.:Earnings per share = ` 60

Capitalization rate = 15%Return on investment = 25%Dividend payout ratio = 30%

(i) COMPUTE price per share using Walter's Model.

(ii) WHAT would be optimum dividend payout ratio per share under Gordon's Model.

Answer 39

(i) As per Walter's Model, Price per share is computed by using the following formula:

$$P = \frac{D + \frac{r}{K_e}(E-D)}{K_e}$$

Where,

P = Market Price of the share.E = Earnings per share.

D = Dividend per share.

Ke = Cost of equity/ rate of capitalization/ discount rate.r = Internal rate of return/ return on investment

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Applying the above formula, price per share

$$P=\frac{18+\frac{0.25}{0.15}(60-18)}{K_e}$$

$$Or, P=\frac{18+70}{0.15}=Rs.586.67$$

(ii) **As per Gordon's model, when r > Ke, optimum dividend payout ratio is 'Zero'.**

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Chapter 9.1
Management of Working capital

Attempt wise Distribution

Q & A													
Attempts	May' 18	Nov' 18	May' 19	Nov' 19	May' 20	Nov' 20	Jan' 21	Jul'21	Dec' 21	May '22	Nov' 22	May' 23	Nov' 23
MTP						Q14, Q20			Q5	Q12, Q18	Q16		Q21
PYP			Q1			Q17	Q6					Q13	
RTP			Q4,Q10	Q8		Q15		Q2, Q7	Q19	Q3	Q11		Q9

Section A

Question 1

Bita Limited manufactures used in the steel industry. The following information regarding the company is given for your consideration:

(i) **Expected level of production 9000 units per annum.**

(ii) **Raw materials are expected to remain in store for an average of two months before issue to production.**

(iii) **Work-in-progress (50 percent complete as to conversion cost) will approximate to 1/2 month's production.**

(iv) **Finished goods remain in warehouse on an average for one month.**

(v) **Credit allowed by suppliers is one month. ·**

(vi) **Two month's credit is normally allowed to debtors.**

(vii) **A minimum cash balance of ₹ 67,500 is expected to be maintained.**

(viii) **Cash sales are 75 percent less than the credit sales.**

(ix) **Safety margin of 20 percent to cover unforeseen contingencies.**

(x) **The production pattern is assumed to be even during the year.**

(xi) **The cost structure for Bita Limited's product is as follows:**

	Rs.
Raw Materials	**80 per unit**
Direct Labour	**20 per unit**
Overheads (including depreciation Rs.20)	**80 per unit**
Total Cost	**180 per unit**

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Profit	**20 per unit**
Selling Price	**200 per unit**

You are required to estimate the working capital requirement of Bita limited. (PYP 10 Marks, May'19)

Answer 1

Statement showing Estimate of Working Capital Requirement

	(Amount in ₹)	**(Amount in ₹)**
A. Current Assets		
(i) Inventories:		
- Raw material inventory $\left[\frac{9{,}000\text{Units} \times \text{Rs.}80}{12\text{ Month}} \times 2\text{Month}\right]$		1,20,000
- Work in Progress:		
Raw material $\left[\frac{9{,}000\text{Units} \times \text{Rs.}80}{12\text{ Month}} \times 0.5\text{Month}\right]$	30,000	
Wages $\left[\frac{9{,}000\text{Units} \times \text{Rs.}60}{12\text{ Month}} \times 0.5\text{Month}\right] \times 50\%$	3,750	
Overheads $\left[\frac{9{,}000\text{Units} \times \text{Rs.}160}{12\text{ Month}} \times 0.5\text{Month}\right] \times 50\%$	11,250	45,000
Finished goods (inventory held for 1 months) $\left[\frac{9{,}000\text{Units} \times \text{Rs.}160}{12\text{ Month}} \times 1\text{Month}\right]$		1,20,000
(ii) Debtors (for 2 months) $\left[\frac{9{,}000\text{Units} \times \text{Rs.}160}{12\text{ Month}} \times 2\text{Month}\right] \times 80\%$ Or $\left[\frac{11{,}52{,}000}{12\text{ Month}} \times 2\text{Month}\right]$		1,92,000
(iii) Cash balance expected		67,500
Total Current assets		5,44,500
B. Current Liabilities		
(i) Creditors for Raw material (1 month) $\left[\frac{9{,}000\text{Units} \times \text{Rs.}80}{12\text{ Month}} \times 1\text{Month}\right]$		60,000
Total current liabilities		60,000
Net working capital (A – B)		4,84,500
Add: Safety margin of 20 percent		96,900
Working capital Requirement		5,81,400

Working Notes:

1. If Credit sales is x, then cash sales are x-75% of x i.e. x/4. Or x+0.25x =

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Rs.18,00,000

Or x=Rs.14,40,000

So, credit Sales is Rs.14,40,000

2. Hence, Cash cost of credit sales= $\left[\frac{\text{Rs.}14{,}40{,}000}{5} \times 4\right] = \text{Rs.}\,11{,}52{,}000$
3. It is assumed that safety margin of 20% is on net working capital.
4. No information is given regarding lag in payment of wages, hence ignored assuming it is paid regularly.
5. Debtors/Receivables is calculated based on total cost.
6. [If Debtors/Receivables is calculated based on sales, then debtors will be

$$\left[\frac{9{,}000\text{Units} \times \text{Rs.}\,200}{12\text{month}} \times 2\text{month}\right] \times 80\% \text{ or } \left[\frac{14{,}40{,}000}{12\text{month}} \times 2\text{month}\right] = \text{Rs.}\,2{,}40{,}000$$

Then Total Current assets will be ₹ 5,92,500 and accordingly Net working capital and Working capital requirement will be ₹ 5,32,500 and ₹ 6,39,000 respectively].

Question 2

MT Ltd. has been operating its manufacturing facilities till 31.3.2021 on a single shift working with the following cost structure:

	Per unit (₹)
Cost of Materials	**24**
Wages (out of which 60% variable)	**20**
Overheads (out of which 20% variable)	**20**
	64
Profit	**8**
Selling Price	**72**

As at 31.3.2021 with the sales of ₹ 17,28,000, the company held:

	(₹)
Stock of raw materials (at cost)	**1,44,000**
Work-in-progress (valued at prime cost)	**88,000**
Finished goods (valued at total cost)	**2,88,000**
Sundry debtors	**4,32,000**

In view of increased market demand, it is proposed to double production by working an extra shift. It is expected that a 10% discount will be available from suppliers of raw materials in view of increased volume of business. Selling price will remain the same. The credit period allowed to customers will remain unaltered. Credit availed from suppliers will continue to remain at the present level i.e. 2 months. Lag in payment of wages and overheads will continue to remain at one month. You are required to CALCULATE the additional working

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capital requirements, if the policy to increase output is implemented, to assess the impact of double shift for long term as a matter of production policy. (RTP May '21)

Answer 2

Workings:

(1) Statement of cost at single shift and double shift working

	24,000 units		48,000 Units	
	Per unit (₹)	Total (₹)	Per unit (₹)	Total (₹)
Raw materials	24	5,76,000	21.6	10,36,000
Wages:				
Variable	12	2,88,000	12	5,76,000
Fixed	8	1,92,000	4	1,92,000
Overheads:				
Variable	4	96,000	4	1,92,000
Fixed	16	3,84,000	8	3,84,000
Total cost	64	15,36,000	49.6	23,80,800
Profit	8	1,92,000	22.4	10,75,200
Sales	72	17,28,000	72	34,56,000

(2) Sales in units 2020-21 = $\frac{Sales}{Unit\ selling\ price} = \frac{Rs.17,28,000}{Rs.72}$ = 24,000 units

(3) Stock of Raw Materials in units on 31.3.2021

= $\frac{Value\ of\ stock}{Cost\ per\ unit} = \frac{Rs.1,44,000}{Rs.24}$ = 6,000 units

(4) Stock of work-in-progress in units on 31.3.2021

= $\frac{Value\ of\ work-in-progress}{Prime\ Cost\ per\ unit} = \frac{Rs.88,000}{Rs.24+20}$ = 2,000 units

(5) Stock of finished goods in units 2020-21

= $\frac{Value\ of\ stock}{Total\ Cost\ per\ unit} = \frac{Rs.2,88,000}{Rs.64}$ = 4,500 units

Comparative Statement of Working Capital Requirement

	Single Shift (24,000 units)			Double Shift (48,000 units)		
	Units	Rate (₹)	Amount (₹)	Units	Rate (₹)	Amount (₹)

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Current Assets						
Inventories:						
Raw Materials	6,000	24	1,44,000	12,000	21.6	2,59,200
Work-in-Progress	2,000	44	88,000	2,000	37.6	75,200
Finished Goods	4,500	64	2,88,000	9,000	49.6	4,46,400
Sundry Debtors	6,000	64	3,84,000	12,000	49.6	5,95,200
Total Current Assets (A)			9,04,000			13,76,000
Current Liabilities						
Creditors for Materials	4,000	24	96,000	8,000	21.6	1,72,800
Creditors for Wages	2,000	20	40,000	4,000	16	64,000
Creditors for Overheads	2,000	20	40,000	4,000	12	48,000
Total Current Liabilities (B)			1,76,000			2,84,800
Working Capital (A) – (B)			**7,28,000**			**10,91,200**

Analysis: Additional Working Capital requirement = ₹ 10,91,200 – ₹ 7,28,000 = ₹3,63,200, if the policy to increase output is implemented.

Question 3

PQR Ltd., a company newly commencing business in the year 2021-22, provides the following projected Profit and Loss Account:

	(₹)	(₹)
Sales		**5,04,000**
Cost of goods sold		**3,67,200**
Gross Profit		**1,36,800**
Administrative Expenses	**33,600**	
Selling Expenses	**31,200**	**64,800**
Profit before tax		**72,000**
Provision for taxation		**24,000**
Profit after tax		**48,000**
The cost of goods sold has been arrived at as under:		

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Materials used	**2,01,600**	
Wages and manufacturing Expenses	**1,50,000**	
Depreciation	**56,400** **4,08,000**	
Less: Stock of Finished goods (10% of goods produced not yet sold)	**40,800**	
	3,67,200	

The figure given above relate only to finished goods and not to work-in-progress. Goods equal to 15% of the year's production (in terms of physical units) will be in process on the average requiring full materials but only 40% of the other expenses. The company believes in keeping materials equal to two months' consumption in stock.

All expenses will be paid one month in advance. Suppliers of materials will extend 1 -1/2 months credit. Sales will be 20% for cash and the rest at two months' credit. 70% of th e Income tax will be paid in advance in quarterly instalments. The company wishes to keep ₹ 19,200 in cash. 10% must be added to the estimated figure for unforeseen contingencies. PREPARE an estimate of working capital. (RTP May'22)

Answer 3

Statement showing the requirements of Working Capital

	Particulars	**(₹)**	**(₹)**
A.	Current Assets:		
	Inventory:		
	Stock of Raw material (₹ 2,31,840 × 2/12)	38,640	
	Stock of Work-in-progress (As per Working Note)	39,240	
	Stock of Finished goods (₹ 3,51,600 × 10/100)	35,160	
	Receivables (Debtors) (₹3,04,992 × 2/12)	50,832	
	Cash in Hand	19,200	
	Prepaid Expenses:		
	Wages & Mfg. Expenses (₹ 1,59,000 × 1/12)	13,250	
	Administrative expenses (₹ 33,600 × 1/12)	2,800	
	Selling & Distribution Expenses (₹ 31,200 × 1/12)	2,600	
	Advance taxes paid {(70% of ₹ 24,000) × 3/12}	4,200	
	Gross Working Capital	2,05,922	2,05,922
B.	Current Liabilities:		
	Payables for Raw materials (₹ 2,70,480 × 1.5/12)	33,810	

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	Provision for Taxation (Net of Advance Tax) (₹ 24,000 × 30/100)	7,200	
	Total Current Liabilities	41,010	41,010
C.	Excess of CA over CL		1,64,912
	Add: 10% for unforeseen contingencies		16,491
Net Working Capital requirements			1,81,403

Working Notes:

(i) **Calculation of Stock of Work-in-progress**

Particulars	(₹)
Raw Material (₹ 2,01,600 × 15%)	30,240
Wages & Mfg. Expenses (₹ 1,50,000 × 15% × 40%)	9,000
Total	39,240

(ii) **Calculation of Stock of Finished Goods and Cost of Sales**

Particulars	(₹)
Direct material Cost [₹ 2,01,600 + ₹ 30,240]	2,31,840
Wages & Mfg. Expenses [₹ 1,50,000 + ₹ 9,000]	1,59,000
Depreciation	0
Gross Factory Cost	3,90,840
Less: Closing W.I.P.	(39,240)
Cost of goods produced	3,51,600
Add: Administrative Expenses	33,600
	3,85,200
Less: Closing stock	(35,160)
Cost of Goods Sold	3,50,040
Add: Selling and Distribution Expenses	31,200
Total Cash Cost of Sales	3,81,240
Debtors (80% of cash cost of sales)	3,04,992

(iii) **Calculation of Credit Purchase**

Particulars	(₹)

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Raw material consumed	2,31,840
Add: Closing Stock	38,640
Less: Opening Stock	-
Purchases	2,70,480

Question 4

A company is considering its working capital investment and financial policies for the next year. Estimated fixed assets and current liabilities for the next year are ₹ 2.60 crores and ₹ 2.34 crores respectively. Estimated Sales and EBIT depend on current assets investment, particularly inventories and book-debts. The Financial Controller of the company is examining the following alternative Working Capital Policies:

(₹ in crore)

Working Capital Policy	Investment in Current Assets	Estimated Sales	EBIT
Conservative	4.50	12.30	1.23
Moderate	3.90	11.50	1.15
Aggressive	2.60	10.00	1.00

After evaluating the working capital policy, the Financial Controller has advised the adoption of the moderate working capital policy. The company is now examining the use of long-term and short-term borrowings for financing its assets. The company will use ₹ 2.50 crores of the equity funds. The corporate tax rate is 35%. The company is considering the following debt alternatives.

Financing Policy	Short-term Debt	Long-term Debt
Conservative	0.54	1.12
Moderate	1.00	0.66
Aggressive	1.50	0.16
Interest rate-Average	12%	16%

You are required to CALCULATE the following:

(iii) **Working Capital Investment for each policy:**

(a) **Net Working Capital position**

(b) **Rate of Return**

(c) **Current ratio**

(iv) **Financing for each policy:**

(a) **Net Working Capital position.**

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(b) Rate of Return on Shareholders' equity.

(c) Current ratio. (RTP May '19, Nov'18)

Answer 4

(i) Statement showing Working Capital Investment for each policy

(₹ in crore)

	Working Capital Policy		
	Conservative	**Moderate**	**Aggressive**
Current Assets: (i)	4.50	3.90	2.60
Fixed Assets: (ii)	2.60	2.60	2.60
Total Assets: (iii)	7.10	6.50	5.20
Current liabilities: (iv)	2.34	2.34	2.34
Net Worth: (v) = (iii) - (iv)	4.76	4.16	2.86
Total liabilities: (iv) + (v)	7.10	6.50	5.20
Estimated Sales: (vi)	12.30	11.50	10.00
EBIT: (vii)	1.23	1.15	1.00
(a) Net working capital position: (i) - (iv)	2.16	1.56	0.26
(b) Rate of return: (vii) /(iii)	17.32%	17.69%	19.23%
(c) Current ratio: (i)/ (iv)	1.92	1.67	1.11

(ii) Statement Showing Effect of Alternative Financing Policy (₹ in crore)

Financing Policy	**Conservative**	**Moderate**	**Aggressive**
Current Assets (i)	3.90	3.90	3.90
Fixed Assets (ii)	2.60	2.60	2.60
Total Assets (iii)	6.50	6.50	6.50
Current Liabilities (iv)	2.34	2.34	2.34
Short term Debt (v)	0.54	1.00	1.50
Total current liabilities	2.88	3.34	3.84
(vi) = (iv) + (v)			
Long term Debt (vii)	1.12	0.66	0.16
Equity Capital (viii)	2.50	2.50	2.50
Total liabilities (ix) = (vi)+(vii)+(viii)	6.50	6.50	6.50
Forecasted Sales	11.50	11.50	11.50
EBIT (x)	1.15	1.15	1.15
Less: Interest on short-term debt	0.06 (12% of ₹0.54)	0.12 (12% of ₹ 1)	0.18 (12% of ₹ 1.5)

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Interest on long term debt	0.18 (16% of ₹1.12)	0.11 (16% of ₹0.66)	0.03 (16% of ₹0.16)
Earnings before tax (EBT) (xi)	0.91	0.92	0.94
Taxes @ 35% (xii)	0.32	0.32	0.33
Earnings after tax: (xiii) = (xi) – (xii)	0.59	0.60	0.61
(a) Net Working Capital Position: (i) - [(iv) + (v)]	1.02	0.56	0.06
(b) Rate of return on shareholders' Equity capital : (xiii)/ (viii)	23.6%	24.0%	24.4%
(c) Current Ratio (i) / (vi)	1.35	1.17	1.02

Question 5

On 1st April, 2020, the Board of Director of ABC Ltd. wish to know the amount of working capital that will be required to meet the programmer they have planned for the year. From the following information, PREPARE a working capital requirement forecast and a forecast profit and loss account and balance sheet:

Issued share capital Rs.6,00,000
10% Debentures Rs.1,00,000
Fixed Assets Rs.4,50,000

Production during the previous year was 1,20,000 units; it is planned that this level of activity should be maintained during the present year.

The expected ratios of cost to selling price are: raw materials 60%, direct wages 10% overheads 20%

Raw materials are expected to remain in store for an average of two months before issue to production. Each unit of production is expected to be in process for one month. The time lag in wage payment is one month.

Finished goods will stay in the warehouse awaiting dispatch to customers for approximately three months.

Credit allowed by creditors is two months from the date of delivery of raw materials. Credit given to debtors is three months from the date of dispatch.

Selling price is Rs.5 per unit.

There is a regular production and sales cycle and wages and overheads accrue evenly. (MTP 10 Marks Nov'21)

Answer 5

Forecast Profit and Loss Account for the period 01.04.2020 to 31.03.2021

Particulars	Rs.	Particulars	₹
Materials consumed	3,60,000	By Sales 1,20,000 @ Rs.5	6,00,000
1,20,000 @ Rs.3			

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Direct wages :	60,000		
1,20,000 @ ₹ 0.50			
Overheads :	1,20,000		
1,20,000 @ ₹ 1			
Gross profit c/d	60,000		
	6,00,000		6,00,000
Debenture interest (10% of 1,00,000)	10,000	By gross profit b/d	60,000
Net profit c/d	50,000		
	60,000		60,000

Working Capital Requirement Forecast for the year 01.04.2020 to 31.03.2021

Particulars	Period (Months)	Total (₹)	Current Assets (₹)				Current Liabilities (₹)
			Raw materials	Work-in-progress	Finished goods	Debtors	Creditors
1. Material							
In store	2		60,000				
In work-in-progress	1			30,000			
In finished goods	3				90,000		
Credit to debtors	3					90,000	
	9						
Less : Credit from creditors	2						60,000
Net block period	7	2,10,000					
2. Wages:							
In work-in-progress	1/2			2,500			
In finished goods	3				15,000		
Credit to debtors	3					15,000	
	6½						
Less: Time lag in payment	1						5,000

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Net block period	5 ½	27,500					
3. Overhead s:							
In work-in-progress	½			5,000			
In finished goods	3				30,000		
Credit to debtors	3					30,000	
Net block period	6½	65,000					
4. Profit							
Credit to debtors	3					15,000	
Net block period	3	15,000					
Total (₹)		3,17,500	60,000	37,500	1,35,000	1,50,000	65,000

Forecast Balance Sheet as on 31.03.2021

	(₹)			(₹)
Issued share capital	6,00,000	Fixed Assets		4,50,000
Profit and Loss A/c	50,000	Current Assets:		
10% Debentures	1,00,000	Stock:		
Sundry creditors	65,000	Raw materials	60,000	
Bank overdraft-		Work-in-progress	37,500	
Balancing figure	17,500	Finished goods	1,35,000	2,32,500
		Debtors		1,50,000
	8,32,500			8,32,500

The Total amount of working capital, thus, stands as follows:	Amount
Requirement as per working capital	3,17,500
Less: Bank overdraft as per balance sheet	17,500
Net requirement	3,00,000

Notes:

1. Average monthly production: 1,20,000 ÷ 12 = 10,000 units
2. Average cost per month:

Raw Material 10,000 × (Rs.5 × 0.6) = Rs.30,000

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Direct wages 10,000 × (Rs.5 × 0.1) = Rs.5,000
Overheads 10,000 × (Rs.5 × 0.2) = Rs.10,000

3. Average profit per month: 10,000 × (Rs.5 × 0.1) = Rs.5,000
4. Wages and overheads accrue evenly over the period and, hence, are assumed to be completely introduced for half the processing time.

Question 6

The following information is provided by MNP Ltd. for the year ending 31st March ,2020:

Raw Material Storage period	**45 days**
Work-in-Progress conversion period	**20 days**
Finished Goods storage period	**25 days**
Debt Collection period	**30 days**
Creditors payment period	**60 days**
Annual Operating Cost	**Rs.25,00,000**
(Including Depreciation of Rs.2,50,000)	
Assume 360 days in a year.	
You are required to calculate:	

(i) **Operating Cycle period**
(ii) **Number of Operating Cycle in a year.**
(iii) **Amount of working capital required for the company on a cost basis.**
(iv) **The company is a market leader in its product and it has no competitor in the market. Based on a market survey it is planning to discontinue sales on credit and deliver products based on pre-payments in order to reduce its working capital requirement substantially. You are required to compute the reduction in working capital requirement in such a scenario. (PYP 5 Marks, Jan'21)**

Answer 6

(i) Calculation of Operating Cycle Period**:**

Operating Cycle Period = R + W + F + D – C

= 45 + 20 + 25 + 30 – 60 = 60 days

(ii) Number of Operating Cycle in a Year

$= \frac{360}{\text{Operating cycle period}} = \frac{360}{60} = 6$

(iii) Amount of Working Capital Required

$= \frac{\text{Annual operating cost}}{\text{Number of operating cyc}} = \frac{\text{Rs.}25{,}00{,}000 - 2{,}50{,}000}{6}$

$\frac{\text{Rs.}22{,}50{,}000}{6} = ₹\ 3{,}75{,}000$

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(iv) Reduction in Working Capital

Operating Cycle Period = R + W + F – C

= 45 + 20 + 25 – 60 = 30 days

Amount of Working Capital Required = $\frac{Rs.22,50,000}{360} \times 30$= Rs.1,87,500

Reduction in Working Capital = Rs.3,75,000 – Rs.1,87,500 = Rs.1,87,500

Note: If we use Total Cost basis, then amount of Working Capital required will be Rs.4,16,666.67 (approx.) and Reduction in Working Capital will be Rs.2,08,333.33 (approx.)

Question 7

While applying for financing of working capital requirements to a commercial bank, TN Industries Ltd. projected the following information for the next year:

Cost Element	Per unit (₹)	Per unit (₹)
Raw materials		
X	30	
Y	7	
Z	6	43
Direct Labour		25
Manufacturing and administration overheads (excluding depreciation)		20
Depreciation		10
Selling overheads		15
		113

Additional Information:

(a) **Raw Materials are purchased from different suppliers leading to different credit period allowed as follows:**

X – 2 months; Y– 1 months; Z – ½ month

(b) **Production cycle is of ½ month. Production process requires full unit of X and Y in the beginning of the production. Z is required only to the extent of half unit in the beginning and the remaining half unit is needed at a uniform rate during the production process.**

(c) **X is required to be stored for 2 months and other materials for 1 month.**

(d) **Finished goods are held for 1 month.**

(e) **25% of the total sales is on cash basis and remaining on credit basis. The credit allowed by debtors is 2 months.**

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(f) **Average time lag in payment of all overheads is 1 months and ½ months for direct labour.**

(g) **Minimum cash balance of ₹ 8,00,000 is to be maintained.**

CALCULATE the estimated working capital required by the company on cash cost basis if the budgeted level of activity is 1,50,000 units for the next year. The company also intends to increase the estimated working capital requirement by 10% to meet the contingencies. (You may assume that production is carried on evenly throughout the year and direct labour and other overheads accrue similarly.) (RTP May '21)

Answer 7

Statement showing Working Capital Requirements of TN Industries Ltd. (on cash cost basis)

	Amount in (₹)	**Amount in (₹)**
A. Current Assets		
(i) Inventories:		
Raw material		
$X\left(\frac{1,50,000 units\ X\ Rs.30}{12\ Months} \times 2 \text{ months}\right)$	7,50,000	
$Y\left(\frac{1,50,000 units\ X\ Rs.7}{12\ Months} \times 1 \text{ month}\right)$	87,500	
$Z\left(\frac{1,50,000 units\ X\ Rs.6}{12\ Months} \times 1 \text{ month}\right)$	75,000	
$WIP\left(\frac{1,50,000 units\ X\ Rs.64}{12\ Months} \times 0.5 \text{ month}\right)$	4,00,000	
$Finished\ goods\left(\frac{1,50,000 units\ X\ Rs.88}{12\ Months} \times 1 \text{ month}\right)$	11,00,000	24,12,500
(ii) Receivables (Debtors) $\left(\frac{1,50,000 units\ X\ Rs.103}{12\ Months} \times 2 \text{ months}\right) X\ 0.75$		19,31,250
(iii) Cash and bank balance		8,00,000
Total Current Assets		**51,43,750**
B. Current Liabilities:		
(i) Payables (Creditors) for Raw materials		
$X\left(\frac{1,50,000 units\ X\ Rs.30}{12\ Months} \times 2 \text{ months}\right)$	7,50,000	

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$Y\left(\frac{1{,}50{,}000 units\ X\ Rs.7}{12\ Months} \times 1\text{ month}\right)$	87,500	
$Z\left(\frac{1{,}50{,}000 units\ X\ Rs.6}{12\ Months} \times 0.5\text{ month}\right)$	37,500	8,75,000
(ii) Outstanding Direct Labour		1,56,250
$\left(\frac{1{,}50{,}000 units\ X\ Rs.25}{12\ Months} \times 0.5\text{ month}\right)$		
(iii)Outstanding Manufacturing and administration overheads $\left(\frac{1{,}50{,}000 units\ X\ Rs.20}{12\ Months} \times 1\text{ month}\right)$		2,50,000
(iv) Outstanding Selling Overheads $\left(\frac{1{,}50{,}000 units\ X\ Rs.15}{12\ Months} \times 1\text{ month}\right)$		1,87,500
Total Current Liabilities		**14,68,750**
Net Working Capital Needs (A – B)		**36,75,000**
Add: Provision for contingencies @ 10%		3,67,500
Working capital requirement		**40,42,500**

Workings:

1.

(i) Computation of Cash Cost of Production	**Per unit (₹)**
Raw Material consumed	43
Direct Labour	25
Manufacturing and administration overheads	20
Cash cost of production	88
(ii) Computation of Cash Cost of Sales	**Per unit (₹)**
Cash cost of production as in (i) above	88
Selling overheads	15
Cash cost of sales	103

2. Calculation of cost of WIP

Particulars	**Per unit (₹)**
Raw material (added at the beginning):	
X	30

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Y	7
Z (₹ 6 x 50%)	3
Cost during the year:	
Z {(₹ 6 x 50%) x 50%}	1.5
Direct Labour (₹ 25 x 50%)	12.5
Manufacturing and administration overheads (₹ 20 x 50%)	10
	64

Question 8

Following are cost information of KG Ltd., which has commenced a new project for an annual production of 24,000 units which is the full capacity:

	Costs per unit (₹)
Materials	**80.00**
Direct labour and variable expenses	**40.00**
Fixed manufacturing expenses	**12.00**
Depreciation	**20.00**
Fixed administration expenses	**8.00**
	160.00

The selling price per unit is expected to be ₹192 and the selling expenses ₹10 per unit, 80% of which is variable.

In the first two years of operations, production and sales are expected to be as follows:

Year	Production (No. of units)	Sales (No. of units)
1	**12,000**	**10,000**
2	**18,000**	**17,000**

To assess the working capital requirements, the following additional information is available:

(a)	**Stock of materials**	**2 months' average consumption**
(b)	**Work-in-process**	**Nil**
(c)	**Debtors**	**2 month's average sales.**
(d)	**Cash balance**	**₹ 1,00,000**
(e)	**Creditors for supply of materials**	**1 month's average purchase during the year.**
(f)	**Creditors for expenses**	**1 month's average of all expenses during the year.**

PREPARE, for the two years:

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(i) **A projected statement of Profit/Loss (Ignoring taxation); and**

(ii) **A projected statement of working capital requirements (RTP Nov '19)**

Answer 8

(i) Projected Statement of Profit / Loss (Ignoring Taxation)

	Year 1	**Year 2**
Production (Units)	12,000	18,000
Sales (Units)	10,000	17,000

	(₹)	(₹)
Sales revenue (A) (Sales unit × ₹192)	19,20,000	32,64,000
Cost of production:		
Materials cost (Units produced × ₹80)	9,60,000	14,40,000
Direct labour and variable expenses (Units produced × ₹40)	4,80,000	7,20,000
Fixed manufacturing expenses (Production Capacity: 24,000 units × ₹12)	2,88,000	2,88,000
Depreciation (Production Capacity : 24,000 units × ₹20)	4,80,000	4,80,000
Fixed administration expenses (Production Capacity : 24,000 units × ₹8)	1,92,000	1,92,000
Total Costs of Production	24,00,000	31,20,000
Add: Opening stock of finished goods (Year 1 : Nil; Year 2 : 2,000 units)	---	4,00,000
Cost of Goods available for sale (Year 1: 12,000 units; Year 2: 20,000 units)	24,00,000	35,20,000
Less: Closing stock of finished goods at average cost (year 1: 2000 units, year 2 : 3000 units) (Cost of Production × Closing stock/ units produced)	(4,00,000)	(5,28,000)
Cost of Goods Sold	20,00,000	29,92,000
Add: Selling expenses – Variable (Sales unit × ₹8)	80,000	1,36,000
Add: Selling expenses -Fixed (24,000 units × ₹2)	48,000	48,000
Cost of Sales : (B)	21,28,000	31,76,000
Profit (+) / Loss (-): (A - B)	(-) 2,08,000	(+) 88,000

Working Notes:

1. **Calculation of creditors for supply of materials:**

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	Year 1 (₹)	Year 2 (₹)
Materials consumed during the year	9,60,000	14,40,000
Add: Closing stock (2 month's average consumption)	1,60,000	2,40,000
	11,20,000	16,80,000
Less: Opening Stock	---	1,60,000
Purchases during the year	11,20,000	15,20,000
Average purchases per month (Creditors)	93,333	1,26,667

2. Creditors for expenses:

	Year 1 (₹)	Year 2 (₹)
Direct labour and variable expenses	4,80,000	7,20,000
Fixed manufacturing expenses	2,88,000	2,88,000
Fixed administration expenses	1,92,000	1,92,000
Selling expenses (variable + fixed)	1,28,000	1,84,000
Total	10,88,000	13,84,000
Average per month	90,667	1,15,333

(ii) Projected Statement of Working Capital requirements

	Year 1 (₹)	**Year 2 (₹)**
Current Assets:		
Inventories:		
-Stock of materials (2 month's average consumption)	1,60,000	2,40,000
-Finished goods	4,00,000	5,28,000
Debtors (2 month's average sales) (including profit)	3,20,000	5,44,000
Cash	1,00,000	1,00,000
Total Current Assets/ Gross working capital (A)	9,80,000	14,12,000
Current Liabilities:		
Creditors for supply of materials (Refer to working note 1)	93,333	1,26,667

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Creditors for expenses (Refer to working note 2)	90,667	1,15,333
Total Current Liabilities: (B)	1,84,000	2,42,000
Estimated Working Capital Requirements: (A-B)	7,96,000	11,70,000

Question 9

Consider the following figures and ratios:

(i) Sales for the year (all credit)	**₹ 1,05,00,000**
(ii) Gross Profit ratio	**35 percent**
(iii) Fixed assets turnover (based on cost of goods sold)	**1.5**
(iv) Stock turnover (based on cost of goods sold)	**6**
(v) Liquid ratio	**1.5:1**
(vi) Current ratio	**2.5:1**
(vii) Receivables (Debtors) collection period	**1 month**
(viii) Reserves and surplus to Share capital	**1:1.5**
(ix) Capital gearing ratio	**0.7875**
(x) Fixed assets to net worth	**1.3 : 1**

You are required to PREPARE:

(a) **Balance Sheet as on 31/3/2022 based on above details.**

(b) **The statement showing working capital requirement if the company wants to make a provision for contingencies @ 14 percent of net working capital. (RTP Nov '23 & Nov '20)**

Answer 9

Working Notes:

(i) Cost of Goods Sold = Sales – Gross Profit (35% of Sales)

= ₹ 1,05,00,000 – ₹ 36,75,000

= ₹ 68,25,000

(ii) Closing Stock = Cost of Goods Sold / Stock Turnover

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$= \frac{₹\ 68,25,000}{6} = ₹\ 11,37,500$

(iii) Fixed Assets = Cost of Goods Sold / Fixed Assets Turnover

$= \frac{₹\ 68,25,000}{1.5} = ₹\ 45,50,000$

(iv) Current Assets:

Current Ratio = 2.5 and Liquid Ratio = 1.5

Inventories (Stock) = 2.5 – 1.5 = 1

Current Assets = Amount of Inventories(Stock) $\times \frac{2.5}{1}$

$= ₹\ 11,37,500 \times \frac{2.5}{1} = ₹\ 28,43,750$

(v) Liquid Assets (Receivable and Cash)

= Current Assets – Inventories (Stock)

=₹ 28,43,750 - ₹ 11,37,500

=₹ 17,06,250

(vi) Receivables (Debtors) = Sales $\times \frac{\textit{Debrors Collection Period}}{12}$

$= ₹\ 1,05,00,000 \times \frac{1}{12}$

= 8,75,000

(vii) Cash = liquid Assets – Receivables (Debtors)

=₹ 17,06,250 - ₹ 8,75,000 = ₹ 8,31,250

(viii) Net worth $= \frac{\textit{Fixed Assets}}{1.3} = \frac{₹\ 45,50,000}{1.3} = ₹\ 35,00,000$

(ix) Reserves and Surplus

Reserves and Share Capital = Net worth

Net worth = 1+1.5 = 2.5

Reserves and Surplus = ₹ 35,00,000 $\times \frac{1}{2.5}$

(x) Share Capital = Net worth – Reserves and surplus

= ₹ 35,00,000 - ₹ 14,00,000

= ₹ 21,00,000

(xi) Current Liabilities = Current Assets / Current Ratio

$= \frac{₹\ 28,43,750}{2.5} = ₹\ 11,37,500$

(xii) Long-term Debts

Capital Gearing Ratio = Long-term Debts / Equity Shareholders' Fund

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Long-term Debts = ₹ 35,00,000 × 0.7875 = ₹ 27,56,250

(a) Balance Sheet

Particulars	**Figures as at 31-03-2022 (₹)**	**Figures as at 31-03-2021 (₹)**
I. EQUITY AND LIABILITIES		
Shareholders' funds		
(a) Share capital	21,00,000	-
(b) Reserves and surplus	14,00,000	-
Non-current liabilities		
(a) Long-term borrowings	27,56,250	-
Current liabilities	11,37,500	-
TOTAL	73,93,750	-
II. ASSETS		
Non-current assets		
Fixed assets	45,50,000	-
Current assets		
Inventories	11,37,500	-
Trade receivables	8,75,000	-
Cash and cash equivalents	8,31,250	-
TOTAL	73,93,750	-

(b) Statement Showing Working Capital Requirement

Particulars	**(₹)**	**(₹)**
A. Current Assets		
(i) Inventories (Stocks)		11,37,500
(ii) Receivables (Debtors)		8,75,000
(iii) Cash in hand & at bank		8,31,250
Total Current Assets		28,43,750
B. Current Liabilities:		

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Total Current Liabilities		11,37,500
Net Working Capital (A – B)		17,06,250
Add: Provision for contingencies (14% of Net Working Capital)		2,38,875
Working capital requirement		19,45,125

Question 10

Cost sheet of A&R Ltd. provides the following particulars:

	Amount per unit (Rs.)
Raw materials cost	**200.00**
Direct Labour cost	**75.00**
Overheads cost	**150.00**
Total cost	**425.00**
Profit	**75.00**
Selling Price	**500.00**

The Company keeps raw material in stock, on an average for four weeks; work-in-progress, on an average for one week; and finished goods in stock, on an average for two weeks.

The credit allowed by suppliers is three weeks and company allows four weeks' credit to its debtors. The lag in payment of wages is one week and lag in payment of overhead expenses is two weeks.

The Company sells one-fifth of the output against cash and maintains cash-in-hand and at bank put together at Rs.2,50,000.

Required:

PREPARE a statement showing estimate of Working Capital needed to finance an activity level of 2,60,000 units of production. Assume that production is carried on evenly throughout the year, and wages and overheads accrue similarly. Work-in-progress stock is 80% complete in all respects. (RTP May '19)

Answer 10

Statement showing Estimate of Working Capital Needs

		(Amount in Rs.)	(Amount in Rs.)
A.	Current Assets		
	(I) Inventories:		

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	Raw material (4 weeks) $\left[\frac{2,60,000units \times Rs.200}{52weeks} \times 4weeks\right]$	40,00,000	
	WIP Inventory (1 week) $\left[\frac{2,60,000units \times Rs.425}{52weeks} \times 1weeks\right] \times 0.8$	17,00,000	
	Finished goods inventory (2 weeks) $\left[\frac{2,60,000units \times Rs.425}{52weeks} \times 2weeks\right]$	42,50,000	99,50,000
	(ii) Receivables (Debtors) (4 weeks) $\left[\frac{2,60,000units \times Rs.425}{52weeks} \times 2weeks\right] \times \frac{4}{5^{th}}$		68,00,000
	(iii) Cash and bank balance		2,50,000
	Total Current Assets		1,70,00,000
B.	Current Liabilities:		
	(I) Payables (Creditors) for materials (3 weeks) $\left[\frac{2,60,000units \times Rs.200}{52weeks} \times 3weeks\right]$		30,00,000
	(ii) Outstanding wages (1 week) $\left[\frac{2,60,000units \times Rs.75}{52weeks} \times 1weeks\right]$		3,75,000
	(iii) Outstanding overheads (2 weeks) $\left[\frac{2,60,000units \times Rs.150}{52weeks} \times 2weeks\right]$		15,00,000
	Total Current Liabilities		48,75,000
	Net Working Capital Needs (A – B)		1,21,25,000

Question 11

Trading and Profit and Loss Account of Beat Ltd. for the year ended 31st March, 2022 is given below:

Particulars	Amount (₹)	Amount (₹)	Particulars	Amount (₹)	Amount (₹)
To Opening Stock:			**By Sales (Credit)**		**1,60,00,000**
- Raw Materials	**14,40,000**		**By Closing Stock:**		
- Work-in-	**4,80,00**		**- Raw Materials**	**16,00,0**	

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progress	**0**			**00**	
- Finished Goods	**20,80,000**	**40,00,000**	**- Work-in-progress**	**8,00,000**	
To Purchases (credit)		**88,00,000**	**- Finished Goods**	**24,00,000**	**48,00,000**
To Wages		**24,00,000**			
To Production Exp.		**16,00,000**			
To Gross Profit c/d		**40,00,000**			
		2,08,00,000			**2,08,00,000**
To Administration Exp.		**14,00,000**	**By Gross Profit b/d**		**40,00,000**
To Selling Exp.		**6,00,000**			
To Net Profit		**20,00,000**			
		40,00,000			**40,00,000**

The opening and closing payables for raw materials were ₹ 16,00,000 and ₹ 19,20,000 respectively whereas the opening and closing balances of receivables were ₹ 12,00,000 and ₹ 16,00,000 respectively.

You are required to ASCERTAIN the working capital requirement by operating cycle method. (RTP Nov'22)

Answer 11

Computation of Operating Cycle

1. Raw Material Storage Period (R)

$$\text{Raw Material Storage Period (R)} = \frac{Avrage\ stock\ of\ Raw\ Material}{\text{Daily Average Consumption } of\ Raw\ Material}$$

$$\frac{14{,}40{,}000 + 16{,}00{,}000)\ /\ 2}{86{,}40{,}000\ /365} = 64.21 \text{ Days}$$

Raw Material Consumed = Opening Stock + Purchases – Closing Stock

= ₹ 14,40,000+₹ 88,00,000–₹ 16,00,000 = ₹ 86,40,000

2. Conversion/Work-in-Process Period (W)

$$\frac{Avrage\ stock\ of\ WIP}{\text{Daily Average Pr oduction Cost}} = \frac{(4{,}80{,}000 + 8{,}00{,}000)/12}{1{,}23{,}20{,}000\ /\ 365} = 18.96 \text{ days}$$

Production Cost:	
Opening Stock of WIP	4,80,000
Add: Raw Material Consumed	86,40,000
Add: Wages	24,00,000

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Add: Production Expenses	16,00,000
	1,31,20,000
Less: Closing Stock of WIP	8,00,000
Production Cost	1,23,20,000

3. Finished Goods Storage Period (F)

$$= \frac{Avrage\ stock\ of\ \text{Finished Goods}}{\text{Daily Average Cost of Good Sold}}$$

$$= \frac{(20,80,000 + 24,00,000)/2}{1,20,00,000/365} = 68.13 \text{ Days}$$

Cost of Goods Sold	
Opening Stock of Finished Goods	20,80,000
Add: Production Cost	1,23,20,000
	1,44,00,000
Less: Closing Stock of Finished Goods	(24,00,000)
	1,20,00,000

4. Receivables Collection Period (D)

Receivables Collection Period

$$= \frac{Avrage\ \text{Receivables}}{\text{Daily averagecredit sales}}$$

$$= \frac{(12,00,000 + 16,00,000)/2}{1,60,00,000/365} = 31.94 \text{ Days}$$

5. Payables Payment Period (C)

Payables Payment Period

$$= \frac{Avrage\ Payables}{\text{Daily averagecredit purchase}}$$

$$= \frac{(16,00,000 + 19,20,000)/2}{88,00,000/365} = 73 \text{ Days}$$

Computation of Working Capital

(i) Number of Operating Cycles per Year

= 365/Duration Operating Cycle = 365/110.24 = 3.311

(ii) Total Operating Expenses ₹

Total Cost of Goods sold 1,20,00,000

Add: Administration Expenses 14,00,000

Add: Selling Expenses 6,00,000

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1,40,00,000

(iii) Working Capital Required $\frac{Total\ Oprating\ Expenses}{\text{Number of Operating Cycles per year}}$

$=\frac{1,40,00,000}{3.311}=$ ₹ 42,28,329.81

Question 12

Following information is forecasted by Gween Limited for the year ending 31st March, 2022:

	Balance as at 31st March, 2022 (₹ in lakh)	Balance as at 31st March, 2021 (₹ in lakh)
Raw Material	845	585
Work-in-progress	663	455
Finished goods	910	780
Receivables	1,755	1,456
Payables	923	884
Annual purchases of raw material (all credit)	5,200	
Annual cost of production	5,850	
Annual cost of goods sold	6,825	
Annual operating cost	4,225	
Annual sales (all credit)	7,605	

Considering one year as equal to 365 days, CALCULATE:

(i) **Net operating cycle period.**

(ii) **Number of operating cycles in the year.**

(iii) **Amount of working capital requirement. (MTP 10 Marks March 22)**

Answer 12

Working Notes:

1. **Raw Material Storage Period (R)**

$=\frac{Average\ Stock\ of\ Raw\ Material}{Annual\ Consumption\ of\ Raw\ Material}$ X 365

$=\frac{\frac{Rs.585+Rs.845}{2}}{Rs.4,940}$ X365 = 53 days

Annual Consumption of Raw Material = Opening Stock + Purchases - Closing Stock

= ₹ 585 + ₹ 5,200 – ₹ 845 = ₹ 4,940 lakh

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2. **Work – in - Progress (WIP) Conversion Period (W)**

$$= \frac{Average\ Stock\ of\ WIP}{Annual\ Cost\ of\ Production} \text{ X } 365$$

$$= \frac{\frac{Rs.455+Rs,663}{2}}{Rs.5,850} \text{ X365 = 35 days}$$

3. **Finished Stock Storage Period (F)**

$$= \frac{Average\ Stock\ of\ Finished\ Goods}{Cost\ of\ Goods\ Sold} \text{ X } 365$$

$$= \frac{\frac{Rs.780+Rs,910}{2}}{Rs.6,825} \text{ X365 = 45 days}$$

4. **Receivables (Debtors) Collection Period (D)**

$$= \frac{Average\ Receivables}{Annual\ Credit\ Sales} \text{ X } 365$$

$$= \frac{\frac{Rs.1,456+Rs,1,755}{2}}{Rs.7,605} \text{ X365 = 77 days}$$

5. **Payables (Creditors) Payment Period (C)**

$$= \frac{Average\ Payables\ for\ Materials}{Annual\ Credit\ Purchases} \text{ X } 365$$

$$= \frac{\frac{Rs.884+Rs,923}{2}}{Rs.5,200} \text{ X365 = 64 days}$$

(i) Net Operating Cycle Period

= R + W + F + D - C

= 53 + 35 + 45 + 77 – 64 = 146 days

(ii) Number of Operating Cycles in the Year

$$= \frac{365}{Operating\ Cycle\ Period} = \frac{365}{146} = 2.5 \text{ times}$$

(iii) Amount of Working Capital Required

$$= \frac{Annual\ Operating\ Cost}{Number\ of\ Operating\ Cycles} = \frac{Rs.4,225}{2.5} = \text{Rs. 1,690 lakh}$$

Note: Number of days may vary due to fraction.

Question 13

"Permanent working capital and fluctuating (temporary) working capital, both are necessary to facilitate production and sales through the operating cycle." - Describe. (PYP 4 Marks May '23)

Answer 13

Both kinds of working capital i.e. permanent and fluctuating (temporary) are necessary to facilitate production and sales through the operating cycle:

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Permanent working capital refers to the base working capital, which is the minimum level of investment in the current assets that is carried by the entity at all times to carry its day to day activities. It generally stays invested in the business unless the operations are scaled up or down permanently which would also result in increase or decrease in permanent working capital. It is generally financed by long term sources of finance.

Temporary working capital refers to that part of total working capital, which is required by an entity in addition to the permanent working capital. It is also called variable or fluctuating working capital which is used to finance the short-term working capital requirements which arises due to fluctuation in sales volume. For instance, an organization would maintain increased levels of inventory to meet increased seasonal demand.

Question 14

DISCUSS the factors to be taken into consideration while determining the requirement of working capital. (MTP 2 Marks Oct'20)

Answer 14

Some of the factors which need to be considered while planning for working capital requirement are:

1. **Cash**: Identify the cash balance which allows for the business to meet day- to-day expenses but reduces cash holding costs (example - loss of interest on long term investment had the surplus cash invested therein).
2. **Inventory: Identify the level of inventory** which allows for uninterrupted production but reduces the investment in raw materials and hence increases cash flow. The techniques like Just in Time (JIT) and Economic order quantity (EOQ) are used for this.
3. **Receivables:** Identify the **appropriate credit policy**, i.e., credit terms which will attract customers, such that any impact on cash flows and the cash conversion cycle will be offset by increased revenue and hence Return on Capital (or vice versa). The tools like Early Payment Discounts and allowances are used for this.
4. **Short-term Financing Options:** Inventory is ideally financed by credit granted by the supplier. However, depending on the cash conversion cycle, it may be necessary to utilize a bank loan (or overdraft), or to "convert debtors to cash" through "factoring" in order to finance working capital requirements.
5. **Nature of Business:** For e.g. in a business of restaurant, most of the sales are in Cash. Therefore, need for working capital is very less. On the other hand, there would be a higher inventory in case of a pharmacy or a bookstore.
6. **Market and Demand Conditions:** For e.g. if an item's demand far exceeds its production, the working capital requirement would be less as investment in finished goods inventory would be very less with continuous sales.
7. **Technology and Manufacturing Policies:** For e.g. in some businesses the **demand for goods is seasonal**, in that case a business may follow a policy for

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steady production throughout the whole year or rather may choose a policy of production only during the demand season.

8. **Operating Efficiency:** A company can reduce the working capital requirement by **eliminating waste, improving coordination, process improvements** etc.

9. **Price Level Changes & Exchange Rate Fluctuations:** For e.g. **rising prices necessitate the use of more funds** for maintaining an existing level of activity. For the same level of current assets, higher cash outlays are required. Therefore, the effect of rising prices is that a higher amount of working capital is required. Another example would be unfavorable exchange rate movement in case of imported raw materials would warrant additional cost of same.

Question 15

Day Ltd., a newly formed company has applied to the Private Bank for the first time for financing it's Working Capital Requirements. The following information is available about the projections for the current year:

Estimated Level of Activity	**Completed Units of Production 31,200 plus unit of work in progress 12,000**
Raw Material Cost	**₹ 40 per unit**
Direct Wages Cost	**₹ 15 per unit**
Overhead	**₹ 40 per unit (inclusive of Depreciation ₹10 per unit)**
Selling Price	**₹ 130 per unit**
Raw Material in Stock	**Average 30 days consumption**
Work in Progress Stock	**Material 100% and Conversion Cost 50%**
Finished Goods Stock	**24,000 Units**
Credit Allowed by the supplier	**30 days**
Credit Allowed to Purchasers	**60 days**
Direct Wages (Lag in payment) **Expected Cash Balance**	**15 days** **₹ 2,00,000**

Assume that production is carried on evenly throughout the year (360 days) and wages and overheads accrue similarly. All sales are on the credit basis. You are required to CALCULATE the Net Working Capital Requirement on Cash Cost Basis. (RTP May '20)

Answer 15

Calculation of Net Working Capital requirement:

	(₹)	**(₹)**
A. Current Assets:		
Inventories:		

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Stock of Raw material (Refer to Working note (iii)	1,44,000	
Stock of Work in progress (Refer to Working note (ii)	7,50,000	
Stock of Finished goods (Refer to Working note (iv)	20,40,000	
Debtors for Sales(Refer to Working note (v)	1,02,000	
Cash	2,00,000	
Gross Working Capital	32,36,000	32,36,000
B. Current Liabilities:		
Creditors for Purchases (Refer to Working note (vi)	1,56,000	
Creditors for wages (Refer to Working note (vii)	23,250	
	1,79,250	1,79,250
Net Working Capital (A - B)		**30,56,750**

Working Notes:

(i) Annual cost of production

	(₹)
Raw material requirements {(31,200 × ₹ 40) + (12,000 x ₹ 40)}	17,28,000
Direct wages {(31,200 ×₹ 15) +(12,000 X ₹ 15 x 0.5)}	5,58,000
Overheads (exclusive of depreciation) {(31,200 × ₹ 30) + (12,000 x ₹ 30 x 0.5)}	11,16,000
Gross Factory Cost	34,02,000
Less: Closing W.I.P [12,000 (₹ 40 + ₹ 7.5 + ₹15)]	(7,50,000)
Cost of Goods Produced	26,52,000
Less: Closing Stock of Finished Goods (₹ 26,52,000 × 24,000/31,200)	(20,40,000)
Total Cash Cost of Sales*	6,12,000

[*Note: Alternatively, Total Cash Cost of Sales = (31,200 units – 24,000 units) x (₹ 40 + ₹ 15 + ₹ 30) = ₹ 6,12,000]

(ii) Work in progress stock

	(₹)
Raw material requirements (12,000 units × ₹40)	4,80,000

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Direct wages (50% × 12,000 units × ₹ 15)	90,000
Overheads (50% × 12,000 units × ₹ 30)	1,80,000
	7,50,000

(iii) Raw material stock

It is given that raw material in stock is average 30 days consumption. Since, the company is newly formed; the raw material requirement for production and work in progress will be issued and consumed during the year. Hence, the raw material consumption for the year (360 days) is as follows:

	(₹)
For Finished goods (31,200 × ₹ 40)	12,48,000
For Work in progress (12,000 × ₹ 40)	4,80,000
	17,28,000

Raw material stock = $\frac{Rs.17,28,000}{360\ days} \times 30\ days$ = Rs. 1,44,000

(iv) Finished goods stock:

24,000 units @ ₹ (40+15+30) per unit = ₹20,40,000

Debtors for sale: Rs. 6,12,000 × $\frac{60\ days}{360\ days}$ = Rs. 1,02,000

(v) Creditors for raw material Purchases [Working Note (iii)]:

Annual Material Consumed (₹12,48,000 + ₹4,80,000)	₹17,28,000
Add: Closing stock of raw material [(₹17,28,000 x 30 days) / 360 days]	₹ 1,44,000
	₹18,72,000

Credit allowed by suppliers = $\frac{Rs.18,72,000}{360\ days} \times 30\ days$ =Rs. 1,56,000

(vi) Creditors for wages:

Outstanding wage payment = [(31,200 units x ₹ 15) + (12,000 units x ₹ 15 x .50)] x 15 days / 360 days

= $\frac{Rs.5,58,000}{360\ days} \times 15\ days$ = Rs. 23,250

Question 16

Answer the following:

PREPARE a working capital estimate to finance an activity level of 52,000 units a year (52 weeks) based on the following data:

Raw Materials - ₹ 400 per unit Direct Wages - ₹ 150 per unit

Overheads (Manufacturing) - ₹200 per unit Overheads (Selling & Distribution) - ₹100perunit

Selling Price - ₹ 1,000 per unit, Raw materials & Finished Goods remain in stock for 4 weeks, Work in process takes 4 weeks. Debtors are allowed 8 weeks for

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payment whereas creditors allow us 4 weeks.

Minimum cash balance expected is ₹50,000. Receivables are valued at Selling Price. (MTP 5 Marks Oct '22)

Answer 16

Cost Structure for 52000 units	
Particulars	**Amount (₹)**
Raw Material @ ₹ 400	2,08,00,000
Direct Wages @ ₹ 150	78,00,000
Manufacturing Overheads@ ₹ 200	1,04,00,000
Selling and Distribution OH@ ₹ 100	52,00,000
Total Cost	4,42,00,000
Sales@₹1000	5,20,00,000

Particulars	**Calculation**	**Amount (₹)**
A. **Current Assets**:		
Raw Material Stock	$2,08,00,000 \times \frac{4}{52}$	16,00,000
Work in Progress (WIP) Stock	$2,08,00,000 + \frac{78,00,000}{2} \times \frac{4}{52}$	23,00,000
Finished Goods Stock	$4,42,00,000 \times \frac{4}{52}$	34,00,000
Receivables	$5,20,00,000 \times \frac{8}{52}$	80,00,000
Cash		50,000
	Total Current Assets	1,53,50,000
B. **Current Liabilities:**		
Creditors	$20800000 \times \frac{4}{52}$	16,00,000
C. **Working Capital Estimates(A-B)**		1,37,50,000

Question 17

PK Ltd., a manufacturing company, provides the following information:

	(Rs.)

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Sales	1,08,00,000
Raw Material Consumed	27,00,000
Labour Paid	21,60,000
Manufacturing Overhead (Including Depreciation for the year ₹ 3,60,000)	32,40,000
Administrative & Selling Overhead	10,80,000

Additional Information:

(a) **Receivables are allowed 3 months' credit.**

(b) **Raw Material Supplier extends 3 months' credit.**

(c) **Lag in payment of Labour is 1 month.**

(d) **Manufacturing Overhead are paid one month in arrears.**

(e) **Administrative & Selling Overhead is paid 1-month advance.**

(f) **Inventory holding period of Raw Material & Finished Goods are of 3 months.**

(g) **Work-in-Progress is Nil.**

(h) **PK Ltd. sells goods at Cost plus 33⅓%.**

(i) **Cash Balance ₹ 3,00,000.**

(j) **Safety Margin 10%.**

You are required to compute the Working Capital Requirements of PK Ltd. on Cash Cost basis. (PYP 10 Marks, Nov'20)

Answer 17

Statement showing the requirements of Working Capital (Cash Cost basis)

Particulars	(Rs.)	(Rs.)
A. Current Assets:		
Inventory:		
Stock of Raw material (Rs.27,00,000 × 3/12)	6,75,000	
Stock of Finished goods (₹ 77,40,000 × 3/12)	19,35,000	
Receivables (₹ 88,20,000 × 3/12)	22,05,000	
Administrative and Selling Overhead (Rs.10,80,000 × 1/12)	90,000	
Cash in Hand	3,00,000	
Gross Working Capital	52,05,000	52,05,000

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B. Current Liabilities:		
Payables for Raw materials* (Rs.27,00,000 × 3/12)	6,75,000	
Outstanding Expenses:		
Wages Expenses (Rs.21,60,000 × 1/12)	1,80,000	
Manufacturing Overhead (Rs.28,80,000 × 1/12)	2,40,000	
Total Current Liabilities	10,95,000	10,95,000
Net Working Capital (A-B)		41,10,000
Add: Safety margin @ 10%		4,11,000
Total Working Capital requirements		45,21,000

Working Notes:(i)

(A) Computation of Annual Cash Cost of Production	**(Rs.)**
Raw Material consumed	27,00,000
Wages (Labour paid)	21,60,000
Manufacturing overhead (₹ 32,40,000 - ₹ 3,60,000)	28,80,000
Total cash cost of production	77,40,000
(B) Computation of Annual Cash Cost of Sales	**(Rs.)**
Cash cost of production as in (A) above	77,40,000
Administrative & Selling overhead	10,80,000
Total cash cost of sales	88,20,000

*Purchase of Raw material can also be calculated by adjusting Closing Stock and Opening Stock (assumed nil). In that case Purchase will be Raw material consumed +Closing Stock-Opening Stock i.e. Rs.27,00,000 + ₹6,75,000 - Nil = Rs.33,75,000. Accordingly, Total Working Capital requirements (Rs.43,35,375) can be calculated.

Question 18

The following annual figures relate to manufacturing entity:

A. **Sales at one month credit** **84,00,000**

B. **Material consumption** **60% of sales value**

C. **Wages (paid in a lag of 15 days)** **12,00,000**

D. **Cash Manufacturing Expenses** **3,00,000**

E. **Administrative Expenses** **2,40,000**

F. **Creditors extend 3 months credit for payment.**

G. **Cash manufacturing and administrative expenses are paid 1 months in arrear.**

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The company maintains stock of raw material equal to economic order quantity. The company incurs
₹ 100 as per ordering cost per order and opportunity cost of capital is 15% p.a. The optimum cash balance is determined using Baumol's model. The bank charges ₹ 10 for each cash withdrawal. Finished goods are held in stock for 1 month. The company maintains a bank balance of ₹12,00,000 on an average. Creditors are paid through net banking and all other expenses are incurred in cash which is withdrawn from bank. Assuming a 20% safety margin, you are required to ESTIMATE the amount of working capital that needs to be invested by the Company. (MTP 10 Marks April 22)

Answer 18

Statement of working capital Requirement

Particular	**(₹)**	**(₹)**
A. Current Assets		
Stock of Raw Material (W.N. 2)	81,975	
Stock of finished Goods $\left(65{,}40{,}000\ X\ \frac{1}{12}\right)$	5,45,000	
Average Receivables (at Cost) $\left(67{,}80{,}000\ X\ \frac{1}{12}\right)$	5,65,000	
Bank Balance	12,00,000	
Cash Balance (W.N. 3)	15,232	
Gross Working Capital		24,07,207
B. Current Liabilities		
Average Creditor for materials $\left(50{,}40{,}000\ X\ \frac{3}{12}\right)$	12,60,000	
Outstanding Wages $\left(12{,}00{,}000\ X\ \frac{0.5}{12}\right)$	50,000	
Outstanding Cash Manufacturing Expenses $\left(3{,}00{,}000\ X\ \frac{1}{12}\right)$	25,000	
Outstanding administrative Expenses $\left(2{,}40{,}000\ X\ \frac{1}{12}\right)$	20,000	
		13,55,000
Net Working Capital (A-B)		10,52,207

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Add: Safety Margin @ 20%		2,10,441
Total Working Capital Requirement		12,62,648

Working Notes:

2. Computation of annual cash Cost of Production & Sales

Material Consumed (84,00,000 × 60%)	50,40,000
Wages	12,00,000
Manufacturing expenses	3,00,000
Cash Cost of production	65,40,000
(+) Administrative Expenses	2,40,000
Cash Cost of Sales	67,80,000

3. Computation of stock of Raw

Material A = 50,40,000

B = 100

C = 0.15

= ₹ 81,975

$$\therefore \text{EOQ} = \sqrt{\frac{2AB}{C}} = \sqrt{\frac{2X50{,}40{,}000\ X100}{0.15}} = \text{Rs. } 81{,}975$$

Calculation of Cash Balance

A = 12,00,000+3,00,000+2,40,000

A = 17,40,000

B = 10

C = 0.15

$$\text{Optimal Cash Balance} = \sqrt{\frac{2AB}{C}} = \sqrt{\frac{2X17{,}40{,}000\ X10}{0.15}} = \text{Rs. } 15{,}232$$

Question 19

The management of Trux Company Ltd. is planning to expand its business and consults you to prepare an estimated working capital statement. The records of the company reveals the following annual information:

	(₹)
Sales – Domestic at one month's credit	**18,00,000**
Export at three month's credit (sales price 10% below domestic price)	**8,10,000**

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Materials used (suppliers extend two months credit)	**6,75,000**
Lag in payment of wages – ½ month	**5,40,000**
Lag in payment of manufacturing expenses (cash) – 1 month	**7,65,000**
Lag in payment of Administration Expenses – 1 month	**1,80,000**
Selling expenses payable quarterly in advance	**1,12,500**
Income tax payable in four installments, of which one falls in the next financial year	**1,68,000**

Rate of gross profit is 20%. Ignore work-in-progress and depreciation. The company keeps one month's stock of raw materials and finished goods (each) and believes in keeping ₹ 2,50,000 available to it including the overdraft limit of ₹ 75,000 not yet utilized by the company. The management is also of the opinion to make 10% margin for contingencies on computed figure. You are required to PREPARE the estimated working capital statement for the next year. (RTP Nov '21)

Answer 19

Preparation of Statement of Working Capital Requirement for Trux Company Ltd.

	(₹)	(₹)
A. Current Assets		
(i) Inventories:		
Material (1 month) $\left(\frac{\text{Rs. } 6,75,000}{12\ Months} \times 1 \text{ month}\right)$	56,250	
Finished goods (1 month) $\left(\frac{\text{Rs. } 21,60,000}{12\ Months} \times 1 \text{ month}\right)$	1,80,000	2,36,250
(ii) Receivables (Debtors)		
For Domestic Sales $\left(\frac{\text{Rs. } 15,17,586}{12\ Months} \times 1 \text{ month}\right)$	1,26,466	
For Export Sales $\left(\frac{\text{Rs. } 7,54,914}{12\ Months} \times 3 \text{ months}\right)$	1,88,729	3,15,195

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(iii) Prepayment of Selling expenses $\left(\frac{\text{Rs. } 1,12,500}{12\ Months} \times 3 \text{ months}\right)$		28,125
(iii) Cash in hand & at bank		1,75,000
Total Current Assets		7,54,570
B. Current Liabilities:		
(i) Payables (Creditors) for materials (2 months) $\left(\frac{\text{Rs. } 6,75,000}{12\ Months} \times 2 \text{ months}\right)$		1,12,500
(ii) Outstanding wages (0.5 months) $\left(\frac{\text{Rs. } 5,40,000}{12\ Months} \times 0.5 \text{ month}\right)$		22,500
(iii) Outstanding manufacturing expenses $\left(\frac{\text{Rs. } 7,65,000}{12\ Months} \times 1 \text{ month}\right)$		63,750
(iv) Outstanding administrative expenses $\left(\frac{\text{Rs. } 1,80,000}{12\ Months} \times 1 \text{ month}\right)$		15,000
(v) Income tax payable		42,000
Total Current Liabilities		2,55,750
Net Working Capital (A – B)		4,98,820
Add: 10% contingency margin		49,882
Total Working Capital required		5,48,702

Working Notes:

1. Calculation of Cost of Goods Sold and Cost of Sales

	Domestic (₹)	Export (₹)	Total (₹)
Domestic Sales	18,00,000	8,10,000	26,10,000
Less: Gross profit @ 20% on domestic sales and 11.11% on export sales (Working note-2)	3,60,000	90,000	4,50,000
Cost of Goods Sold	14,40,000	7,20,000	21,60,000
Add: Selling expenses (Working note-3)	77,586	34,914	1,12,500

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Cash Cost of Sales	15,17,586	7,54,914	22,72,500

2. Calculation of gross profit on Export Sales

Let domestic selling price is ₹ 100. Gross profit is ₹ 20, and then cost per unit is ₹ 80

Export price is 10% less than the domestic price i.e. ₹ 100 – (1- 0.1) = ₹ 90

Now, gross profit will be = ₹ 90 - ₹ 80 = ₹ 10

So, Gross profit ratio at export price will be = Rs.10/ Rs. 90 X 100 =11.11%

3. Apportionment of Selling expenses between Domestic and Exports sales:

Apportionment on the basis of sales value:

Domestic Sales = $\frac{Rs.1,12,500}{Rs.26,10,000}$ X Rs. 18,00,000 = Rs. 77,586

Exports Sales = $\frac{Rs.1,12,500}{Rs.26,10,000}$ X Rs. 8,10,000 = Rs. 34,914

4. Assumptions

(i) It is assumed that administrative expenses is related to production activities.

(ii) Value of opening and closing stocks are equal.

Question 20

The following information is provided by the P Ltd. for the year ending 31 st March, 2020.

Raw Material storage period	**52 days**
Work in progress conversion period	**18 days**
Finished Goods storage period	**20 days**
Debt Collection period	**75 days**
Creditors' payment period	**25 days**
Annual Operating Cost	**45 crore**

(Including depreciation of Rs.42,00,000) (1 year = 360 days)

You are required to CALCULATE Operating Cycle period and Number of Operating Cycles in a year. [MTP 2 Marks, May'20 & Oct '23]

Answer 20

Calculation of Operating Cycle Period and number of Operating Cycle in a Year

Operating Cycle Period = R + W + F + D – C

= 52 + 18 + 20 + 75 – 25 = 140 days

Number of Operating Cycle in a Year = $\frac{360}{\text{Operating Cycle Period}}$ = 360/140 = 2.57 times

Question 21

Cost sheet of A&R Ltd. provides the following particulars:

	Amount per unit (Rs.)

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Raw materials cost	**200.00**
Direct Labour cost	**75.00**
Overheads cost	**150.00**
Total cost	**425.00**
Profit	**75.00**
Selling Price	**500.00**

The Company keeps raw material in stock, on an average for four weeks; work-in-progress, on an average for one week; and finished goods in stock, on an average for two weeks.

The credit allowed by suppliers is three weeks and company allows four weeks' credit to its debtors. The lag in payment of wages is one week and lag in payment of overhead expenses is two weeks.

The Company sells one-fifth of the output against cash and maintains cash-in-hand and at bank put together at Rs.2,50,000.

Required:

PREPARE a statement showing estimate of Working Capital needed to finance an activity level of 2,60,000 units of production. Assume that production is carried on evenly throughout the year, and wages and overheads accrue similarly. Work-in-progress stock is 80% complete in all respects. (MTP 8 Marks, May'20 & Oct '23)

Answer 21

Statement showing Estimate of Working Capital Needs

	(Amount in Rs.)	**(Amount in Rs.)**
A. Current Assets		
(I) Inventories:		
Raw material (4 weeks) $\left[\frac{2{,}60{,}000 units \times Rs.200}{52 weeks} \times 4 weeks\right]$	40,00,000	
WIP Inventory (1 week) $\left[\frac{2{,}60{,}000 units \times Rs.425}{52 weeks} \times 1 weeks\right] \times 0.8$	17,00,000	
Finished goods inventory (2 weeks) $\left[\frac{2{,}60{,}000 units \times Rs.425}{52 weeks} \times 2 weeks\right]$	42,50,000	99,50,000
(ii) Receivables (Debtors) (4 weeks) $\left[\frac{2{,}60{,}000 units \times Rs.425}{52 weeks} \times 2 weeks\right] \times \frac{4}{5^{th}}$		68,00,000
(iii) Cash and bank balance		2,50,000
Total Current Assets		1,70,00,000

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B.	Current Liabilities:		
	(I) Payables (Creditors) for materials (3 weeks) $\left[\frac{2,60,000units \times Rs. 200}{52weeks} \times 3weeks\right]$		30,00,000
	(ii) Outstanding wages (1 week) $\left[\frac{2,60,000units \times Rs. 75}{52weeks} \times 1weeks\right]$		3,75,000
	(iii) Outstanding overheads (2 weeks) $\left[\frac{2,60,000units \times Rs. 150}{52weeks} \times 2weeks\right]$		15,00,000
	Total Current Liabilities		48,75,000
	Net Working Capital Needs (A – B)		1,21,25,000

Section B

Question 1: illustration

A firm has the following data for the year ending 31st March, 2021:

	(`)
Sales (1,00,000 @ ` 20)	**20,00,000**
Earnings before Interest and Taxes	**2,00,000**
Fixed Assets	**5,00,000**

The three possible current assets holdings of the firm are ` 5,00,000, ` 4,00,000 and` 3,00,000. It is assumed that fixed assets level is constant and profits do not varywith current assets levels. ANALYSE the effect of the three alternative current assets policies.

Answer 1

Effect of Alternative Current Assets Policies

	Conservative(`)	**Moderate(`)**	**Aggressive(`)**
Sales	20,00,000	20,00,000	20,00,000
Earnings before Interest and Taxes(EBIT)	2,00,000	2,00,000	2,00,000
Current Assets	5,00,000	4,00,000	3,00,000
Fixed Assets	5,00,000	5,00,000	5,00,000
Total Assets	10,00,000	9,00,000	8,00,000
Return on Total Assets (EBIT÷	20%	22.22%	25%

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TotalAssets)			
Current Assets/Fixed Assets	1.00	0.80	0.60

The aforesaid calculation shows that the conservative policy provides greater liquidity (solvency) to the firm, but lower return on total assets. On the other hand, the aggressive policy gives higher return, but low liquidity and thus is very risky. The moderate policy generates return higher than Conservative policy but lowerthan aggressive policy. This is less risky than aggressive policy but riskier than conservative policy.

In determining the optimum level of current assets, the firm should balance the profitability – solvency tangle by minimizing total costs – Cost of liquidity and cost of illiquidity.

Question 2: illustration

From the following information of XYZ Ltd., you are required to CALCULATE:

(a) Net operating cycle period.

(b) Number of operating cycles in a year.

		(`)
(i)	**Raw material inventory consumed during the year**	**6,00,000**
(ii)	**Average stock of raw material**	**50,000**
(iii)	**Work-in-progress inventory**	**5,00,000**
(iv)	**Average work-in-progress inventory**	**30,000**
(v)	**Cost of goods sold during the year**	**8,00,000**
(vi)	**Average finished goods stock held**	**40,000**
(vii)	**Average collection period from debtors**	**45 days**
(viii)	**Average credit period availed**	**30 days**
(ix)	**No. of days in a year**	**360 days**

Answer 2

a) Calculation of Net Operating Cycle period of XYZ Ltd

Raw Material storage period (R)

$$= \frac{Averagestock\ of\ rawmaterial}{\text{Average Cost of Raw Material Consumptionper day}}$$

$$= \frac{Rs.50{,}0000}{Rs.60{,}000 \times 360days} = \frac{Rs.50{,}000}{1{,}667} = 30days$$

Work-in-progress inventory holding period (W)

$$= \frac{Average\ work-in-progressinventory}{\text{Average Cost of productionper day}}$$

$$= \frac{Rs.30{,}0000}{Rs.5{,}00{,}000 \times 360days} = \frac{Rs.30{,}000}{1{,}389} = 22days$$

Finished Goods storage period (F)

$$= \frac{Averagestock\ of\ finish\ goods}{\text{Average Cost of Goodssoldper day}}$$

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$$= \frac{Rs.40,0000}{Rs.8,00,000 \times 360 days} = \frac{Rs.40,000}{2,222} = 18 days$$

Receivables (Debtors) collection period (D) = 45 days

Credit Period allowed by creditors (C) = 30 days

Net Operating Cycle = R + W + F+ D – C= 30 + 22 + 18 + 45 – 30 = 85 days

b) Number of Operating Cycles in a year

$$= \frac{No\ of\ daysina\ year}{Opreting\ cycleperiod} = \frac{\mathbf{360\ days}}{\mathbf{85 days}}$$

Question 3: illustration

On 1st January, the Managing Director of Naureen Ltd. wishes to know the amount of working capital that will be required during the year. From the following information, PREPARE the working capital requirements forecast.
Production during the previous year was 60,000 units. It is planned that this level of activity would be maintained during the present year.
The expected ratios of the cost to selling prices are Raw materials 60%, Direct wages 10% and Overheads 20%.
Raw materials are expected to remain in store for an average of 2 months before issue to production.
Each unit is expected to be in process for one month, the raw materials being fed into the pipeline immediately and the labour and overhead costs accruing evenly during the month.
Finished goods will stay in the warehouse awaiting dispatch to customers for approximately 3 months.
Credit allowed by creditors is 2 months from the date of delivery of raw material. Credit allowed to debtors is 3 months from the date of dispatch.
Selling price is ` 5 per unit.
There is a regular production and sales cycle.
Wages and overheads are paid on the 1st of each month for the previous month.
The company normally keeps cash in hand to the extent of ` 20,000.

Answer 3

Working Notes:

1. **Raw material inventory:**

   The cost of materials for the whole year is 60% ofthe Sales value.

   Hence it is 60,000 units × ` 5 $\times \frac{60}{100}$ =`1,80,000 . The monthly consumption raw material would be ` 15,000. Raw material requirements would be fortwo months; hence raw materials in stock would be ` 30,000

2. **Work-in-process:** (Students may give special attention to this point). It is stated that each unit of production is expected to be in process for onemonth).

		(`)

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(a)	Raw materials in work-in-process (being one month's rawmaterial requirements)	15,000
(b)	Labour costs in work-in-process (It is stated that it accrues evenly during the month. Thus, on the first day of each month it would be zero and on the last day of month the work-in-process would include one month's Labour costs. On an average therefore, it would be equivalent to ½ of the month's Labour costs) $\left[\frac{10\% of (60{,}000 \times Rs.5)}{12 month} \times 0.5 month\right]$	1,250
(c)	Overheads (For ½ month as explained above) $\left[\frac{20\% of (60{,}000 \times Rs.5)}{12 month} \times 0.5 month\right]$	2,500
	Total work-in-process	18,750

3. Finished goods inventory: (3 month's cost of production)

Raw materials $\left[\frac{60\% of (60{,}000 \times Rs.5)}{12 month} \times 3 month\right]$	45,000
Labor $\left[\frac{10\% of (60{,}000 \times Rs.5)}{12 month} \times 3 month\right]$	7,500
Overheads $\left[\frac{20\% of (60{,}000 \times Rs.5)}{12 month} \times 3 month\right]$	15,000
	67,500
Alternatively, (60,000 units x ` 5 x 90%) x 3/12	67,500

4. Debtors: The total cost of sales = 2,70,000.

Therefore, debtors = ` 2,70,000 $\times \frac{3}{12}$ = ` 67,500

Where, Total Cost of Sales = RM + Wages + Overheads + Opening Finished goods inventory – Closing finished goods inventory.

= ` 1,80,000 + ` 30,000 + ` 60,000 + ` 67,500 – ` 67,500 = ` 2,70,000.

5. Creditors: Suppliers allow a two months' credit period. Hence, the average amount of creditors would be two months' consumption of raw materials i.e.

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$$\left[\frac{10\% of (60{,}000 \times Rs.5)}{12 month} \times 2 month\right] = \text{Rs. } 30{,}000$$

6. **Direct Wages payable**

$$\left[\frac{10\% of (60{,}000 \times Rs.5)}{12 month} \times 1 month\right] = Rs. 2{,}500$$

7. **Overheads Payable**

$$\left[\frac{20\% of (60{,}000 \times Rs.5)}{12 month} \times 1 month\right] = Rs. 500$$

Here it has been assumed that inventory level is uniform throughout the year, therefore opening inventory equals closing inventory.

Statement of Working Capital Required

	(`)	(`)
Current Assets or Gross Working Capital:		
Raw materials inventory (Refer to working note 1)	30,000	
Working–in-process (Refer to working note 2)	18,750	
Finished goods inventory (Refer to working note 3)	67,500	
Debtors (Refer to working note 4)	67,500	
Cash	20,000	2,03,750
Current Liabilities:		
Creditors (Refer to working note 5)	30,000	
Direct wages payable (Refer to working note 6)	2,500	
Overheads payable (Refer to working note 7)	5,000	(37,500)
Estimated working capital requirements		1,66,250

Question 4: illustration

The following annual figures relate to XYZ Co.:

	(`)
Sales (at two months' credit)	**36,00,000**
Materials consumed (suppliers extend two months' credit)	**9,00,000**
Wages paid (1 month lag in payment)	**7,20,000**
Cash manufacturing expenses (expenses are paid one month inarrear)	**9,60,000**
Administrative expenses (1 month lag in payment)	**2,40,000**
Sales promotion expenses (paid quarterly in advance)	**1,20,000**

The company sells its products on gross profit of 25%. Depreciation is considered asa part of the cost of production. It keeps one month's stock each

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of raw materials and finished goods, and a cash balance of ` 1,00,000. Assuming a 20% safety margin, COMPUTE the working capital requirements of the company on cash cost basis. Ignore work-in-process.

Answer 4

Statement of Working Capital requirements (cash cost basis)

	(`)	(`)
A. Current Assets		
Inventory:		
-Raw materials $\left[\frac{\text{Rs. }9,00,000}{12 month} \times 1 month\right]$	75,000	
-Finished Goods $\left[\frac{\text{Rs. }25,80,000}{12 month} \times 1 month\right]$	2,15,000	
Receivables(Debtors) $\left[\frac{\text{Rs. }29,40,000}{12 month} \times 1 month\right]$	4,90,000	
Sales Promotion expenses paid in advance $\left[\frac{\text{Rs. }1,20,000}{12 month} \times 1 month\right]$	30,000	
	1,00,000	9,10,000
Gross Working Capital		9,10,000
B. Current Liabilities:		
Payables:		
Creditors for materials $\left[\frac{\text{Rs.}9,00,000}{12 month} \times 2 month\right]$	1,50,000	
Wages outstanding $\left[\frac{\text{Rs. }7,20,000}{12 month} \times 1 month\right]$	60,000	

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Manufacturing expenses outstanding $\left[\frac{\text{Rs. } 9{,}60{,}000}{12 month} \times 1 month\right]$	80,000	
Administrative expenses outstanding	20,000	3,10,000
$\left[\frac{\text{Rs. } 2{,}40{,}000}{12 month} \times 1 month\right]$		
Net working capital (A - B)		6,00,000
Add: Safety margin @ 20%		1,20,000
Total Working Capital requirements		7,20,000

Working Notes:

(i) Computation of Annual Cash Cost of Production	**(`)**
Material consumed	9,00,000
Wages	7,20,000
Manufacturing expenses	9,60,000
Total cash cost of production	25,80,000
(ii) Computation of Annual Cash Cost of Sales:	**(`)**
Total Cash cost of production as in (i) above	25,80,000
Administrative Expenses	2,40,000
Sales promotion expenses	1,20,000
Total cash cost of sales	29,40,000

Question 5: illustration

Samreen Enterprises has been operating its manufacturing facilities till 31.3.2021 ona single shift working with the following cost structure:

	Per unit (`)
Cost of Materials	**6.00**
Wages (out of which 40% fixed)	**5.00**
Overheads (out of which 80% fixed)	**5.00**
Profit	**2.00**
Selling Price	**18.00**
Sales during 2020-21 – ` 4,32,000	

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As at 31.3.2021 the company held:

	(`)
Stock of raw materials (at cost)	36,000
Work-in-progress (valued at prime cost)	22,000
Finished goods (valued at total cost)	72,000
Sundry debtors	1,08,000

In view of increased market demand, it is proposed to double production by working an extra shift. It is expected that a 10% discount will be available from suppliers ofraw materials in view of increased volume of business. Selling price will remain the same. The credit period allowed to customers will remain unaltered. Credit availedof from suppliers will continue to remain at the present level i.e., 2 months. Lag in payment of wages and expenses will continue to remain half a month. You are required to PREPARE the additional working capital requirements, if thepolicy to increase output is implemented.

Answer 5

This question can be solved using two approaches:

(i) To assess the impact of double shift for long term as a matter of production policy.

(ii) To assess the impact of double shift to mitigate the immediate demand for next year only.

The first approach is more appropriate and fulfilling the requirement of the question.

(i) Assessment of impact of double shift for long term as a matter of production policy:

Comparative Statement of Working Capital Requirement

	Single Shift (24,000)			Double Shift (48,000)		
	Unit	Rate (`)	Amount (`)	Unit	Rate (`)	Amount (`)
Current Assets						
Inventories:						
Raw Materials	6,000	6.00	36,000	12,000	5.40	64,800
Work-in-Progress	2,000	11.00	22,000	2,000	9.40	18,800
Finished Goods	4,500	16.00	72,000	9,000	12.40	1,11,600
Sundry Debtors	6,000	16.00	96,000	12,000	12.40	1,48,800
Total Current Assets: (A)			2,26,000			3,44,000

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Current Liabilities						
Creditors for Materials	4,000	6.00	24,000	8,000	5.40	43,200
Creditors for Wages	1,000	5.00	5,000	2,000	4.00	8,000
Creditors for Expenses	1,000	5.00	5,000	2,000	3.00	6,000
Total Current Liabilities: (B)			34,000			57,200
Working Capital: (A) – (B)			1,92,000			2,86,800

Additional Working Capital requirement = ` 2,86,800 – ` 1,92,000 = ` 94,800

Workings:

(1) Statement of cost at single shift and double shift working

	24,000 units		**48,000 Units**	
	Per unit (`)	**Total (`)**	**Per unit (`)**	**Total (`)**
Raw materials	6.00	1,44,000	5.40	2,59,200
Wages - Variable	3.00	72,000	3.00	1,44,000
Fixed	2.00	48,000	1.00	48,000
Overheads - Variable	1.00	24,000	1.00	48,000
Fixed	4.00	96,000	2.00	96,000
Total cost	16.00	3,84,000	12.40	5,95,200
Profit	2.00	48,000	5.60	2,68,800
	18.00	4,32,000	18.00	8,64,000

(2) Sales in units 2020-21$=\frac{Sales}{Unit\ selling\ praice}=\frac{Rs.4,32,000}{Rs.18}=$ 24,000 units

(3) Stock of Raw Materials in units on 31.3.2021 $=\frac{\text{Value of stock}}{\text{Cost per unit}}=\frac{\text{` }36,000}{6}==$ 6,000 units

(4) Stock of finished goods in units 2020-21 $=\frac{\text{Value of work-in-progress}}{\text{Prime Cost per unit}}=\frac{\text{` }22,000}{(\text{` }6+\text{` }5)}$ ==2,000units

(5) Stock of finished goods in units 2020-21$=\frac{\text{Value of stock}}{\text{Total Cost per unit}}=\frac{\text{` }72,000}{\text{` }16}$=4,500 units.

(ii) Assessment of the impact of double shift to mitigate the immediate demand for next year only & not as part of policy implementation.

In this approach, working capital shall be computed as if we are calculating the same for the next / second year with double production. Whereas, in the first approach to implement double-shift as part of policy implementation, we

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calculated comparative analysis of working capital requirement for single& double shift within the same year.

Workings:

(1) Calculation of no. of units to be sold:

No. of units to be Produced	48,000
Add: Opening stock of finished goods	4,500
Less: Closing stock of finished goods	(9,000)
No. of units to be Sold	43,500

(2) Calculation of Material to be consumed and materials to be purchased in units:

No. of units Produced	48,000
Add: Closing stock of WIP	2,000
Less: Opening stock of finished goods	(2,000)
Raw Materials to be consumed in units	48,000
Add: Closing stock of Raw material	12,000
Less: Opening stock of Raw material	(6,000)
Raw Materials to be purchased (in units)	54,000

(3) Credit allowed by suppliers:

$$= \frac{\text{No.of unitstopurchased} \times \text{Cost perunit}}{\text{12month}} \times 2\text{mon} = \frac{54{,}000 \times ` 5.40}{\text{12months}} \times 2\ month = ` 48{,}600$$

Comparative Statement of Working Capital Requirement

	Single Shift (Current Year – 24,000 units)			**Double Shift (Next Year – 48,000 units)**		
	Unit	**Rate (`)**	**Amount (`)**	**Unit**	**Rate (`)**	**Amount (`)**
Current Assets						
Inventories:						
Raw Materials	6,000	6.00	36,000	12,000	5.40	64,800
Work-in-Progress	2,000	11.00	22,000	2,000	9.40	18,800
Finished Goods	4,500	16.00	72,000	9,000	12.40	1,11,600
Sundry Debtors	6,000	16.00	96,000	12,000	12.40	1,48,800
Total Current Assets: (A)			2,26,00			3,44,00

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			0			0
Current Liabilities						
Creditors for Materials	4,000	6.00	24,000	9,000	5.40	48,600
Creditors for Wages	1,000	5.00	5,000	2,000	4.00	8,000
Creditors for Expenses	1,000	5.00	5,000	2,000	3.00	6,000
Total Current Liabilities: (B)			34,000			62,600
Working Capital: (A) – (B)			1,92,000			2,81,400

Additional Working Capital requirement = ` 2,81,400 – ` 1,92,000 = ` 89,400

Notes:

(i) The quantity of material in process will not change due to double shift working since work started in the first shift will be completed in the second shift.

(ii) It is given in the question that the WIP is valued at prime cost hence, it is assumed that the WIP is 100% complete in respect of material and labor.

(iii) In absence of any information on proportion of credit sales to total sales, debtor's quantity has been doubled for double shift. Hence, the units have been taken as 12,000 only.

(iv) It is assumed that all purchases are on credit.

(v) The valuation of work-in-progress based on prime cost (i.e. material & labor) as per the policy of the company is as under.

	Single shift (`)	**Double shift (`)**
Materials	6.00	5.40
Wages – Variable	3.00	3.00
Fixed	2.00	1.00
	11.00	9.40

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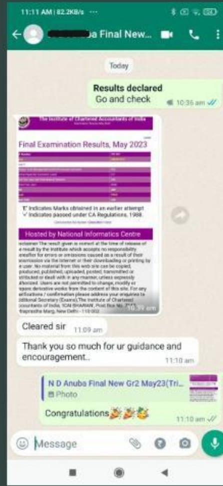

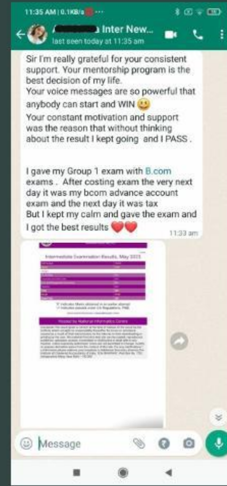

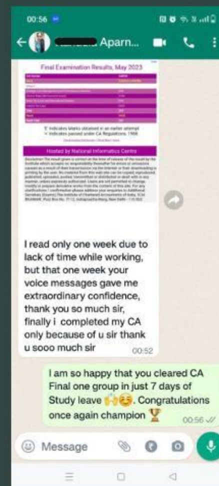

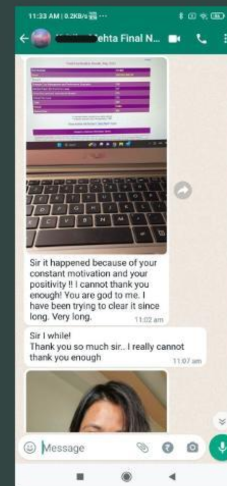

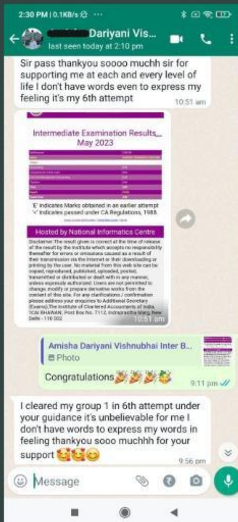

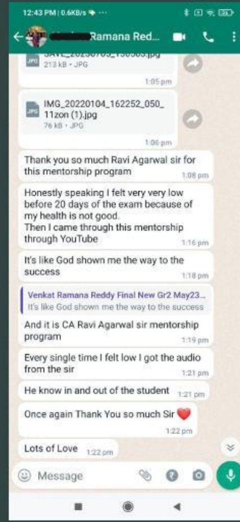

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Chapter 9.2
Treasury and cash management

Attempt wise Distribution

Q & A													
Attempts	May '18	Nov '18	May '19	Nov '19	May '20	Nov '20	Jan '21	Jul' 21	Dec '21	May '22	Nov' 22	May '23	Nov '23
MTP			Q6, Q9	Q11		Q3			Q8			Q12	
PYP				Q14			Q1		Q4		Q7, Q10		
RTP				Q2						Q5	Q13		

Section A

Question 1

Explain Electronic Cash Management System. (PYP 4 Marks, Jan'21)

Answer 1

Electronic Cash Management System: Most of the cash management systems now-a- days are electronically based, since 'speed' is the essence of any cash management system. Electronically, transfer of data as well as funds play a key role in any cash management system. Various elements in the process of cash management are linked through a satellite. Various places that are interlinked may be the place where the instrument is collected, the place where cash is to be transferred in company's account, the place where the payment is to be transferred etc.

Question 2

Write short notes on the following:

STATE the functions of treasury department. (RTP Nov '19)

Answer 2

1. **Cash Management**: It involves efficient cash collection process and managing payment of cash both inside the organization and to third parties. There may be complete centralization within a group treasury or the treasury may simply advise subsidiaries and divisions on policy matter viz., collection/payment periods, discounts, etc.

   Treasury will also manage surplus funds in an investment portfolio. Investment policy will consider future needs for liquid funds and acceptable levels of risk as determined by company policy.

2. **Currency Management:** The treasury department manages the foreign currency risk exposure of the company. In a large multinational company (MNC) the first step will usually be to set off intra-group indebtedness. The use of matching receipts and payments in the same currency will save transaction costs. Treasury might advise on the currency to be used when invoicing overseas sales.

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The treasury will manage any net exchange exposures in accordance with company policy. If risks are to be minimized then forward contracts can be used either to buy or sell currency forward.

3. **Fund Management:** Treasury department is responsible for planning and sourcing the company's short, medium and long-term cash needs. Treasury department will also participate in the decision on capital structure and forecast future interest and foreign currency rates.

4. **Banking**: It is important that a company maintains a good relationship with its bankers. Treasury department carry out negotiations with bankers and act as the initial point of contact with them. Short-term finance can come in the form of bank loans or through the sale of commercial paper in the money market.

5. **Corporate Finance**: Treasury department is involved with both acquisition and divestment activities within the group. In addition, it will often have responsibility for investor relations. The latter activity has assumed increased importance in markets where share-price performance is regarded as crucial and may affect the company's ability to undertake acquisition activity or, if the price falls drastically, render it vulnerable to a hostile bid.

Question 3

EXPLAIN Billing float and Mail float with reference to management of cash. [MTP 2 Marks, Oct'20]

Answer 3

Billing Float: An invoice is the formal document that a seller prepares and sends to the purchaser as the payment request for goods sold or services provided. The time between the sale and the mailing of the invoice is the billing float.

Mail Float: This is the time when a cheese is being processed by post office, messenger service or other means of delivery.

Question 4

A garment trader is preparing cash forecast for first three months of calendar year 2021. His estimated sales for the forecasted periods are as below:

	January (₹ '000)	February (₹ '000)	March (₹ '000)
Total sales	600	600	800

(i) **The trader sells directly to public against cash payments and to other entities on credit. Credit sales are expected to be four times the value of direct sales to public. He expects 15% customers to pay in the month in which credit sales are made, 25% to pay in the next month and 58% to pay in the next to next month. The outstanding balance is expected to be written off.**

(ii) **Purchases of goods are made in the month prior to sales and it amounts to 90% of sales and are made on credit. Payments of these occur in the month after the purchase. No inventories of goods are held.**

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(iii) **Cash balance as on 1st January, 2021 is ₹ 50,000.**

(iv) **Actual sales for the last two months of calendar year 2020 are as below:**

	November (₹ '000)	December (₹ '000)
Total sales	640	880

You are required to prepare a monthly cash, budget for the three months from January to March, 2021. (PYP 5 Marks Dec '21)

Answer 4

Working Notes:

(1) **Calculation of cash and credit sales** **(₹ in thousands)**

	Nov.	Dec.	Jan.	Feb.	Mar.
Total Sales	640	880	600	600	800
Cash Sales (1/5th of total sales)	128	176	120	120	160
Credit Sales (4/5th of total sales)	512	704	480	480	640

(2) **Calculation of Credit Sales Receipts** **(₹ in thousands)**

Month	Nov.	Dec.	Jan.	Feb.	Mar.
Forecast Credit sales (Working note 1)	512.00	704.00	480.00	480.00	640.00
Receipts:					
15% in the month of sales			72.00	72.00	96.00
25% in next month			176.00	120.00	120.00
58% in next to next month			296.96	408.32	278.40
Total			544.96	600.32	494.40

Cash Budget **(₹in thousands)**

	Nov.	Dec.	Jan.	Feb.	Mar.
Opening Balance (A)			50.00	174.96	355.28
Sales	640.00	880.00	600.00	600.00	800.00
Receipts:					
Cash Collection (Working note 1)			120.00	120.00	160.00
Credit Collections (Working note 2)			544.96	600.32	494.40
Total (B)			664.9	720.3	654.4

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			6	2	0
Purchases (90% of sales in the month prior to sales)		540	540	720	
Payments:					
Payment for purchases (next month)			540	540	720
Total (C)			540	540	720
Closing balance(D) = (A + B – C)			174.96	355.28	289.68

Question 5

You are given below the Profit & Loss Accounts for two years for a company:

Profit and Loss Account

	Year 1	Year 2		Year 1	Year 2
	(₹)	(₹)		(₹)	(₹)
To Opening stock	32,00,000	40,00,000	By Sales	3,20,00,000	4,00,00,000
To Raw materials	1,20,00,000	1,60,00,000	By Closing stock	40,00,000	60,00,000
To Stores	38,40,000	48,00,000	By Misc. Income	4,00,000	4,00,000
To Manufacturing Expenses	51,20,000	64,00,000			
To Other Expenses	40,00,000	40,00,000			
To Depreciation	40,00,000	40,00,000			
To Net Profit	42,40,000	72,00,000		-	-
	3,64,00,000	4,64,00,000		3,64,00,000	4,64,00,000

Sales are expected to be ₹ 4,80,00,000 in year 3.

As a result, other expenses will increase by ₹ 20,00,000 besides other charges. Only raw materials are in stock. Assume sales and purchases are in cash terms and the closing stock is expected to go up by the same amount as between year 1 and 2. You may assume that no dividend is being paid. The Company can use 75% of the cash generated to service a loan. COMPUTE how much cash from operations will be available in year 3 for the purpose? Ignore income tax. (RTP May 22, Old & New SM)

Answer 5

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Projected Profit and Loss Account for the year 3

Particulars	Year 2 Actual (₹ in lakhs)	Year 3 Projected (₹ in lakhs)	Particulars	Year 2 Actual(₹ in lakhs)	Year 3 Projected (₹ in lakhs)
To Materials consumed	140.00	168.00	By Sales	400.00	480.00
To Stores	48.00	57.60	By Misc. Income	4.00	4.00
To Mfg. Expenses	64.00	76.80			
To Other expenses	40.00	60.00			
To Depreciation	40.00	40.00			
To Net profit	72.00	81.60			
	404.00	484.00		484.00	484.00

Cash Flow:

Particulars	(₹ in lakhs)
Profit	81.60
Add: Depreciation	40.00
	121.60
Less: Cash required for increase in stock	20.00
Net cash inflow	101.60

Available for servicing the loan: 75% of ₹ 1,01,60,000 or ₹ 76,20,000

Working Notes:

(i) Material consumed in year 1 = (32 + 120 – 40)/320 = 35% Material consumed in year 2 = (40 + 160 – 60)/400 = 35%

Likely consumption in year 3 = 480 X $\frac{35}{100}$ = Rs. 168 (lakhs)

(ii) Stores are 12% of sales & Manufacturing expenses are 16% of sales for both the years.

Question 6

EXPLAIN Concentration Banking (MTP 2 Marks, April'19)

Answer 6

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Concentration Banking: In concentration banking the company establishes a number of strategic collection centers in different regions instead of a single collection center at the head office. This system reduces the period between the time a customer mails in his remittances and the time when they become spendable funds with the company. Payments received by the different collection centers are deposited with their respective local banks which in turn transfer all surplus funds to the concentration bank of head office.

Question 7

Elucidate the fundamental tasks of treasury department of a firm. (PYP 4 Marks Nov '22)

Answer 7

Fundamental tasks of treasury department of a firm:

(i) **Cash management**: It involves efficient cash collection process and managing payment of cash both inside the organization and to third parties. Treasury will also manage surplus funds in an investment portfolio.

(ii) **Currency management**: The treasury department manages the foreign currency risk exposure of the company. In a large multi-national company, the first step will usually be to set off intra-group indebtedness. The use of matching receipts and payments in the same currency will save transaction costs and will save the organization from any unfavorable exchange movement.

(iii) **Fund management**: Treasury department is responsible for planning and sourcing the company's short, medium and long-term cash needs. It also facilitates temporary investment of surplus funds by mapping the time gap between funds inflow and outflow.

(iv) **Banking:** It is important that a company maintains a good relationship with its bankers. Treasury department carry out negotiations with bankers with respect to interest rates, foreign exchange rates etc. and act as the initial point of contact with them.

(v) **Corporate finance**: Treasury department is involved with both acquisition and divestment activities within the group. In addition, it will often have responsibility for investors' relations.

Question 8

Write a short note on electronic fund transfer.[MTP 2 Marks,Oct'21]

Answer 8

Electronic Fund Transfer: With the developments which took place in the information technology, the present banking system has switched over to the computerization of banks branches to offer efficient banking services and cash management services to their customers. The network wil l be linked to the different branches, banks. This helped the customers in the following ways:

(i) Instant updating of accounts.

(ii) Quick transfer of funds.

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(iii) Instant information about foreign exchange rates.

Question 9

STATE Virtual Banking? DISCUSS its advantages (MTP 4 Marks, April'19).

Answer 9

Virtual Banking and its Advantages

Virtual banking refers to the provision of banking and related services through the use of information technology without direct recourse to the bank by the customer.

The advantages of virtual banking services are as follows:

- Lower cost of handling a transaction.
- The increased speed of response to customer requirements.
- The lower cost of operating branch network along with reduced staff costs leads to cost efficiency.

Virtual banking allows the possibility of improved and a range of services being made available to the customer rapidly, accurately and at his convenience.

Question 10

K Ltd. has a Quarterly cash outflow of ₹ 9,00,000 arising uniformly during the Quarter. The company has an Investment portfolio of Marketable Securities. It plans to meet the demands for cash by periodically selling marketable securities. The marketable securities are generating a return of 12% p.a. Transaction cost of converting investments to cash is ₹ 60. The company uses Baumol model to find out the optimal transaction size for converting marketable securities into cash.

Consider 360 days in a year.

You are required to calculate

(i) **Company's average cash balance,**

(ii) **Number of conversions each year and**

(iii) **Time interval between two conversions. (PYP 5 Marks Nov '22)**

Answer 10

(i) **Computation of Average Cash balance:**

Annual cash outflow (U) = 9,00,000 x 4 = ₹36,00,000

Fixed cost per transaction (P) = ₹60

Opportunity cost of one rupee p.a. (S) = $\frac{12}{100}$ = 0.12

Optimum cash balance (C) = $\sqrt{\frac{2UP}{S}} = \sqrt{\frac{2 \times 36,00,000 \times 60}{0.12}}$ = ₹60,000

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$\therefore$ Average Cash balance = $\frac{(0+60,000)}{2}$ = 30,000

(ii) **Number of conversions p.a.**

Annual cash outflow = ₹36,00,000

Optimum cash balance = ₹60,000

$\therefore$ No. of conversions p.a. = $\frac{36,00,000}{60,000}$ = 60

(iii) **Time interval between two conversions**

No. of days in a year = 360

No. of conversions p.a. = 60

$\therefore$ Time interval = $\frac{360}{60}$ = 6 days

Question 11

A firm maintains a separate account for cash disbursement. Total disbursement are Rs.10,50,000 per month or Rs. 1,26,00,000 per year. Administrative and transaction cost of transferring cash to disbursement account is Rs.20 per transfer. Marketable securities yield is 8% per annum.

COMPUTE the optimum cash balance according to William J. Baumol model. [MTP 2 Marks, Oct'19]

Answer 11

The optimum cash balance C= $\sqrt{\frac{2 \times Rs.1,26,00,000 \times Rs.20}{0.08}}$ = Rs.79,372.54

Question 12

You are given the following information:

(i) **Estimated monthly Sales are as follows:**

	₹		₹
January	**5,50,000**	**June**	**4,40,000**
February	**6,60,000**	**July**	**5,50,000**
March	**7,70,000**	**August**	**4,40,000**
April	**4,40,000**	**September**	**3,30,000**
May	**3,30,000**	**October**	**5,50,000**

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(ii) **Wages and Salaries are estimated to be payable as follows:**

	₹		₹
April	49,500	July	55,000
May	44,000	August	49,500
June	55,000	September	49,500

(iii) **Of the sales, 75% is on credit and 25% for cash. 60% of the credit sales are collected within one month and the balance in two months. There are no bad debt losses.**

(iv) **Purchases amount to 75% of sales and are made and paid for in the month preceding the sales.**

(v) **The firm has taken a loan of ₹6,00,000. Interest @ 12% p.a. has to be paid quarterly in January, April and so on.**

(vi) **The firm is to make payment of tax of ₹26,000 in July 2023.**

(vii) **The firm had a cash balance of ₹35,000 on 1St April 2023 which is the minimum desired level of cash balance. Any cash surplus/deficit above/below this level is made up by temporary investments/liquidation of temporary investments or temporary borrowings at the end of each month (interest on these to be ignored).**

Required:

PREPARE monthly cash budgets for six months beginning from April, 2023 on the basis of the above information. (MTP 10 Marks March '23)

Answer 12

Computation – Collections from Customers

Particulars	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
	(₹)	(₹)	(₹)	(₹)	(₹)	(₹)	(₹)	(₹)
Total Sales	6,60,000	7,70,000	4,40,000	3,30,000	4,40,000	5,50,000	4,40,000	3,30,000
Credit Sales (75% of total Sales)	4,95,000	5,77,500	3,30,000	2,47,500	3,30,000	4,12,500	3,30,000	2,47,500
Collection (within one month)		2,97,000	3,46,500	1,98,000	1,48,500	1,98,000	2,47,500	1,98,000
Collection (within two months)			1,98,000	2,31,000	1,32,000	99,000	1,32,000	1,65,000
Total Collections			5,44,500	4,29,000	2,80,500	2,97,000	3,79,500	3,63,000

Monthly Cash Budget for Six Months: April to September 2023

Particulars	April	May	June	July	August	Sept.

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	(₹)	(₹)	(₹)	(₹)	(₹)	(₹)
Receipts:						
Opening Balance	35,000	35,000	35,000	35,000	35,000	35,000
Cash Sales	1,10,000	82,500	1,10,000	1,37,500	1,10,000	82,500
Collections from Debtors	5,44,500	4,29,000	2,80,500	2,97,000	3,79,500	3,63,000
Total Receipts (A)	6,89,500	5,46,500	4,25,500	4,69,500	5,24,500	4,80,500
Payments:						
Purchases	2,47,500	3,30,000	4,12,500	3,30,000	2,47,500	4,12,500
Wages and Salaries	49,500	44,000	55,000	55,000	49,500	49,500
Interest on Loan	18,000	-----	-----	18,000	-----	-----
Tax Payment	-----	-----	-----	26,000	-----	-----
Total Payment (B)	3,15,000	3,74,000	4,67,500	4,29,000	2,97,000	4,62,000
Minimum Cash Balance	35,000	35,000	35,000	35,000	35,000	35,000
Total Cash Required (C)	3,50,000	4,09,000	5,02,500	4,64,000	3,32,000	4,97,000
Surplus/ (Deficit) (A)-(C)	3,39,500	1,37,500	-77,000	5,500	1,92,500	-16,500
Investment/Financing:						
Total effect of (Invest)/ Financing (D)	-3,39,500	-1,37,500	77,000	-5,500	-1,92,500	16,500
Closing Cash Balance (A) + (D) - (B)	35,000	35,000	35,000	35,000	35,000	35,000

Question 13

A company was incorporated w.e.f. 1st April, 2021. Its authorised capital was ₹ 1,00,00,000 divided into 10 lakh equity shares of ₹ 10 each. It intends to raise capital by issuing equity shares of ₹ 50,00,000 (fully paid) on 1st April. Besides this, a loan of ₹ 6,50,000 @ 12% per annum will be obtained from a financial institution on 1st April and further borrowings will be made at same rate of interest on the first day of the month in which borrowing is required. All borrowings will be repaid along with interest on the expiry of one year. The company will make payment for the following assets in April.

Particulars	**(₹)**
Plant and Machinery	**10,00,000**
Land and Building	**20,00,000**
Furniture	**5,00,000**
Motor Vehicles	**5,00,000**
Stock of Raw Materials	**5,00,000**

The following further details are available:

(1) Projected Sales (April-September):

	(₹)
April	**15,00,000**
May	**17,50,000**

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June	**17,50,000**
July	**20,00,000**
August	**20,00,000**
September	**22,50,000**

(2) Gross profit margin will be 25% on sales.

(3) The company will make credit sales only and these will be collected in the second month following sales.

(4) Creditors will be paid in the first month following credit purchases. There will be credit purchases only.

(5) The company will keep minimum stock of raw materials of ₹ 5,00,000.

(6) Depreciation will be charged @ 10% per annum on cost on all fixed assets.

(7) Payment of miscellaneous expenses of ₹ 50,000 will be made in April.

(8) Wages and salaries will be ₹ 1,00,000 each month and will be paid on the first day of the next month.

(9) Administrative expenses of ₹ 50,000 per month will be paid in the month of their incurrence.

(10) No minimum cash balance is required.

You are required to PREPARE the monthly cash budget (April-September), the projected Income Statement for the 6 months period and the projected Balance Sheet as on 30th September, 2021.(RTP Nov'22)

Answer 13

	April	May	June	July	August	September
Opening cash balance	-	10,50,000	-	1,37,500	5,25,000	7,25,000
A. Cash inflows						
Equity shares	50,00,000	-	-	-	-	-
Loans (Refer to working note 1)	6,50,000	1,25,000	-	-	-	-
Receipt from debtors	-	-	15,00,000	17,50,000	17,50,000	20,00,000
Total (A)	56,50,000	11,75,000	15,00,000	18,87,500	22,75,000	27,25,000
B. Cash Outflows						
Plant and Machinery	10,00,000	-	-	-	-	-
Land and Building	20,00,000	-	-	-	-	-
Furniture	5,00,000	-	-	-	-	-
Motor Vehicles	5,00,000	-	-	-	-	-
Stock of raw materials (Minimum stock)	5,00,000	-	-	-	-	-
Miscellaneous expenses	50,000	-	-	-	-	-
Payment to creditors for credit purchases (Refer to working note 2)	-	10,25,000	12,12,500	12,12,500	14,00,000	14,00,000

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Wages and salaries	-	1,00,000	1,00,000	1,00,000	1,00,000	1,00,000
Admn. expenses	50,000	50,000	50,000	50,000	50,000	50,000
Total :(B)	46,00,000	11,75,000	13,62,500	13,62,500	15,50,000	15,50,000
Closing balance (A)-(B)	10,50,000	-	1,37,500	5,25,000	7,25,000	11,75,000

Budgeted Income Statement for six-month period ending 30th September

Particulars	(₹)	Particulars	(₹)
To Purchases	83,37,500	By Sales	1,12,50,000
To Wages and Salaries	6,00,000	By Closing stock	5,00,000
To Gross profit c/d	28,12,500		
	1,17,50,000		1,17,50,000
To Admn. expenses	3,00,000	By Gross profit b/d	28,12,500
To Depreciation	2,00,000		
(10% on ₹ 40 lakhs for six months)			
To Accrued interest on loan (Refer to working note 3)	45,250		
To Miscellaneous expenses To Net profit c/d	50,000 22,17,250		
	28,12,500		28,12,500

Projected Balance Sheet as on 30th September 2021

Liabilities			Assets			Amount(₹)
Share Capital:			Fixed Assets:			
Authorized capital			Land and Building	20,00,000		
Less: Depreciationrised capital10,00,000 equity shares of ₹ 10 each		1,00,00,000	Less: Depreciation	1,00,000	19,00,000	
Issued, subscribed and paid-up capital 5,00,000 equity shares of ₹ 10 each		50,000	Plant and Machinery	10,00,000		
Reserve and Surplus:			Less: Depreciation	50,000	9,50,000	
Profit and Loss		22,17,250	Furniture	5,00,000		
Long-term loans		7,75,000	Less: Depreciation	25,000	4,75,000	
Current liabilities and provisions:			Motor Vehicles	5,00,000		
Sundry creditors	15,87,500		Less: Depreciation	25,000	4,75,000	38,00,000
Accrued interest	45,250		Current Assets:			

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Outstanding	1,00,000	17,32,750	Stock		5,00,000	
			Sundry debtors		42,50,000	
			Cash		11,75,000	59,25,000
expenses		**97,75,000**				**97,75,000**

Working Notes:

Subsequent Borrowings Needed (₹)

	April	May	June	July	August	September
A. Cash Inflow						
Equity shares	50,00,000					
Loans	6,50,000					
Receipt from debtors	-	-	15,00,000	17,50,000	17,50,000	20,00,000
Total (A)	56,50,000	-	15,00,000	17,50,000	17,50,000	20,00,000
B. Cash Outflow						
Purchase of fixed assets	40,00,000					
Stock	5,00,000					
Miscellaneous expenses	50,000					
Payment to creditors	-	10,25,000	12,12,500	12,12,500	14,00,000	14,00,000
Wages and salaries	-	1,00,000	1,00,000	1,00,000	1,00,000	1,00,000
Administrative expenses	50,000	50,000	50,000	50,000	50,000	50,000

(1) **There is shortage of cash in May of ₹ 1,25,000 which will be met by borrowings in May.**

(2) **Payment to Creditors**

Purchases = Cost of goods sold - Wages and salaries

Purchases for April = (75% of 15,00,000) - ₹ 1,00,000 = ₹ 10,25,000

(Note: Since gross margin is 25% of sales, cost of manufacture i.e. materials plus wages and salaries should be 75% of sales)

Hence, Purchases = Cost of manufacture minus wages and salaries of ₹ 1,00,000)

The creditors are paid in the first month following purchases.

Therefore, payment in May is ₹ 10,25,000

The same procedure will be followed for other months.

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April	(75% of 15,00,000)	- ₹ 1,00,000	= ₹ 10,25,000
May	(75% of 17,50,000)	- ₹ 1,00,000	= ₹ 12,12,500
June	(75% of 17,50,000)	- ₹ 1,00,000	= ₹ 12,12,500
July	(75% of 20,00,000)	- ₹ 1,00,000	= ₹ 14,00,000
August	(75% of 20,00,000)	- ₹ 1,00,000	= ₹ 14,00,000
September	(75% of 22,50,000) -	- ₹ 1,00,000	= ₹ 15,87,500
Minimum Stock			₹ 5,00,000
Total Purchases			₹ 83,37,500

(3) Accrued Interest on Loan

12% interest on ₹ 6,50,000 for 6 months	39,000
Add: 12% interest on ₹ 1,25,000 for 5 months	6,250
	45,250

Question 14

Slide Ltd. is preparing a cash flow forecast for the three months' period from January to the end of March. The following sales volumes have been forecasted:

Months	December	January	February	March	April
Sales (units)	1,800	1,875	1,950	2,100	2,250

Selling price per unit is Rs.600. Sales are all on one-month credit. Production of goods for sale takes place one month before sales. Each unit produced requires two units of raw materials costing Rs.150 per unit. No raw material inventory is held. Raw materials purchases are on one-month credit. Variable overheads and wages equal to Rs.100 per unit are incurred during production and paid in the month of production. The opening cash balance on 1st January is expected to be ₹ 35,000. A long term loan of ₹ 2,00,000 is expected to be received in the month of March. A machine costing ₹ 3,00,000 will be purchased in March.

(a) Prepare a cash budget for the months of January, February and March and calculate the cash balance at the end of each month in the three months' period.

(b) Calculate the forecast current ratio at the end of the three months' period. (PYP 10 Marks, Nov'19)

Answer 14

Working

1. Calculation of Collection from Trade Receivables:

Particulars	December	January	February	March
Sales (units)	1,800	1,875	1,950	2,100
Sales (@ Rs.600 per unit) / Trade Receivables (Debtors) (Rs.)	10,80,000	11,25,000	11,70,000	12,60,000

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Collection from Trade Receivables (Debtors) (Rs.)		10,80,000	11,25,000	11,70,000

2. Calculation of Payment to Trade Payables:

Particulars	December	January	February	March
Output (units)	1,875	1,950	2,100	2,250
Raw Material (2 units per output) (units)	3,750	3,900	4,200	4,500
Raw Material (@ Rs.150 per unit) / Trade Payables (Creditors) (Rs.)	5,62,500	5,85,000	6,30,000	6,75,000
Payment to Trade Payables (Creditors) (Rs.)		5,62,500	5,85,000	6,30,000

3. Calculation of Variable Overheads and Wages:

Particulars	January	February	March
Output (units)	1,950	2,100	2,250
Payment in the same month @ Rs.100 per unit (Rs.)	1,95,000	2,10,000	2,25,000

a) Preparation of Cash Budget

Particulars	January (Rs.)	February (Rs.)	March (Rs.)
Opening Balance	35,000	3,57,500	6,87,500
Receipts:			
Collection from Trade Receivables (Debtors)	10,80,000	11,25,000	11,70,000
Receipt of Long-Term Loan			2,00,000
Total (A)	11,15,000	14,82,500	20,57,500
Payments:			
Trade Payables (Creditors) for Materials	5,62,500	5,85,000	6,30,000
Variable Overheads and Wages	1,95,000	2,10,000	2,25,000
Purchase of Machinery			3,00,000
Total (B)	7,57,500	7,95,000	11,55,000
Closing Balance (A – B)	3,57,500	6,87,500	9,02,500

b) Calculation of Current Ratio

Particulars	March (Rs.)
Output Inventory (i.e. units produced in March) [(2,250 unit's x 2 units of raw material per unit of output	9,00,000

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x Rs.150 per unit of raw material) + 2,250 unit's x Rs.100 for variable overheads and wages] **or,** [6,75,000 + 2,25,000] from Working Notes 2 and 3	
Trade Receivables (Debtors)	12,60,000
Cash Balance	9,02,500
Current Assets	**30,62,500**
Trade Payables (Creditors)	6,75,000
Current Liabilities	**6,75,000**
Current Ratio (Current Assets / Current Liabilities)	**4.537 prox.**

Section B

Question 1: illustration

PREPARE monthly cash budget for six months beginning from April 2021 on the basisof the following information:

(i) Estimated monthly sales are as follows:

	`		`
January	**1,00,000**	**June**	**80,000**
February	**1,20,000**	**July**	**1,00,000**
March	**1,40,000**	**August**	**80,000**
April	**80,000**	**September**	**60,000**
May	**60,000**	**October**	**1,00,000**

(ii) Wages and salaries are estimated to be payable as follows: -

	`		`
April	**9,000**	**July**	**10,000**

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May	8,000	August	9,000
June	10,000	September	9,000

(iii) Of the sales, 80% is on credit and 20% for cash. 75% of the credit sales are collected within one month after sale and the balance in two months after sale. There are no bad debt losses.

(iv) Purchases amount to 80% of sales and are made on credit and paid for in the month preceding the sales.

(v) The firm has 10% debentures of ` 1,20,000. Interest on these has to be paid quarterly in January, April and so on.

(vi) The firm is to make an advance payment of tax of ` 5,000 in July, 2021.

(vii) The firm had a cash balance of ` 20,000 on April 1, 2021, which is the minimum desired level of cash balance. Any cash surplus/deficit above/below this level is made up by temporary investments/liquidation of temporary investments or temporary borrowings at the end of each month (interest on these to be ignored).

Answer 1

Workings:

Collection from debtors:

(Amount in `)

	February	March	April	May	June	July	August	September
Total sales	1,20,000	1,40,000	80,000	60,000	80,000	1,00,000	80,000	60,000
Credit sales (80% of total sales)	96,000	1,12,000	64,000	48,000	64,000	80,000	64,000	48,000
Collections:								
One month		72,000	84,000	48,000	36,000	48,000	60,000	48,000
Two months			24,000	28,000	16,000	12,000	16,000	20,000
Total collections			1,08,000	76,000	52,000	60,000	76,000	68,000

Monthly Cash Budget for Six months, April to September, 2021

(Amount in `)

	April	May	June	July	August	September
Receipts:						
Opening balance	20,000	20,000	20,000	20,000	20,000	20,000
Cash sales	16,000	12,000	16,000	20,000	16,000	12,000
Collection from debtors	1,08,000	76,000	52,000	60,000	76,000	68,000
Total cash available (A)	1,44,000	1,08,000	88,000	1,00,000	1,12,000	1,00,000

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Payments:						
Purchases	48,000	64,000	80,000	64,000	48,000	80,000
Wages & salaries	9,000	8,000	10,000	10,000	9,000	9,000
Interest on debentures	3,000	---	---	3,000	---	---
Tax payment	---	---	---	5,000	---	---
Total payments (B)	60,000	72,000	90,000	82,000	57,000	89,000
Minimum cash balance desired	20,000	20,000	20,000	20,000	20,000	20,000
Total cash needed (C)	80,000	92,000	1,10,000	1,02,000	77,000	1,09,000
Surplus - deficit (A-C)	64,000	16,000	(22,000)	(2,000)	35,000	(9,000)
Investment/financing Temporary Investments	(64,000)	(16,000)	----		(35,000)	-----
Liquidation of temporary investments or temporary borrowings	----	----	22,000	2,000	----	9,000
Total effect of investment/financing (D)	(64,000)	(16,000)	22,000	2,000	(35,000)	9,000
Closing cash balance(A+D-B)	20,000	20,000	20,000	20,000	20,000	20,000

Question 2: illustration

From the following information relating to a departmental store, you are required toPREPARE for the three months ending 31st March, 2021:

(a) Month-wise cash budget on receipts and payments basis; and

(b) Statement of Sources and uses of funds for the three months' period.

It is anticipated that the working capital & other account balances at 1st January,2021 will be as follows:

			` in '000
Cash in hand and at bank			**545**
Short term investments			**300**
Debtors			**2,570**
Stock			**1,300**
Trade creditors			**2,110**
Other creditors			**200**
Dividends payable			**485**
Tax due			**320**
Plant			**800**
Budgeted Profit Statement:	**` in '000**		
	January	**February**	**March**

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Sales	2,100	1,800	1,700
Cost of sales	1,635	1,405	1,330
Gross Profit	465	395	370
Administrative, Selling and Distribution Expenses	315	270	255
Net Profit before tax	150	125	115

Budgeted balances atthe end of each months	` in '000		
	31st Jan.	28th Feb.	31st March
Short term investments	700	---	200
Debtors	2,600	2,500	2,350
Stock	1,200	1,100	1,000
Trade creditors	2,000	1,950	1,900
Other creditors	200	200	200
Dividendspayable	485	--	--
Tax due	320	320	320
Plant (depreciation ignored)	800	1,600	1,550

Depreciation amount to ` 60,000 is included in the budgeted expenditure for eachmonth.

Answer 2

Workings:

		` in '000		
		Jan.	Feb.	March
(1)	Payments to creditors:			
	Cost of Sales	1,635	1,405	1,330
	Add: Closing Stocks	1,200	1,100	1,000
		2,835	2,505	2,330
	Less: Opening Stocks	1,300	1,200	1,100

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	Purchases	1,535	1,305	1,230
	Add: Trade Creditors, Opening balance	2,110	2,000	1,950
		3,645	3,305	3,180
	Less: Trade Creditors, closing balance	2,000	1,950	1,900
	Payment	1,645	1,355	1,280
(2)	Receipts from debtors:			
	Debtors, Opening balances	2,570	2,600	2,500
	Add: Sales	2,100	1,800	1,700
		4,670	4,400	4,200
	Less: Debtors, closing balance	2,600	2,500	2,350
	Receipt	2,070	1,900	1,850

CASH BUDGET

(a) 3 months ending 31st March, 2021

(` in 000)			
	nuary,2021	**February, 2021**	**arch, 2021**
Opening cash balances	545	315	65
Add: Receipts:			
From Debtors	2,070	1,900	1,850
Sale of Investments	---	700	----
Sale of Plant	---	---	50
Total (A)	2,615	2,915	1,965
Deduct: Payments			
Creditors	1,645	1,355	1,280
Expenses	255	210	195
Capital Expenditure	---	800	---
Payment of dividend	---	485	---
Purchase of investments	400	---	200
Total payments (B)	2,300	2,850	1,675
Closing cash balance (A-B)	315	65	290

(a) Statement of Sources and uses of Funds for the three-month period ending 31st March, 2021

	` '000	**` '000**
Sources:		

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Funds from operation:		
Net profit (150+125+115)	390	
Add: Depreciation (60×3)	180	570
Sale of plant		50
		620
Decrease in Working Capital (Refer Statement of changes in working capital)		665
Total		1,285
Uses:		
Purchase of plant		800
Payment by dividends		485
Total		1,285

Statement of Changes in Working Capital

	January,21	March,21	Increase	Decrease
	`' 000	**`' 000**	**`' 000**	**`' 000**
Current Assets				
Cash in hand and at Bank	545	290		255
Short term Investments	300	200		100
Debtors	2,570	2,350		220
Stock	1,300	1,000		300
	4,715	3,840		
Current Liabilities				
Trade Creditors	2,110	1,900	210	---
Other Creditors	200	200	---	---
Tax Due	320	320	---	---
	2,630	2,420		
Working Capital	2,085	1,420		
Decrease	-	665	665	
	2,085	2,085	875	875

Question 3: illustration

are given below the Profit & Loss Accounts for two years for a company:

Profit and Loss Account

	Year 1	Year 2		Year 1	Year 2
	`	`		`	`
To Opening stock	**80,00,000**	**1,00,00,000**	**By Sales**	**8,00,00,000**	**10,00,00,000**
To Raw materials	**3,00,00,000**	**4,00,00,000**	**By Closing stock**	**1,00,00,000**	**1,50,00,000**
To Stores	**1,00,00,000**	**1,20,00,000**	**By Misc. Income**	**10,00,000**	**10,00,000**
To Manufacturing Expenses	**1,00,00,000**	**1,60,00,000**			

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To Other Expenses	**1,00,00,000**	**1,00,00,000**			
To Depreciation	**1,00,00,000**	**1,00,00,000**			
To Net Profit	**1,30,00,000**	**1,80,00,000**		**-**	**-**
	9,10,00,000	**11,60,00,000**		**9,10,00,000**	**11,60,00,000**

Sales are expected to be ` 12,00,00,000 in year 3.

As a result, other expenses will increase by ` 50,00,000 besides other charges. Only raw materials are in stock. Assume sales and purchases are in cash terms and the closing stock is expected to go up by the same amount as between year 1 and 2. You may assume that no dividend is being paid. The Company can use 75% of the cash generated to service a loan. COMPUTE how much cash from operations will be available in year 3 for the purpose? Ignore income tax.

Answer 3

Projected Profit and Loss Account for the year 3

	Year 2 Actual (` in lakhs)	**Year 3 Projected (` in lakhs)**		**Year 2 Actual (` in lakhs)**	**Year 3 Projected (` in lakhs)**
To Materials consumed	350	420	By Sales	1,000	1,200
To Stores	120	144	By Misc. Income	10	10
To Mfg. Expenses	160	192			
To Other expenses	100	150			
To Depreciation	100	100			
To Net profit	180	204			
	1,010	1,210		1,010	1,210

Cash Flow:

	(` in lakhs)
Profit	204
Add: Depreciation	100
	304
Less: Cash required for increase in stock	50
Net cash inflow	254

Available for servicing the loan: 75% of `2,54,00,000 or `1,90,50,000

Working Notes:

(i) Material consumed in year 2: 35% of sales.

Likely consumption in year 3: `1,200 × $\frac{35}{100}$ or Rs. 420(lakhs)

100

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(ii) Stores are 12% of sales, as in year 2.

(iii) Manufacturing expenses are 16% of sales.
Note: The above also shows how a projected profit and loss account is prepared.

Question 4: illustration

Prachi Ltd is a manufacturing company producing and selling a range of cleaning products to wholesale customers. It has three suppliers and two customers. Prachi Ltd relies on its cleared funds forecast to manage its cash.You are an accounting technician for the company and have been asked to prepare a cleared funds forecast for the period Saturday 7 August to Wednesday 11 August 2021 inclusive. You have been provided with the following information:

(1) Receipts from customers

	Credit terms	Payment method	7 Aug 2021 sales	7 Jul 2021 sales
W Ltd	1 calendar month	BACS	` 150,000	` 130,000
X Ltd	None	Cheque	` 180,000	` 160,000

(a) **Receipt of money by BACS (Bankers' Automated Clearing Services) is instantaneous.**

(b) **X Ltd's cheque will be paid into Prachi Ltd's bank account on the same day as the sale is made and will clear on the third day following this (excluding day of payment).**

(2) Payments to suppliers

Supplier name	Creditterms	Payment method	7 Aug 2021 purchases	7 Jul 2021 purchases	7 Jun 2021 purchases
A Ltd	1 calendar month	Standing order	` 65,000	` 55,000	` 45,000
B Ltd	2 calendar months	Cheque	` 85,000	` 80,000	` 75,000
C Ltd	None	Cheque	` 95,000	` 90,000	` 85,000

(a) **Prachi Ltd has set up a standing order for ` 45,000 a month to pay for supplies from A Ltd. This will leave Prachi's bank account on 7 August. Every few months, an adjustment is made to reflect the actual cost of supplies purchased (you do NOT need to make this adjustment).**

(b) **Prachi Ltd will send out, by post, cheques to B Ltd and C Ltd on 7 August. The amounts will leave its bank account on the second day following this (excluding the day of posting).**

(3) Wages and salaries

	July 2021	August 2021
Weekly wage s	` 12,000	` 13,000
Monthly salaries	` 56,000	` 59,000

(a) **Factory workers are paid cash wages (weekly). They will be paid oneweek's wages, on 11 August, for the last week's work done in July (i.e.they work a week in**

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hand).

(b) All the office workers are paid salaries (monthly) by BACS. Salaries forJuly will be paid on 7 August.

(4) Other miscellaneous payments

(a) Every Saturday morning, the petty cashier withdraws ` 200 from the company bank account for the petty cash. The money leaves Prachi'sbank account straight away.

(b) The room cleaner is paid ` 30 from petty cash every Monday morning.

(c) Office stationery will be ordered by telephone on Sunday 8 August to the value of ` 300. This is paid for by company debit card. Such payments are generally seen to leave the company account on the next working day.

(d) Five new software's will be ordered over the Internet on 10 August at atotal cost of ` 6,500. A cheque will be sent out on the same day. The amount will leave Prachi Ltd.'s bank account on the second day following this (excluding the day of posting).

(5) Other information

The balance on Prachi's bank account will be ` 200,000 on 7 August 2021. This represents both the book balance and the cleared funds.

PREPARE a cleared funds forecast for the period Saturday 7th August to Wednesday 11th August 2021 inclusive using the information provided. Show clearly the uncleaned funds float each day.

Answer 4

Cleared Funds Forecast

Receipts	7 Aug 21 (Saturday) `	8 Aug 21 (Sunday) `	9 Aug 21 (Monday) `	10 Aug 21 (Tuesday) `	11 Aug 21 (Wednesday) `
W Ltd	1,30,000	0	0	0	0
X Ltd	0	0	0	1,80,000	0
(a)	1,30,000	0	0	1,80,000	0
Payments					
A Ltd	45,000	0	0	0	0
B Ltd	0	0	75,000	0	0
C Ltd	0	0	95,000	0	0
Wages	0	0	0	0	12,000
Salaries	56,000	0	0	0	0
Petty Cash	200	0	0	0	0
Stationery	0	0	300	0	0

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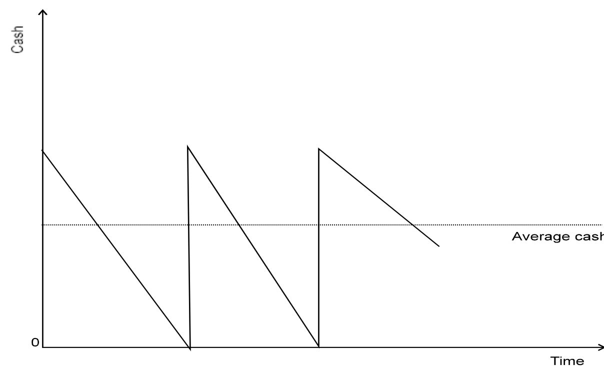
(b)	**1,01,200**	**0**	**1,70,300**	**0**	**12,000**
Cleared excess Receipts					
over payments (a) – (b)	28,800	0	(1,70,300)	1,80,000	(12,000)
Cleared balance b/f	2,00,000	2,28,800	2,28,800	58,500	2,38,500
Cleared balance c/f (c)	**2,28,800**	**2,28,800**	**58,500**	**2,38,500**	**2,26,500**
Un cleared funds float					
Receipts	1,80,000	1,80,000	1,80,000	0	0
Payments	(1,70,000)	(1,70,300)	0	(6,500)	(6,500)
(d)	**10,000**	**9,700**	**180,000**	**(6,500)**	**(6,500)**
Total book balance c/f	**2,38,800**	**2,38,500**	**2,38,500**	**2,32,000**	**2,20,000**
(c)+ (d)					

Question 5: illustration

A firm maintains a separate account for cash disbursement. Total disbursement are` 1,05,000 per month or ` 12,60,000 per year. Administrative and transaction cost transferring cash to disbursement account is ` 20 per transfer. Marketable securities yield is 8% per annum. DETERMINE the optimum cash balance according to William J. Baumol model.

Answer 5

The optimum cash balance C = $\sqrt{\frac{2 \times Rs.12,60,000 \times Rs.20}{0.08}}$ = Rs25,100



The limitation of the Baumol's model is that it does not allow the cash flows to fluctuate. Firms in practice do not use their cash balance uniformly nor are they able to predict daily cash inflows and outflows. The Miller-Orr (MO) model, as discussed below, overcomes this shortcoming and allows for daily cash flow variation.

Question 6: illustration

The following information is available in respect of Sai trading company:

(i) On an average, debtors are collected after 45 days; inventories have an averageholding

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period of 75 days and creditor's payment period on an average is 30 days.

(ii) The firm spends a total of ` 120 lakhs annually at a constant rate.

(iii) It can earn 10 per cent on investments.

From the above information, you are required to CALCULATE:

(a) The cash cycle and cash turnover,

(b) Minimum amounts of cash to be maintained to meet payments as they become due,

(c) Savings by reducing the average inventory holding period by 30 days.

Answer 6

(a) Cash cycle = 45 days + 75 days – 30 days = 90 days (3 months)Cash turnover

= 12 months (360 days)/3 months (90 days) = 4.

(b) Minimum operating cash = Total operating annual outlay/cash turnover, thatis, `120 lakhs/4 = `30 lakhs.

(c) Cash cycle = 45 days + 45 days – 30 days = 60 days (2 months).

Cash turnover = 12 months (360 days)/2 months (60 days) = 6.

Minimum operating cash = ` 120 lakhs/6 = ` 20 lakhs.

Reduction in investments = `30 lakhs – `20 lakhs = `10 lakhs.

Savings = 0.10 × `10 lakhs = `1 lakh.

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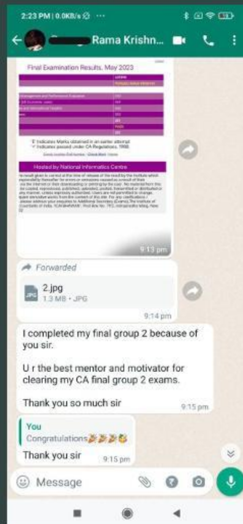

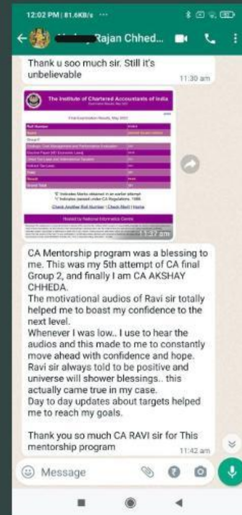

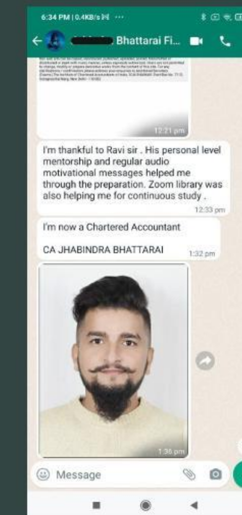

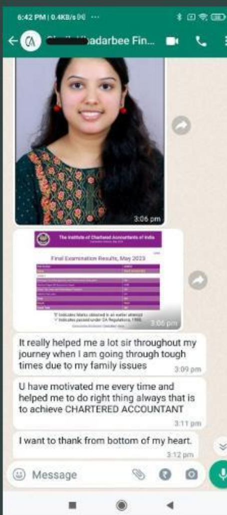

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Chapter 9.3
Management of inventory

Attempt wise Distribution

Q & A	
Attempts	May'22
PYP	Q1

Section A

Question 1

A company requires 36,000 units of a product per year at cost of ₹ 100 per unit. Ordering cost per order is ₹ 250 and the carrying cost is 4.5% per year of the inventory cost. Normal lead time is 25 days and safety stock is NIL.

Assume 360 working days in a year.

(i) **Calculate the Reorder Inventory Level.**

(ii) **Calculate the Economic Order Quantity (EOQ).**

(iii) **If the supplier offers 1% quantity discount for purchase in lots of 9,000 units or more, should the company accept the proposal? (PYP 5 Marks May'22)**

Answer 1

Annual Consumption = 36,000 (A) Ordering Cost = ₹ 250 per order (O)

Carrying Cost=$\frac{4.5}{100} \times 100$ = ₹ 4.5 (C)

Lead Time= 25 days

(i) **Reorder Level = Lead Time × Daily Consumption**

$25 \times \frac{36000}{360}$

= 2,500 units

Economic Order Quantity (EOQ)=$\sqrt{\frac{2AO}{C}}$

=$\sqrt{\frac{2 \times 36,000 \times 250}{4.5}}$= 2,000 units

(ii) **Evaluation of Profitability of Quantity Discount Offer:**

(a) **When EOQ is ordered**

		(₹)
Purchase Cost	(36,000 units × ₹ 100)	36,00,000
Ordering Cost	[(36,000 units/2,000 units)	4,500

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	× ₹ 250]	
Carrying Cost	(2,000 units × ½ × ₹ 4.5)	4,500
Total Cost		36,09,000

(b) **When Quantity Discount is accepted**

		(₹)
Purchase Cost	(36,000 units × ₹ 99*)	35,64,000
Ordering Cost	[(36,000 units/9,000 units) × ₹ 250]	1,000
Carrying Cost	(9,000 units × ½ × ₹ 99 x 4.5%)	20,048
Total Cost		35,85,048

*Unit Cost = ₹100

Less: Quantity Discount @ 1% $\frac{=₹1}{=₹99}$

Advise – The total cost of inventory is lower if Quantity Discount is accepted. Hence, the company is advised to accept the proposal.

Section B

Question 1: illustration

A company's requirements for ten days are 6,300 units. The ordering cost per order is ` 10 and the carrying cost per unit is ` 0.26. You are required to CALCULATE the economic order quantity.

Answer 1

The economic order quantity is:

$$EOQ = \sqrt{\frac{2\times6,300\times10}{0.26}} = \sqrt{\frac{1,26,000}{0.26}} == 700 \text{ units (approx).}$$

Question 2: illustration

Marvel Limited uses a large quantity of salt in its production process. Annual consumption is 60,000 tonnes over a 50-week working year. It costs ` 100 to initiate and process an order and delivery follow two weeks later. Storage costs for the saltare estimated at ` 0.10 per tonne per annum. The current practice is to order twicea year when the stock falls to 10,000 tonnes. IDENTIFY an appropriate ordering policy for Marvel Limited, and contrast it with the cost of the current policy

Answer 2

The recommended policy should be based on the EOQ model.F = `100 per order

S = 60,000 tonnes per year

H = `0.10 per tonne per year

$$\text{Substituting : } EOQ = \sqrt{\frac{2\times1,00\times60,000}{0.10}} = 10,954 \text{ tonnes per order}$$

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Number of orders per year = 60,000/10,954 = 5.5 orders Re-order level = 2×60,000/50 = 2,400 tonnes

Total cost of optimum policy = holding costs + ordering costs

= (0.1×10954)/2 + (100×60,000)/10,954

= 547.70 + 547.74 = ` 1,095

To compare the optimum policy with the current policy, the average level of stock under the current policy must be found. An order is placed when stock falls to 10,000 tonnes, but the lead time is two weeks. The stock used in that time is (60,000×2)/50 = 2,400 tonnes. Before delivery, inventory has fallen to (10,000 – 2,400) = 7,600 tonnes. Orders are made twice per year, and so the order size = 60,000/2 = 30,000 tonnes. The order will increase stock level to 30,000 + 7,600 = 37,600 tonnes. Hence the average stock level = 7,600 + (30,000/2) = 22,600 tonnes. Total costs of current policy = (0.1×22,600) + (100×2) = ` 2,460 per year.

Advise: The recommended policy should be adopted as the costs are less than the current policy (by ` 1,365 per year).

Question 3: illustration

Pureair Company is a distributor of air filters to retail stores. It buys its filters from several manufacturers. Filters are ordered in lot sizes of 1,000 and each order costs
` 40 to place. Demand from retail stores is 20,000 filters per month, and carryingcost is ` 0.10 a filter per month.

(a) COMPUTE the optimal order quantity with respect to so many lot sizes?

(b) CALCULATE the optimal order quantity if the carrying cost were ` 0.05 a filterper month?

(c) COMPUTE the optimal order quantity if ordering costs were ` 10?

Answer 3

a) $EOQ^* = \sqrt{\frac{2(20)(40)}{100}} = 4$

Carrying costs = ` 0.10 X 1,000 = ` 100. The optimal order size would be4,000 filters, which represents five orders a month.

b) $EOQ^* = \sqrt{\frac{2(20)(40)}{50}} = 5.66$

Since the lot size is 1,000 filters, the company would order 6,000 filters each time. The lower the carrying cost, the more important ordering costs become relatively, and the larger the optimal order size.

c) $EOQ^* = \sqrt{\frac{2(20)(10)}{100}} = 2$

The lower the order cost, the more important carrying costs become relativelyand the smaller the optimal order size.

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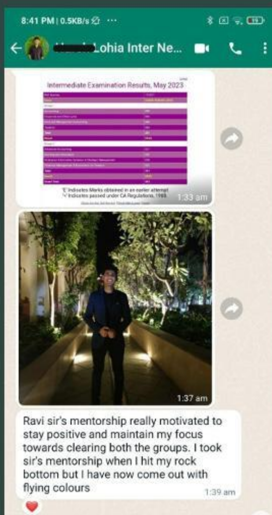

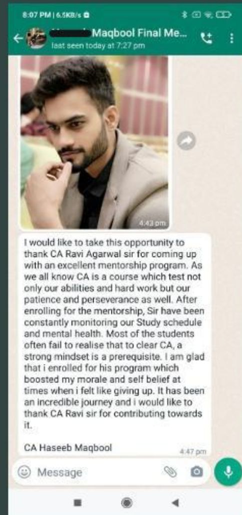

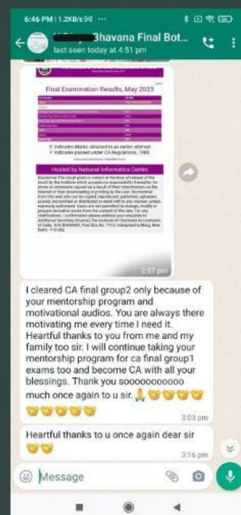

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Chapter 9.4
Management of receivables

Attempt wise Distribution

Q & A													
Attempts	May' 18	Nov' 18	May' 19	Nov' 19	May' 20	Nov' 20	Jan' 21	Jul' 21	Dec' 21	May' 22	Nov' 22	May' 23	Nov' 23
MTP		Q6	Q4, Q11								Q8		
PYP		Q12							Q2				
RTP		Q13				Q7, Q10							Q14

Section A

Question 1

Current annual sale of SKD Ltd. is Rs.360 lakhs. Its directors are of the opinion that company's current expenditure on receivables management is too high and with a view to reduce the expenditure they are considering following two new alternate credit policies:

Policy X Policy Y

Average collection period 1.5 months 1 month

% of default 2% 1%

Annual collection expenditure Rs.12 lakh Rs.20 lakh Selling price per unit of product is Rs.150. Total cost per unit is Rs.120.

Current credit terms are 2 months and percentage of default is 3%.

Current annual collection expenditure is ₹ 8 lakh. Required rate of return on investment of SKD Ltd. is 20%. Determine which credit policy SKD Ltd. should follow. (PYP 5 Marks, July'21)

Answer 1

Statement showing the Evaluation of Credit policies (Total Approach)

Particulars		Present Policy (2 Months)	Proposed Policy X (1.5 Months)	Proposed Policy Y (1 Month)
		Rs.in lakhs	Rs.in lakhs	Rs.in lakhs
A.	**Expected Profit:**			
	(a) Credit Sales*	360	360	360
	(b) Total Cost other than Bad Debts and collection expenditure (360/150 x 120)	288	288	288

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	(c) Bad Debts	10.8 (360 x 0.03)	7.2 (360 x 0.02)	3.6 (360 x 0.01)
	(d) Collection expenditure	8	12	20
	(e) Expected Profit [(a) – (b) – (c) - (d)]	53.2	52.8	48.4
B.	**Opportunity Cost of Investments in Receivables (Working Note)**	**9.6**	**7.2**	**4.8**
C.	**Net Benefits (A – B)**	**43.6**	**45.6**	**43.6**

Recommendation: The Proposed Policy X should be followed since the net benefits under this policy are higher as compared to other policies.

***Note:** It is assumed that all sales are on credit.

Working Note:

Calculation of Opportunity Cost of Average Investments

$=\text{Total Cost} \times \frac{\text{Collection period}}{12} \times \frac{\text{Rate of Return}}{100}$

Present Policy= $\text{Rs. } 288 \text{ lakhs } \times \frac{2}{12} \times \frac{20}{100} = \text{Rs. } 9.6 \text{Lakhs}$

Policy X =$\text{Rs. } 288 \text{ lakhs } \times \frac{1.5}{12} \times \frac{20}{100} = \text{Rs. } 7.2 \text{Lakhs}$

Policy Y= $\text{Rs. } 288 \text{ lakhs } \times \frac{1}{12} \times \frac{20}{100} = \text{Rs. } 4.8 \text{Lakhs}$

Alternatively

Statement showing the Evaluation of Credit policies (Incremental Approach)

	Particulars	Present Policy (2 Months)	Proposed Policy X (1.5 Months)	Proposed Policy Y (1 Month)
		Rs.in lakhs	**Rs.in lakhs**	**Rs.in lakhs**
	(a) Credit Sales*	360	360	360
	(b) Cost of sales (360/150 x 120)	288	288	288
	(c) Receivables (Refer Working Note)	48	36	24
	(d) Reduction in receivables from present policy	-	12	24

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(A)	**Savings in Opportunity Cost of Investment in Receivables (@ 20%)**	**-**	**2.4**	**4.8**
	(e) Bad Debts	10.8 (360 x 0.03)	7.2 (360 x 0.02)	3.6 (360 x 0.01)
(B)	**Reduction in bad debts from present policy**	**-**	**3.6**	**7.2**
	(f) Collection expenditure	8	12	20
(C)	**Increase in Collection expenditure from Present policy**	**-**	**4**	**12**
(D)	**Net Benefits (A +B-C)**		**2**	**0**

Recommendation: The Proposed Policy X should be followed since the net benefits under this policy are higher as compared to other policies.

*Note: It is assumed that all sales are on credit.

Working Note:

Calculation of Investment in Receivables

$=\text{Total Cost}\times\frac{\text{Collection period}}{12}$

Present Policy$=$ Rs. 288 lakhs $\times\frac{2}{12}=$ Rs. 48Lakhs

Policy X $=$Rs. 288 lakhs $\times\frac{1.5}{12}=$ Rs. 36Lakhs

Policy Y$=$ Rs. 288 lakhs $\times\frac{1}{12}=$ Rs. 24Lakhs

Question 2

A factoring firm has offered a company to buy its accounts receivables. The relevant information is given below:

(v) **The current average collection period for the company's debt is 80 days and ½% of debtors default. The factor has agreed to pay over money due to the company after 60 days and it will suffer all the losses of bad debts also.**

(vi) **Factor will charge commission @2%.**

(vii) **The company spends ₹ 1,00,000 p.a. on administration of debtor. These are avoidable cost.**

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(viii) **Annual credit sales are ₹ 90 lakhs. Total variable costs is 80% of sales. The company's cost of borrowing is 15% per annum. Assume 365 days in a year.**

Should the company enter into agreement with factoring firm? (PYP 5 Marks Dec '21)

Answer 2

	Particulars	**(₹)**
A.	Annual Savings (Benefit) on taking Factoring Service	
	Cost of credit administration saved	1,00,000
	Bad debts avoided (₹ 90 lakh x ½%)	45,000
	Interest saved due to reduction in average collection period [₹ 90 lakh x 0.80 × 0.15 × (80 days – 60 days)/365 days]	59,178
	Total	2,04,178
B.	Annual Cost of Factoring to the Firm:	
	Factoring Commission [₹ 90 lakh × 2%]	1,80,000
	Total	1,80,000
C.	Net Annual Benefit of Factoring to the Firm (A – B)	24,178

Advice: Since savings to the firm exceeds the cost to the firm on account of factoring, therefore, the company should enter into agreement with the factoring firm.

Question 3

River limited currently uses the credit terms of 1.5/15 net 45 days and average collection period was 30 days. The company presently having sales of ₹ 50,00,000 and 30% customers availing the discount. The chances of default are currently 5%. Variable cost constitutes 65% and total cost constitute 85% of sales. The company is planning liberalization of credit terms to 2/20 net 50 days. It is expected that sales are likely to increase by ₹ 5,00,000, the default chances are 10% and average collection period will decline to 25 days. There won't be any change in the fixed cost and 50% customers are expected to avail the discount. Tax rate is 35%.

EVALUATE this policy in comparison with the current policy and recommend whether the new policy should be implemented. Assume cost of capital to be 10% (post tax) and 360 days in a year. (RTP May'23)

Answer 3

Evaluation of Credit Policies

	Particulars	**1.5/15 net 45**	**2/20 net 50**
A	Sales	₹50,00,000	₹55,00,000
B	Variable Cost (65%)	₹32,50,000	₹35,75,000

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C	Fixed Cost (20% in 1st Case)	₹10,00,000	₹10,00,000
D	Bad Debts (5% and 10%)	₹2,50,000	₹5,50,000
E	Discounts		
	(₹5000000x30%x1.5%)	₹22,500	-
	(₹5500000x50%x2%)	-	₹55,000
F	PBT (A-B-C-D-E)	₹4,77,500	₹3,20,000
G	Tax @ 35%	₹1,67,125	₹1,12,000
H	PAT	₹3,10,375	₹2,08,000
I	Opportunity Cost		
	(₹3250000 + ₹1000000) x 30/360x10%	₹35,417	-
	(₹3575000 + ₹1000000) x 25/360 x 10%	-	₹31,771
J	Net Benefit	₹2,74,958	₹1,76,229

The new policy leads to lower net benefit for the company. Hence it should not be implemented.

Question 4

Navy Ltd has annual credit sales of Rs. 45 lakhs. Credit terms are 30 days, but its management of receivables has been poor and the average collection period is 50 days, Bad debt is 0.4 per cent of sales. A factor has offered to take over the task of debt administration and credit checking, at an annual fee of 1 per cent of credit sales. Navy Ltd. estimates that it would save Rs. 35,000 per year in administration costs as a result. Due to the efficiency of the factor, the average collection period would reduce to 30 days and bad debts would be zero. The factor would advance 80 per cent of invoiced debts at an annual interest rate of 11 per cent. Navy Ltd. is currently financing receivables from an overdraft costing 10 per cent per year.

If occurrence of credit sales is throughout the year, COMPUTE whether the factor's services should be accepted or rejected. Assume 365 days in a year. (MTP 6 Marks, April'19)

Answer 4

	Rs.
Present level of receivables is 45 lakh× 50/365	6,16,438
In case of factor, receivables would reduce to 45 lakhs× 30/365	3,69,863
The costs of the existing policy are as follows:	
Cost of financing existing receivables: 6,16,438×10%	61,644
Cost of bad debts: 45 lakhs × 0.4%	18,000
Cost of current policy	79,644
The cost under the factor are as follows:	
Cost of financing new receivable through factor:	
(Rs. 3,69,863 × 0.8 × 0.11) + (Rs. 3,69,863 × 0.2 × 0.10) = (32,548 + 7,397)	39,945
Factor's annual fee: 45 Lakhs × 0.01	45,000
Administration costs saved:	(35,000)

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Net cost under factor:	49,945

From the above analysis it is clear that the factor's services are cheaper than Existing policy by Rs. 29,699 (Rs. 79,644 - Rs. 49,945) per year. Hence, the services of the factor should be accepted.

Question 5

Describe the salient features of FORFAITING. (PYP 4 Marks, July'21)

Answer 5

E.C.G.C. Guarantee: Post-shipment finance, given to an exporter by a bank through purchase, negotiation or discount of an export bill against an order, qualifies for post-shipment export credit guarantee. It is necessary, however, that exporters should obtain a shipment or contracts risk policy of E.C.G.C. Banks insist on the exporters to take a contracts shipment (comprehensive risks) policy covering both political and commercial risks. The Corporation, on acceptance of the policy, will fix credit limits for individual exporters and the Corporation's liability will be limited to the extent of the limit so fixed for the exporter concerned irrespective of the amount of the policy.

Question 6

RST Limited is considering relaxing its present credit policy and is in the process of evaluating two proposed polices. Currently, the firm has annual credit sales of Rs 225 lakhs and accounts receivable turnover ratio of 5 times a year. The current level of loss due to bad debts is Rs.7,50,000. The firm is required to give a return of 20% on the investment in new accounts receivables. The company's variable costs are 60% of the selling price. Given the following information, DETERMINE which is a better option?

Amount in lakhs)

	Present Policy	Policy Option I	Policy Option II
Annual credit sales (Rs)	**225**	**275**	**350**
Accounts receivable turnover ratio	**5**	**4**	**3**
Bad debt losses (Rs)	**7.5**	**22.5**	**47.5**

(MTP 10 Marks, Oct'18)

Answer 6

Statement showing Evaluation of Credit Policies (Amount in lakhs)

	Particulars	Present Policy (Rs.)	Proposed Policy I (Rs.)	Proposed Policy II (Rs.)
A	Expected Profit :			
	(a) Credit Sales	225.00	275.00	350.00
	(b) Total Cost other than Bad Debts:			
	Variable Costs	135.00	165.00	210.00
	(c) Bad Debts	7.50	22.50	47.50

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	(d) Expected Profit [(a)-(b)-(c)]	82.50	87.50	92.50
B	Opportunity Cost of Investment in Receivables*	5.40	8.25	14.00
	Net Benefits [A-B]	77.10	79.25	78.50

Recommendation: The Proposed Policy I should be adopted since the net benefits under this policy is higher than those under other policies.

Working Note:

***Calculation of Opportunity Cost of Average Investments**

Opportunity Cost = Total Cost $\times \frac{\text{Collection Period}}{12} \times \frac{\text{Rate of Return}}{100}$

Present Policy = Rs.135 lakhs × 2.4/12 × 20% = Rs. 5.40 lakhs

Proposed Policy I = Rs. 165 lakhs × 3/12 × 20% = Rs. 8.25 lakhs

Proposed Policy II = Rs. 210 lakhs × 4/12 × 20% = Rs. 14.00 lakhs

Question 7

TM Limited, a manufacturer of colour TV sets is considering the liberalization of existing credit terms to three of their large customers A, B and C. The credit period and likely quantity of TV sets that will be sold to the customers in addition to other sales are as follows:

Quantity sold (No. of TV Sets)

Credit Period (Days)	**A**	**B**	**C**
0	**10,000**	**10,000**	**-**
30	**10,000**	**15,000**	**-**
60	**10,000**	**20,000**	**10,000**
90	**10,000**	**25,000**	**15,000**

The selling price per TV set is ₹15,000. The expected contribution is 50% of the selling price. The cost of carrying receivable averages 20% per annum. You are required to COMPUTE the credit period to be allowed to each customer. (Assume 360 days in a year for calculation purposes). (May '20)

Answer 7

In case of customer A, there is no increase in sales even if the credit is given. Hence comparative statement for B & C is given below:

Particulars	**Customer B**				**Customer C**			
1. Credit period (days)	0	30	60	90	0	30	60	90
2. Sales Units	10,000	15,000	20,000	25,000	-	-	10,000	15,000
	₹ in lakh				₹in lakh			
3. Sales Value	1,500	2,250	3,000	3,750	-	-	1,500	2,250

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4. Contribution at 50% (A)	750	1,125	1,500	1,875	-	-	750	1,125
5. Receivables:- $\frac{\text{Credit Period} \times \text{Sales}}{360}$	-	187.5	500	937.5	-	-	250	562.5
6. Debtors at cost	-	93.75	250	468.75	-	-	125	281.25
7. Cost of carrying debtors at 20% (B)	-	18.75	50	93.75	-	-	25	56.25
8. Excess of contributions over cost of carrying debtors (A – B)	750	1,106.25	1,406.25	1,781.25	-	-	725	1,068.75

The excess of contribution over cost of carrying Debtors is highest in case of credit period of 90 days in respect of both the customers B and C. Hence, credit period of 90 days should be allowed to B and C.

Question 8

GT Ltd. is taking into account the revision of its credit policy with a view to increasing its sales and profit. Currently, all its sales are on one month credit. Other information is as follows:

Contribution 2/5th of Sales Revenue

Additional funds raising cost20% per annum

The marketing manager of the company has given the following options along with estimates for considerations:

Particulars	Current Position	Option I	Option II	Option III
Sales Revenue (₹)	**40,00,000**	**42,00,000**	**44,00,000**	**50,00,000**
Credit period (in months)	**1**	**1½**	**2**	**3**
Bad debts (% of sales)	**2**	**2½**	**3**	**5**
Cost of Credit administration (₹)	**24,000**	**26,000**	**30,000**	**60,000**

You are required to ADVISE the company for the best option. (MTP 10 Marks Sep'22)

Answer 8

Statement Showing Evaluation of Credit Policies

(₹ in lakhs)

Particulars	Current position (1 month)	Option I (1.5 months)	Option II (2 months)	Option III (3 months)
Sales Revenue	40,00,000	42,00,000	44,00,000	50,00,000
Contribution @ 40%	16,00,000	16,80,000	17,60,000	20,00,000

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Increase in contribution over current level (A)	-	80,000	1,60,000	4,00,000
Debtors = (Average Collection period x Credit Sale 12	$\frac{1 \times 40,00,000}{12}$ = 3,33,333.33	$\frac{1.5 \times 42,00,000}{12}$ = 5,25,000	$\frac{2 \times 44,00,000}{12}$ = 7,33,333.33	$\frac{3 \times 50,00,000}{12}$ = 12,50,000
Increase in debtors over current level	2	1,91,666.67	4,00,000.00	9,16,666.67
Cost of funds for additional amount of debtors @ 20% (B)	-	38,333.33	80,000.00	1,83,333.33
Credit administrative cost	24,000	26,000	30,000	60,000
Increase in credit administration cost over present level (C)	□	2,000	6,000	36,000
Bad debts	80,000	1,05,000	1,32,000	2,50,000
Increase in bad debts over current levels (D)	-	25,000	52,000	1,70,000
Net gain/loss A – (B + C + D)	-	14,666.67	22,000.00	10,666.67

Advise: It is suggested that the company GT Ltd. should implement Option II with a net gain of ₹ 22,000 which has a credit period of 2 months.

Question 9 illustration

A company is presently having credit sales of Rs. 12 lakh. The existing credit terms are 1/10, net 45 days and average collection period is 30 days. The current bad debts loss is 1.5%. In order to accelerate the collection process further as also to increase sales, the company is contemplating liberalization of its existing credit terms to 2/10, net 45 days. It is expected that sales are likely to increase by 1/3 of existing sales, bad debts increase to 2% of sales and average collection period to decline to 20 days. The contribution to sales ratio of the company is 22% and opportunity cost of investment in receivables is 15 percent (pre-tax). 50 per cent and 80 percent of customers in terms of sales revenue are expected to avail cash discount under existing and liberalization scheme respectively. The tax rate is 30%. ADVISE, should the company change its credit terms? (Assume 360 days in a year). (PYP 5 Marks May '23)

Answer 9

Working Notes:

(i) Calculation of Cash Discount

Cash Discount = Total credit sales × % of customers who take up discount × Rate

Present Policy $= \frac{12,00,000 \times 50 \times .01}{100} =$ Rs.6,000

Proposed Policy = 16,00,000 × 0.80 × 0.02 = Rs. 25,600

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(ii) Opportunity Cost of Investment in Receivables

Present Policy = 9,36,000 × (30/360) × (70% of 15)/100 = 78,000 ×10.5/100 = Rs. 8,190

Proposed Policy = 12,48,000 × (20/360) V10.50/100 = Rs. 7,280

Statement showing Evaluation of Credit Policies

Particulars	Present Policy	Proposed Policy
Credit Sales	12,00,000	16,00,000
Variable Cost @ 78%* of sales	9,36,000	12,48,000
Bad Debts @ 1.5% and 2%	18,000	32,000
Cash Discount	6,000	25,600
Profit before tax	2,40,000	2,94,400
Tax @ 30%	72,000	88,320
Profit after Tax	1,68,000	2,06,080
Opportunity of Investment in CostReceivables	8,190	7,280
Net Profit	1,59,810	1,98,800

*Only relevant or variable costs are considered for calculating the opportunity costs on the funds blocked in receivables. Since 22% is contribution, hence the relevant costs are taken to be 78% of the respective sales.

Advise: Proposed policy should be adopted since the net benefit is increased by (Rs. 1,98,800 -1,59,810) Rs. 38,990.

Question 10

A company wants to follow a more prudent policy to improve its sales for the region which is ₹ 9 lakhs per annum at present, having an average collection period of 45 days. After certain researches, the management consultant of the company reveals the following information:

Credit Policy	Increase in collection period	Increase in sales	Present default anticipated
W	15 days	₹ 60,000	1.5%
X	30 days	₹ 90,000	2%
Y	45 days	₹ 1,50,000	3%
Z	70 days	₹ 2,10,000	4%

The selling price per unit is ₹ 3. Average cost per unit is ₹ 2.25 and variable costs per unit are ₹ 2. The current bad debt loss is 1%. Required return on additional investment is 20%. (Assume 360 days year) ANALYSE which of the

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above policies would you recommend for adoption? (RTP Nov '20)

Answer 10

A) Statement showing the Evaluation of Debtors Policies (Total Approach)

(Amount in ₹)

	Particulars	**Present Policy 45 days**	**Proposed Policy W 60 days**	**Proposed Policy X 75 days**	**Proposed Policy Y 90 days**	**Proposed Policy Z 115 days**
I.	**Expected Profit:**					
	(a) Credit Sales	9,00,000	9,60,000	9,90,000	10,50,000	11,10,000
	(b) Total Cost other than Bad Debts					
	(i) Variable Costs [Sales × 2/ 3]	6,00,000	6,40,000	6,60,000	7,00,000	7,40,000
	(ii) Fixed Costs	75,000	75,000	75,000	75,000	75,000
		6,75,000	7,15,000	7,35,000	7,75,000	8,15,000
	(c) Bad Debts	9,000	14,400	19,800	31,500	44,400
	(d) Expected Profit [(a) – (b) – (c)]	2,16,000	2,30,600	2,35,200	2,43,500	2,50,600
II.	**Opportunity Cost of Investments in Receivables**	16,875	23,833	30,625	38,750	52,069
III.	**Net Benefits (I – II)**	1,99,125	2,06,767	2,04,575	2,04,750	1,98,531

Recommendation: The Proposed Policy W (i.e. increase in collection period by 15 days or total 60 days) should be adopted since the net benefits under this policy are higher as compared to other policies.

Working Notes:

(i) **Calculation of Fixed Cost** = [Average Cost per unit – Variable Cost per unit] × No. of Units sold

= [₹ 2.25 - ₹ 2.00] × (₹ 9,00,000/3)

= ₹ 0.25 × 3,00,000 = ₹ 75,000

(ii) Calculation of Opportunity Cost of Average Investments

$$\text{Opportunity Cost} = \text{Total Cost} \times \frac{\text{Collection Period}}{360} \times \frac{\text{Rate of Return}}{100}$$

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Present Policy = 6,75,000 × $\frac{45}{360}$ × $\frac{20}{100}$ = 16,875

Policy W = 7,15,000 × $\frac{60}{360}$ × $\frac{20}{100}$ = 23,833

Policy X = 7,35,000 × $\frac{75}{360}$ × $\frac{20}{100}$ = 30,625

Policy Y = 7,75,000 × $\frac{90}{360}$ × $\frac{20}{100}$ = 38,750

Policy Z = 8,15,000 × $\frac{115}{360}$ × $\frac{20}{100}$ = 52,069

B) Another method of solving the problem is Incremental Approach. Here we assume that sales are all credit sales. (Amount in ₹)

	Particulars	Present Policy 45 days	Proposed Policy W 60 days	Proposed Policy X 75 days	Proposed Policy Y 90 days	Proposed Policy Z 115 days
I.	Incremental Expected Profit:					
	(a) Incremental Credit Sales	0	60,000	90,000	1,50,000	2,10,000
	(b) Incremental Costs					
	(i) Variable Costs	6,00,000	40,000	60,000	1,00,000	1,40,000
	(ii) Fixed Costs	75,000	-	-	-	-
	(c) Incremental Bad Debt Losses	9,000	5,400	10,800	22,500	35,400
	(d) Incremental Expected Profit (a – b –c)]		14,600	19,200	27,500	34,600
II.	Required Return on Incremental Investments:					
	(a) Cost of Credit Sales	6,75,000	7,15,000	7,35,000	7,75,000	8,15,000
	(b) Collection period	45	60	75	90	115
	(c) Investment in Receivable (a × b/360)	84,375	1,19,167	1,53,125	1,93,750	2,60,347
	(d) Incremental Investment in Receivables	-	34,792	68,750	1,09,375	1,75,972
	(e) Required Rate of Return (in %)		20	20	20	20
	(f) Required Return on Incremental Investments	-	6,958	13,750	21,875	35,194

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	(d × e)					
II.	Net Benefits (I – II)	-	7,642	5,450	5,625	(594)

Recommendation: The Proposed Policy W should be adopted since the net benefits under this policy are higher than those under other policies.

C) Another method of solving the problem is by computing the **Expected Rate of Return.**

$$\text{Expected Rate of Return} = \frac{\textit{Incremental Expected Profit}}{\textit{Incremental Investment in Receivables}} \text{ X } 100$$

$$\text{For Policy W} = \frac{Rs.14,600}{Rs.34,792} \text{X}100 = 41.96\%$$

$$\text{For Policy X} = \frac{Rs.19,200}{Rs.68,750} \text{X}100 = 27.93\%$$

$$\text{For Policy Y} = \frac{Rs.27,500}{Rs.1,09,375} \text{X}100 = 25.14\%$$

$$\text{For Policy Z} = \frac{Rs.34,600}{Rs.1,75,972} \text{X}100 = 19.66\%$$

Recommendation: The Proposed Policy W should be adopted since the Expected Rate of Return (41.96%) is more than the Required Rate of Return (20%) and is highest among the given policies compared.

Question 11

A bank is analyzing the receivables of J Ltd. in order to identify acceptable collateral for a short- term loan. The company's credit policy is 2/10 net 30. The bank lends 80 percent on accounts where customers are not currently overdue and where the average payment period does not exceed 10 days past the net period. A schedule of J Ltd.'s receivables has been prepared. ANALYSE, how much will the bank lend on pledge of receivables, if the bank uses a 10 per cent allowance for cash discount and returns?

Account	Amount Rs.	Days Outstanding in days	Average Payment Period historically
74	25,000	15	20
91	9,000	45	60
107	11,500	22	24
108	2,300	9	10
114	18,000	50	45
116	29,000	16	10
123	14,000	27	48
	1,08,800		

(MTP 7 Marks, March'19)

Answer 11

Analysis of the receivables of J Ltd. by the bank in order to identify acceptable collateral for a short- term loan:

(i) The J Ltd.'s credit policy is 2/10 net 30.

The bank lends 80 per cent on accounts where customers are not currently overdue and where the average payment period does not exceed 10 days past the net period i.e. thirty days. From the schedule of receivables of J Ltd. Account No. 91 and

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Account No. 114 are currently overdue and for Account No. 123 the average payment period exceeds 40 days. Hence Account Nos. 91, 114 and 123 are eliminated. Therefore, the selected Accounts Are Account Nos. 74, 107, 108 and 116.

(ii) Statement showing the calculation of the amount which the bank will lend on a pledge of receivables if the bank uses a 10 per cent allowances for cash discount and returns

Account No.	Amount (Rs.)	per cent of amount (Rs.)	80% of amount (Rs.)
	(a)	(b) = 90% of (a)	(c) = 80% of (b)
74	25,000	22,500	18,000
107	11,500	10,350	8280
108	2,300	2,070	1,656
116	29,000	26,100	20,880
Total loan amount			48,816

Question 12

MN Ltd. has a current turnover of Rs.30,00,000 p.a. Cost of Sale is 80% of turnover and Bad Debts are 2% of turnover, Cost of Sales includes 70% variable cost and 30% Fixed Cost, while company's required rate of return is 15%. MN Ltd. currently allows 15 days' credit to its customer, but it is considering increase this to 45 days' credit in order to increase turnover.

It has been estimated that this change in policy will increase turnover by 20 %, while Bad Debts will increase by 1%. It is not expected that the policy change will result in an increase in fixed cost and creditors and stock will be unchanged. Should MN Ltd. introduce the proposed policy? (Assume 360 days' year) (PYP 10 Marks, Nov'18)

Answer 12

Statement Showing Evaluation of Credit Policies

	Particulars	Present Policy	Proposed Policy
A.	Expected Contribution		
	(a) Credit Sales	30,00,000	36,00,000
	Less: Variable Cost Contribution	16,80,000 13,20,000	20,16,000 15,84,000
	(d) Less: Bad Debts	60,000	1,08,000
	(e) Contribution after Bad debt [(c)-(d)]	12,60,000	14,76,000
B.	Opportunity Cost of investment in Receivables	15,000	54,000
C. D.	Net Benefits [A-B] Increase in Benefit	12,45,000	14,22,000 1,77,000

Recommendation: Proposed Policy i.e credit from 15 days to 45 days should be implemented by NM Ltd since the net benefit under this policy are higher than

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those under present policy

Working Note: (1)

	Present Policy (Rs.)	Propose Policy (Rs.)
Sales	30,00,000	36,00,000
Cost of Sales (80% of sales)	24,00,000	28,80,000
Variable cost (70% of cost of sales)	16,80,000	20,16,000

2. Opportunity Costs of Average Investments

$= \text{Variable Cost} \times \frac{\text{Collection period}}{12} \times \text{Rate of Re turn}$

Present Policy=Rs.24,00,000 $\times \frac{45}{360} \times$ 15%= ₹ 54,000

Proposed Policy Policy=Rs.28,80,000 $\times \frac{15}{360} \times$ 15%= Rs.18,000

Question 13

Tony Limited, manufacturer of Colour TV sets is considering the liberalization of existing credit terms to three of their large customers A, B and C. The credit period and likely quantity of TV sets that will be sold to the customers in addition to other sales are as follows:

Quantity sold (No. of TV Sets)

Credit Period (Days)	A	B	C
0	1,000	1,000	-
30	1,000	1,500	-
60	1,000	2,000	1,000
90	1,000	2,500	1,500

The selling price per TV set is ₹ 9,000. The expected contribution is 20% of the selling price. The cost of carrying receivable averages 20% per annum.

You are required:

(a) **COMPUTE the credit period to be allowed to each customer.**

(Assume 360 days in a year for calculation purposes).

(b) **DEMONSTRATE the other problems the company might face in allowing the credit period as determined in (a) above? (RTP Nov '18)**

Answer 13

In case of customer A, there is no increase in sales even if the credit is given. Hence comparative statement for B & C is given below:

Particulars	Customer B				Customer C			
1. Credit period (days)	0	30	60	90	0	30	60	90
2. Sales Units	1,000	1,500	2,000	2,500	-	-	1,000	1,500
	₹ in lakhs				₹in lakhs			
3. Sales Value	90	135	180	225	-	-	90	135

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4. Contribution at 20% (A)	18	27	36	45	-	-	18	27
5. Receivables: Credit Period × Sales 360	-	11.25	30	56.25	-	-	15	33.75
6. Debtors at cost i.e. 80% of 11.25	-	9	24	45	-	-	12	27
7. Cost of carrying debtors at 20% (B)	-	1.8	4.8	9	-	-	2.4	5.4
8. Excess of contributions over cost of carrying debtors (A – B)	18	25.2	31.2	36	-	-	15.6	21.6

The excess of contribution over cost of carrying Debtors is highest in case of credit period of 90 days in respect of both the customers B and C. Hence, credit period of 90 days should be allowed to B and C.

Question 14

A regular customer of your company has approached to you for extension of credit facility for purchasing of goods. On analysis of past performance and on the basis of information supplied, the following pattern of payment schedule emerges:

Pattern of Payment Schedule	
At the end of 30 days	**20% of the bill**
At the end of 60 days	**30% of the bill.**
At the end of 90 days	**30% of the bill**
At the end of 100 days	**18% of the bill**
Non-recovery	**2% of the bill**

The customer wants to enter into a firm commitment for purchase of goods of ₹ 40 lakhs in 2022, deliveries to be made in equal quantities on the first day of each quarter in the calendar year. The price per unit of commodity is ₹ 400 on which a profit of ₹ 20 per unit is expected to be made. It is anticipated that taking up of this contract would mean an extra recurring expenditure of ₹ 20,000 per annum. If the opportunity cost is 18% per annum, would you as the finance manager of the company RECOMMEND the grant of credit to the customer? Assume 1 year = 360 days. (RTP Nov'23)

Answer 14

Statement showing the Evaluation of credit Policies

Particulars	**Proposed Policy ₹**
A. Expected Profit:	

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(a) Credit Sales	40,00,000
(b) Total Cost	
(i) Variable Costs (₹ 380 x 10000 units)	38,00,000
(ii) Recurring Costs	20,000
	38,20,000
(c) Bad Debts	80,000
(d) Expected Profit [(a) – (b) – (c)]	1,00,000
B. Opportunity Cost of Investments in Receivables	1,31,790
C. Net Benefits (A – B)	(31,790)

Recommendation: The Proposed Policy should not be adopted since the net benefits under this policy are negative.

Working Note: Calculation of Opportunity Cost of Average Investments

Opportunity Cost = Total Cost$\times \frac{Collection\ period}{360} \times \frac{Rate\ of\ Retun}{100}$

Particulars	20%	30%	30%	18%	Total
A. Total Cost	7,64,000	11,46,000	11,46,000	6,87,600	37,43,600
B. Collection period	30/360	60/360	90/360	100/360	
C. Required Rate of Return	18%	18%	18%	18%	
D. Opportunity Cost (A × B × C)	11,460	34,380	51,570	34,380	1,31,790

Section B

Question 1: illustration

A trader whose current sales are in the region of ` 6 lakhs per annum and an average collection period of 30 days wants to pursue a more liberal policy to improve sales.A study made by a management consultant reveals the following information: -

Credit Policy	Increase in collection period	Increase in sales	Present default anticipated
A	10 days	` 30,000	1.5%
B	20 days	` 48,000	2%

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C	30 days	` 75,000	3%
D	45 days	` 90,000	4%

The selling price per unit is ` 3. Average cost per unit is ` 2.25 and variable costs per unit are ` 2. The current bad debt loss is 1%. Required return on additional investment is 20%. Assume a 360 days' year. ANALYSE which of the above policies would you recommend for adoption?

Answer 1

A. **Statement showing the Evaluation of Debtors Policies (Total Approach)**

	Particulars	Present Policy 30 days	Proposed Policy A 40 days	Proposed Policy B 50 days	Proposed Policy C 60 days	Proposed Policy D 75 days
		`	`	`	`	`
A.	**Expected Profit:**					
	(a) Credit Sales	6,00,000	6,30,000	6,48,000	6,75,000	6,90,000
	b) Total Cost other than Bad Debts					
	(i) Variable Costs [Sales × 2/ 3]	4,00,000	4,20,000	4,32,000	4,50,000	4,60,000
	(ii)Fixed Costs	50,000	50,000	50,000	50,000	50,000
		4,50,000	4,70,000	4,82,000	5,00,000	5,10,000
	(c) Bad Debts	6,000	9,450	12,960	20,250	27,600
	(d) Expected Profit[(a) – (b) – (c)]	1,44,000	1,50,550	1,53,040	1,54,750	1,52,400
B.	**Opportunity Cost of Investments in Receivables**	7,500	10,444	13,389	16,667	21,250
C.	**Net Benefits (A – B)**	1,36,500	1,40,106	1,39,651	1,38,083	1,31,150

Recommendation: The Proposed Policy A (i.e. increase in collection period by 10 days or total 40 days)

should be adopted since the net benefits under this policyare higher as compared to other policies.

Working Notes:

(i) **Calculation of Fixed Cost** = [Average Cost per unit – Variable Cost per unit] × No. of Units sold

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= [`2.25 - `2.00] × (`6,00,000/3)

= `0.25 × 2,00,000 = `50,000

(ii) Calculation of Opportunity Cost of Average Investments

Opportunity Cost =

$$\text{Total cost} \times \frac{\text{Colection perioad}}{360} \times \frac{\text{Rate of return}}{100}$$

Present Policy $= 4,50,000 \times \frac{30}{360} \times \frac{20}{100} = 7,500$

Policy A $= 4,70,000 \times \frac{40}{360} \times \frac{20}{100} = 10,444$

Policy B $= 4,82,000 \times \frac{50}{360} \times \frac{20}{100} = 13,389$

Policy C $= 5,00,000 \times \frac{60}{360} \times \frac{20}{100} = 16,667$

Policy D $= 5,10,000 \times \frac{75}{360} \times \frac{20}{100} = 21,250$

B. Another method of solving the problem is Incremental Approach. Here weassume that sales are all credit sales.

Particulars		**Present Policy 30 days**	**Proposed Policy A 40 days**	**Proposed Policy B 50 days**	**Proposed Policy C 60 days**	**Proposed Policy D 75 days**
		`	`	`	`	`
A.	**Incremental Expected Profit:**					
	(a) Incremental Credit Sales	---	30,000	48,000	75,000	90,000
	(b) Incremental Costs					
	(i) Variable Costs	---	20,000	32,000	50,000	60,000
	(ii)Fixed Costs	---	-	-	-	-
	(c) Incremental BadDebt Losses	---	3,450	6,960	14,250	21,600
	(d) Incremental Expected Profit(a – b –c)]		**6,550**	**9,040**	**10,750**	**8,400**
B.	**Required Return on Incremental**					

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	Investments:					
	(a) Cost of Credit Sales	4,50,000	4,70,000	4,82,000	5,00,000	5,10,000
	(b) Collection period	30	40	50	60	75
	(c) Investment in Receivable (a × b/360)	37,500	52,222	66,944	83,333	1,06,250
	(d) Incremental Investment in Receivables	---	14,722	29,444	45,833	68,750
	(e) Required Rate ofReturn (in %)		20	20	20	20
	(f) Required Return on Incremental Investments (d× e)	---	**2,944**	**5,889**	**9,167**	**13,750**
C.	**Net Benefits (A – B)**	---	3,606	3,151	1,583	- 5,350

Recommendation: The Proposed Policy A should be adopted since the net benefits under this policy are higher than those under other policies.

C. Another method of solving the problem is by computing the

Expected Rate of Return. $\frac{\text{Incremental Expected Profit}}{\text{Incremental Investment in Receivables}}$

For Policy A $= \frac{Rs.6,550}{Rs.14,722} \times 100 = 44.49\%$

For Policy B$= \frac{Rs.9,040}{Rs.29,444} \times 100 = 30.70\%$

For Policy C$= \frac{Rs.10,750}{Rs45,833} \times 100 = 23.45\%$

For Policy D$= \frac{Rs.8,400}{Rs.68,750} \times 100 = 12.22\%$

Recommendation: The Proposed Policy A should be adopted since the Expected Rate of Return (44.49%) is more than the Required Rate of Return (20%) and is highest among the given policies compared.

Question 2: illustration

XYZ Corporation is considering relaxing its present credit policy and is in the processof evaluating two proposed policies. Currently, the firm has annual

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credit sales of` 50 lakhs and accounts receivable turnover ratio of 4 times a year. The current level of loss due to bad debts is ` 1,50,000. The firm is required to give a return of 25% on the investment in new accounts receivables. The company's variable costs are 70% of the selling price. Given the following information, IDENTIFY which is the better option?

(Amount in `)

	Present Policy	Policy Option I	Policy Option II
Annual credit sales	**50,00,000**	**60,00,000**	**67,50,000**
Accounts receivable turnover ratio	**4 times**	**3 times**	**2.4 times**
Bad debt losses	**1,50,000**	**3,00,000**	**4,50,000**

Answer 2

Statement showing the Evaluation of Debtors Policies

	Particulars	Present Policy	Proposed Policy I	Proposed Policy II
		`	`	`
A	**Expected Profit:**			
	(a) Credit Sales	50,00,000	60,00,000	67,50,000
	(b) Total Cost other than Bad Debts:			
	(i) Variable Costs	35,00,000	42,00,000	47,25,000
	(c) Bad Debts	1,50,000	3,00,000	4,50,000
	(d) Expected Profit [(a) – (b) – (c)]	13,50,000	15,00,000	15,75,000
B	**Opportunity Cost of Investments in Receivables**	2,18,750	3,50,000	4,92,188
C	**Net Benefits (A – B)**	11,31,250	11,50,000	10,82,812

Recommendation: The Proposed Policy I should be adopted since the net benefits under this policy are higher as compared to other policies.

Working Note: Calculation of Opportunity Cost of Average Investments

Opportunity Cost

Total coat $\times \frac{\text{Collection period}}{12} \times \frac{\text{Rate of Return}}{100}$

Collection Period in months = 12 / Accounts Receivable Turnover Ratio

Present Policy = `35,00,000 × 3/12 × 25% = `2,18,750 Proposed

Policy I = `42,00,000 × 4/12 × 25% = `3,50,000 Proposed

Policy II = `47,25,000 × 5/12 × 25% = `4,92,188

Question 3: illustration

A company is presently having credit sales of Rs. 12 lakh. The existing credit terms are 1/10, net 45 days and average collection period is 30 days. The current bad debts loss is 1.5%. In order to accelerate the collection process further as also to increase sales, the company is contemplating liberalization of

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its existing credit terms to 2/10, net 45 days. It is expected that sales are likely to increase by 1/3 of existing sales, bad debts increase to 2% of sales and average collection period to decline to 20 days. The contribution to sales ratio of the company is 22% and opportunity cost of investment in receivables is 15 percent (pre-tax). 50 per cent and 80 percent of customers in terms of sales revenue are expected to avail cash discount under existing and liberalization scheme respectively. The tax rate is 30%. ADVISE, should the company change its credit terms? (Assume 360 days in a year).

Answer3

Working Notes:

(iii) Calculation of Cash Discount

Cash Discount = Total credit sales × % of customers who take up discount × Rate

Present Policy $= \frac{12,00,000 \times 50 \times .01}{100}$ =Rs.6,000

Proposed Policy = 16,00,000 × 0.80 × 0.02 = Rs. 25,600

(iv) Opportunity Cost of Investment in Receivables

Present Policy = 9,36,000 × (30/360) × (70% of 15)/100 = 78,000 ×10.5/100 = Rs. 8,190

Proposed Policy = 12,48,000 × (20/360) V10.50/100 = Rs. 7,280

Statement showing Evaluation of Credit Policies

Particulars	**resent Policy**	**Proposed Policy**
Credit Sales	12,00,000	16,00,000
Variable Cost @ 78%* of sales	9,36,000	12,48,000
Bad Debts @ 1.5% and 2%	18,000	32,000
Cash Discount	6,000	25,600
Profit before tax	2,40,000	2,94,400
Tax @ 30%	72,000	88,320
Profit after Tax	1,68,000	2,06,080
ortunity Cost of Investment in Receivables	8,190	7,280
Net Profit	1,59,810	1,98,800

*Only relevant or variable costs are considered for calculating the opportunity costs on the funds blocked in receivables. Since 22% is contribution, hence the relevant costs are taken to be 78% of the respective sales.

Advise: Proposed policy should be adopted since the net benefit is increased by (Rs. 1,98,800 -1,59,810) Rs. 38,990.

Question 4: illustration

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A Factoring firm has credit sales of ` 360 lakhs and its average collection period is 30 days. The financial controller estimates, bad debt losses are around 2% of credit sales. The firm spends ` 1,40,000 annually on debtor's administration. This cost comprises of telephonic and fax bills along with salaries of staff members. These are the avoidable costs. A Factoring firm has offered to buy the firm's receivables. The factor will charge 1% commission and will pay an advance against receivables on an interest @15% p.a. after withholding 10% as reserve. ANALYSE what should the firm do? Assume 360 days in a year.

Answer 4

Working notes:

Average level of receivables = `360 lakhs × $\frac{30}{360}$=30 lakh

Factoring Commission = 1% of `30,00,000	=	` 30,000
Reserve = 10% of `30,00,000	=	`3,00,000
Total (i)	=	` 3,30,000

Thus, the amount available for advance is

Average level of receivables	` 30,00,000
Less: Total (i) from above	` 3,30,000
(ii)	` 26,70,000
Less: Interest @ 15% p.a. for 30 days	` 33,375
Net Amount of Advance available.	` 26,36,625

Evaluation of Factoring Proposal

	Particulars	`	`
A.	**Savings (Benefit) to the firm**		
	Cost of Credit administration	` 1,40,000	` 1,40,000
	Cost of bad-debt losses	(0.02 × 360 lakhs)	` 7,20,000
	Total		` 8,60,000
B.	**Cost to the Firm:**		
	Factoring Commission [Annual credit Sales × % of Commission (or calculated annually)]	`30,000 × $\frac{30}{360}$	` 3,60,000
	Interest Charges	`33,375× $\frac{30}{360}$	` 4,00,500
	Total		` 7,60,500
C.	**Net Benefits to the Firm: (A-B)**		` 99,500

Advice: Since the savings to the firm exceeds the cost to the firm on account of factoring, therefore, the proposal is acceptable.

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Question 5: illustration

Mosaic Limited has current sales of ` 15 lakhs per year. Cost of sales is 75 per cent of sales and bad debts are one per cent of sales. Cost of sales comprises 80 per cent variable costs and 20 per cent fixed costs, while the company's required rate of return is 12 per cent. Mosaic Limited currently allows customers 30 days' credit, but is considering increasing this to 60 days' credit in order to increase sales. It has been estimated that this change in policy will increase sales by 15 per cent, while bad debts will increase from one per cent to four per cent. It is not expected that the policy change will result in an increase in fixed costs and creditors and stock will be unchanged. Should Mosaic Limited introduce the proposed policy? ANALYSE (Assume a 360 days' year)

Answer 5

New level of sales will be 15,00,000 × 1.15 = ` 17,25,000

Variable costs are 80% ×75% = 60% of sales Contribution from sales is therefore 40% of sales

Fixed Cost are 20% × 75% = 15% of sales

Particulars	`	`
Proposed investment in debtors = Variable Cost +Fixed Cost* = (17,25,000 × 60%) + (15,00,000 × 15%) = $(10,35,000 + 2,25,000) \times \frac{60}{360}$		2,10,000
Current investment in debtors = [(15,00,000 × 60%) + (15,00,000 × 15%)] × $\frac{30}{360}$		93,750
Increase in investment in debtors		1,16,250
Increase in contribution = 15% ×15,00,000×40%		90,000
New level of bad debts = (17,25,000 ×4%)	69,000	
Current level of bad debts (15,00,000 × 1%)	15,000	
Increase in bad debts		(54,000)
Additional financing costs = 1,16,250×12% =		(13,950)
Savings by introducing change in policy		22,050

* Fixed Cost is taken at existing level in case of proposed investment as well

Advise: Mosaic Limited should introduce the proposed policy.

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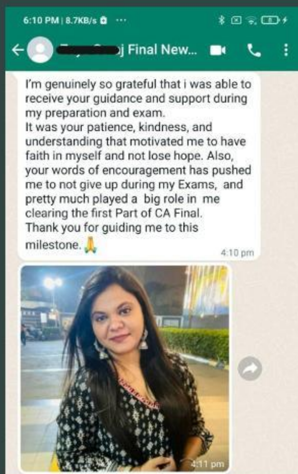

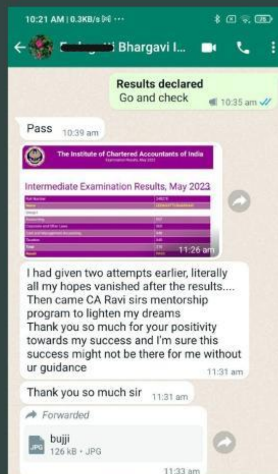

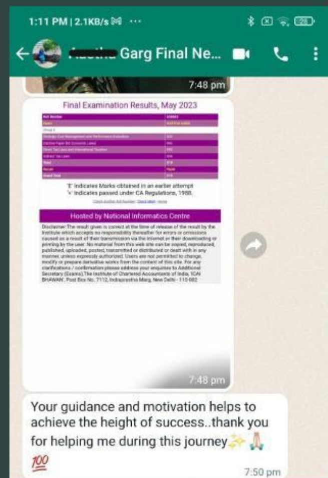

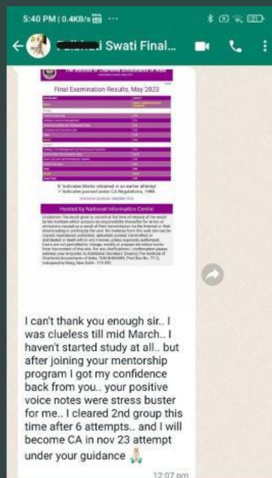

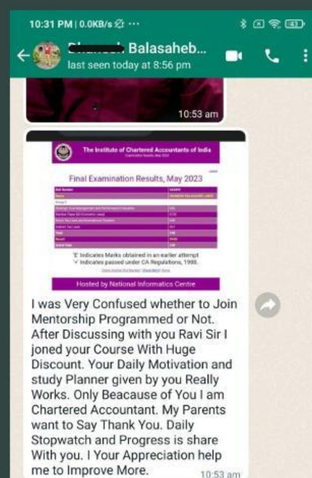

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Chapter 9.5
Management of payables (creditors)

Attempt wise Distribution

Q & A	
Attempts	May'18
RTP	Q1

Section A

Question 1

A Ltd. is in the manufacturing business and it acquires raw material from X Ltd. on a regular basis. As per the terms of agreement the payment must be made within 40 days of purchase. However, A Ltd. has a choice of paying ₹ 98.50 per ₹ 100 it owes to X Ltd. on or before 10th day of purchase.

Required:

EXAMINE whether A Ltd. should accept the offer of discount assuming average billing of A Ltd. with X Ltd. is ₹ 10,00,000 and an alternative investment yield a return of 15% and company pays the invoice. (RTP May '18)

Answer 1

Annual Benefit of accepting the Discount

$$\frac{Rs.1.5}{Rs.100-Rs.1.50} \times \frac{365\ days}{40-10\ days} = 18.53\%$$

Annual Cost = Opportunity Cost of foregoing interest on investment = 15%
If average invoice amount is ₹ 10,00,000

	If discount is	
	Accepted (₹)	**Not Accepted (₹)**
Payment to Supplier (₹)	9,85000	10,00,000
Return on investment of ₹9,85,000 for 30 days {₹ 9,85,000 × (30/365) × 15%}		(12,144)
	9,85,000	9,87,856

Thus, from above table it can be seen that it is cheaper to accept the discount.

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Section B

Question 1: illustration

Suppose ABC Ltd. has been offered credit terms from its major supplier of 2/10, net 45. Hence the company has the choice of paying ` 10 per ` 100 or to invest ` 98 for an additional 35 days and eventually pay the supplier ` 100 per ` 100. The decisionas to whether the discount should be accepted depends on the opportunity cost of investing ` 98 for 35 days. ANALYSE what should the company do?

Answer 1

If the company does not avail the cash discount and pays the amount after 45 days, the implied cost of interest per annum would be approximately:

$$\left[\frac{100}{100-2}\right]^{\frac{365}{35}} - 1 = 23.5\%$$

Now let us assume that ABC Ltd. can invest the additional cash and can obtain an annual return of 25% and if the amount of invoice is ` 10,000. The alternatives are as follows:

	Refuse discount	**Accept discount**
	`	`
Payment to supplier	10,000	9,800
Return from investing ` 9,800 between day 10 and day45: $\frac{35}{365} \times$ ` $9,800 \times 25\%$	(235)	
Net Cost	9,765	9,800

Advise: Thus, it is better for the company to refuse the discount, as return on cash retained is more than the saving on account of discount.

Question 2: illustration

The Dolce Company purchases raw materials on terms of 2/10, net 30. A review of the company's records by the owner, Mr. Gautam, revealed that payments are usually made 15 days after purchases are made. When asked why the firm did not take advantage of its discounts, the accountant, Mr. Rohit, replied that it cost only 2 per cent for these funds, whereas a bank loan would cost the company 12 per cent.

(a) **ANALYSE what mistake is Rohit making?**

(b) **If the firm could not borrow from the bank and was forced to resort to the useof trade credit funds, what suggestion might be made to Rohit that wouldreduce the annual interest cost? IDENTIFY.**

Answer 2

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(a) Rohit's argument of comparing 2% discount with 12% bank loan rate is not rational as 2% discount can be earned by making payment 5 days in advance i.e. within 10 days rather 15 days as payments are made presently. Whereas 12% bank loan rate is for a year.

Assume that the purchase value is `100, the discount can be earned by making payment within 10 days is `2, therefore, net payment would be `98 only. Annualized benefit

$$= \frac{Rs.2}{Rs.98} \times \frac{365 days}{5 days} \times 100 = 149\%$$

This means cost of not taking cash discount is 149%.

(b) If the bank loan facility could not be available, then in this case the company should resort to utilise maximum credit period as possible.
Therefore, payment should be made in 30 days to reduce the interest cost.

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Chippy AS Final New Gr2 Nov22 (Th...
Photo
Sir mark list 3:26 pm

Sir...
I am married and have a son of 2.5 yr old. This is second attempt for 2nd group examination. Now I become CA Chippy A S because of your mentorship program. Ur words ur voice that helped a lot... To increase my confidence level and determination. I must say it is life saver program for CA students.. U r the best mentor ever.. I dont how to express in words my gratitude towards you. First time ever in my CA life I approached CA exams without any fear. The confidence you gave on those exam days are magical... You changed the way we should see the life... Thank you Thank you Thank you 3:33 pm

You are God sent 3:34 pm

During Exam Time I feel like joining your mentoring is Fruitful and I Recommend to my friends and Juniors Aswell. Thankyou so much for your Constant Support Till The result day 😊

My name is Girish. I joined mentorship program for CA Final second group under Ravi Agarwal Sir. Under sir's guidance i cleared the group. I am very much thankful to Sir. Sir motivated me daily and always kept my confidence high. Sir will always be there to solve study related issues. Finally I want to say I am lucky that I got a mentor of Ravi Agarwal Sir

Sir thank you. In the last 1 month just with your daily motivation and reporting my study schedule I was able to complete revising my whole portion. 1:17 pm

During exams ur motivational msgs and after each exam motivation made me focus on all subjects equally even when some subjects were tough 1:18 pm

Thank you sir for making my dream a reality by keeping me positive throughout the whole process 1:19 pm

This motivation was the only source I could pump up my self for this. After 10 years (2013- IPCC), I have seen "Pass" on my result. The motivation audios and specially the WISHLIST, GRATITUDE STATEMENT, EXPECTED MARKS posters on my wall that were suggested by you Sir, helped a lot. You have been the true light in the darkness for me.
Finally, Group 2 pass. Going to attempt Group 1 this Nov'23.
Thank you so much Sir. 🙏 9:12 pm

I am so happy today as I cleared my CA final group 1 examination.
First of all want to thank CA Ravi Agarwal Sir for his mentoring program.
I joined for 60 days mentoring program why because this was my last attempt for Claiming SFM exemption. That means only one thing, have to clear my first group in may 2023 exam itself. I can't take risk at all anymore. So I joined Sirs mentoring program. The timetable provided for me according to my discretion and daily Sir used to motivate us, encourage Sir, scold us, cares us, just like our teacher, mentor, sometimes like friend that we can talk about our problems even other than studies.
Sir stood for me for that 60 days just like a member in my home.
During exams Sir just motivates us just like anything. After hearing the audio sir used to send both day before each exam and after exam helped me to keep myself motivated throughout my journey.
No words can express my gratitude towards Ravi Sir.
Now I am left with group 2. Want to join with Ravi Sir only throughout that journey.
Once again thank you soo much Sir for your support. 12:55 am

For u r motivation successful completed my CA journey. Finally I am a CA P Ragunathan. Thank u for u r effort and give motivation to me not only till exam and also 2 days before result. Thank u so much sir. 7:43 am

Sir passed group 2 under ur guidance 12:14 pm

Yes sir 4:50 pm

You've been so much more than a teacher for me sir. You've been our mentor, our support and our guide. Thank you for everything you have done for us! Ur mentorship program helps to clear my exam in this 4th attempt.. pleasure to have mentor like uhhh. Love uhh so much Ravi Sir, ur champion Harsh Mittal now become CA Finalist. 11:04 pm

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Chapter 9.6
FINANCING OF WORKING CAPITAL

Attempt wise Distribution

Q & A		
Attempts	Dec'21	May'23
RTP	Q2	Q1

Section A

Question 1

Kalyan limited has provided you the following information for the year 2021-22: By working at 60% of its capacity the company was able to generate sales of ₹ 72,00,000. Direct labour cost per unit amounted to ₹ 20 per unit. Direct material cost per unit was 40% of the selling price per unit. Selling price was 3 times the direct labour cost per unit. Profit margin was 25% on the total cost.

For the year 2022-23, the company makes the following estimates:

Production and sales will increase to 90% of itssssss capacity. Raw material per unit price will remain unchanged. Direct expense per unit will increase by 50%. Direct labour per unit will increase by 10%. Despite the fluctuations in the cost structure, the company wants to maintain the same profit margin on sales.

Raw materials will be in stock for one month whereas finished goods will remain in stock for two months. Production cycle is for 2 months. Credit period allowed by suppliers is 2 months. Sales are made to three zones:

Zone	Percentage of sale	Mode of Credit
A	50%	Credit period of 2 months
B	30%	Credit period of 3 months
C	20%	Cash Sales

There are no cash purchases and cash balance will be ₹ 1,11,000

The company plans to apply for a working capital financing from bank for the year 2022 - 23. ESTIMATE Net Working Capital of the Company receivables to be taken on sales and also COMPUTE the maximum permissible bank finance for the company using 3 criteria of Tandon Committee Norms. (Assume stock of finished goods to be a core current asset) (RTP May 23)

Answer 1

Cost Structure

		2021-22			2022-23	
Particulars	Calculations	P.U.	Amount (p.u. X units)	Calculations	P.U.	Amount (p.u. X units)
Direct Material	40% of SP	₹24	₹28,80,000	Same as PY	₹24	₹43,20,000

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Direct labour	Given	₹20	₹24,00,000	20*1.1	₹22	₹39,60,000
Direct Expenses	bal. fig.	₹4	₹4,80,000	4*1.5	₹6	₹10,80,000
Total Cost	SP - Profit	₹48	₹57,60,000		₹52	₹93,60,000
Profit	(SP/125x25)	₹12	₹14,40,000	52*25%	₹13	₹23,40,000
Sales	3 x Direct Labour p.u.	₹60	₹72,00,000		₹65	₹1,17,00,000
*units=		₹72,00,000 / ₹60 =1,20,000			1,20,000/60 x 90=1,80,000	

Operating Cycle

Raw material holding period	1 month
Finished Goods holding period	2 months
WIP conversion period	2 months
Creditor Payment Period	2 months
Receivables Collection Period	2/3 months

Estimation of Working Capital

Particulars	Calculation	Amount
Current Assets		
Stock of Raw Material	43,20,000 x 1/12	₹3,60,000
Stock of WIP		
RM cost	₹43,20,000	
Labour cost	₹19,80,000	
Direct Exp cost	₹5,40,000	
Total WIP Cost	₹68,40,000	
Stock of WIP	68,40,000 x 2/12	₹11,40,000
Stock of Finished Goods	93,60,000 x 2/12	₹15,60,000
Receivables (on sales)		
A	1,17,00,000 x 50% x 2/12	₹9,75,000
B	1,17,00,000 x 30% x 3/12	₹8,77,500
C	NIL	-
Cash Balance	Given	₹1,11,000
Total Current Assets		₹ 50,23,500
Current Liabilities		
Payables	*₹44,40,000 x 2/12	₹7,40,000

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Net Working Capital		₹ 42,83,500

Opening RM stock = 28,80,000 x 1/12= ₹2,40,000
* RM purchased = RM consumed – Opening Stock + Closing Stock
= ₹43,20,000 – ₹2,40,000 + ₹3,60,000
= ₹44,40,000

Computation of Maximum Permissible Bank Finance

Method	Formula	Calculation	₹
I	75% x (Current Assets- Current Liabilities)	75% x (₹50,23,500 - ₹7,40,000)	₹32,12,625
II	75% x Current Assets- Current Liabilities	75% x ₹50,23,500 - ₹7,40,000	₹30,27,625
III	75% x (Current Assets-Core CA)- Current Liabilities	75% x (₹50,23,500- ₹15,60,000) - ₹7,40,000	₹18,57,625

Question 2

Sundaram limited a plastic manufacturing company had invested enormous amount of money in a new expansion project. Due to such a great amount of capital investment, Company needs an additional ₹ 2,00,00,000 in working capital immediately. The CFO has determined the following three feasible sources of working capital funds:

Bank Loan: The company's bank will lend ₹2,30,00,000 at 12% per annum. However, the bank will require 15% of the loan granted to be kept in a current account as the minimum average balance which otherwise would have been just ₹ 50,000.

Trade Credit: A major supplier with 2/20 net 80 credit terms has approached for supply of raw material worth ₹1,90,00,000 p.m.

Factoring: factoring firm will buy the companies receivables of ₹ 2,50,00,000 per month, which have a collection period of 60 days. factor will advance up to 75% of the face value of the receivables at 14 percent per annum. Factor Commission will amount to 2% on all receivables purchased. Factoring will save credit department expense and bad debts of ₹ 1,75,000 p.m. and ₹ 2,25,000 p.m.

Based on annual percentage cost, ADVISE which alternative should the company select. Assume 360 days a year (MTP 5 Marks April '23, RTP Nov '21)

Answer 2

(i) **Bank Loan:** As the minimum average balance more than ₹ 50,000 need not be kept if loan is not undertaken, the incremental money made available by bank through bank loan is ₹ 2,30,00,000- (15% x ₹ 2,30,00,000-₹ 50,000) = ₹ 1,96,00,000. Real annual cost of bank loan = (₹ 2.3 crores x 12%) / ₹ 1.96 crores = 14.08%.

(ii) **Trade Credit**: The real annual cost of trade credit will be 2/98 x 360/60 x 100 = 12.24%.

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(iii) **Factoring:**

Commission charges per year = 2% x 2.5 crores x 12 = ₹ 60,00,000 Savings per year = (1,75,000+2,25,000) x 12 = ₹ 48,00,000

Net Factoring cost per year = ₹ 60,00,000 – ₹ 48,00,000 = ₹12,00,000 Annual cost of borrowing ₹ 2.5 crores x 75% i.e. ₹ 1,87,50,000 will be

$\frac{1,87,50,000\ X\ 14\% + Rs.12,00,000}{1,87,50,000}$ = 20.4%

Conclusion: The company should select trade credit as a preferred mode of financing the working capital requirement as it results in lowest cost on an annual basis.

Section B

1. The credit terms may be expressed as "3/15 net 60". This means that a 3% discount will be granted if the customer pays within 15 days, if he does not avail the offer, he must make payment within 60 days.

a) I agree with the statement

b) I do not agree with the statement

c) I cannot say.

Ans: a

2. The term 'net 50' implies that the customer will make payment:

a) Exactly on 50th day

b) Before 50th day

c) Not later than 50th day

d) None of the above.

Ans: c

3. Trade credit is a source of :

a) Long-term finance

b) Medium term finance

c) Spontaneous source of finance

d) None of the above.

Ans: c

4. The term float is used in:

a) Inventory Management

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b) Receivable Management

c) Cash Management

d) Marketable securities.

Ans: c

5. William J Baumol's model of Cash Management determines optimum cash level where the carrying cost and transaction cost are:

a) Maximum

b) Minimum

c) Medium

d) None of the above.

Ans: b

6. In Miller – ORR Model of Cash Management:

a) The lower, upper limit, and return point of Cash Balances are set out

b) Only upper limit and return point are decided

c) Only lower limit and return point are decided

d) None of the above are decided.

Ans: a

7. Working Capital is defined as:

a) Excess of current assets over current liabilities

b) Excess of current liabilities over current assets

c) Excess of Fixed Assets over long-term liabilities

d) None of the above.

Ans: a

8. Working Capital is also known as "Circulating Capital, fluctuating Capital and revolving capital". The aforesaid statement is;

a) Correct

b) Incorrect

c) Cannot say.

Ans: a

9. The basic objectives of Working Capital Management are:

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a) Optimum utilization of resources for profitability

b) To meet day-to-day current obligations

c) Ensuring marginal return on current assets is always more than cost of capital

d) Select any one of the above statements.

Ans: b

10. The term Gross Working Capital is known as:

a) The investment in current liabilities

b) The investment in long-term liability

c) The investment in current assets

d) None of the above.

Ans: c

11. The term net working capital refers to the difference between the current assets minus current liabilities.

a) The statement is correct

b) The statement is incorrect

c) I cannot say.

Ans: a

12. The term "Core current assets' was coined by:

a) Chore Committee

b) Tandon Committee

c) Jilani Committee

d) None of the above.

Ans: b

13. The concept operating cycle refers to the average time which elapses between the acquisition of raw materials and the final cash realization. This statement is:

a) Correct

b) Incorrect

c) Partially True

d) I cannot say.

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Ans: a

14. As a matter of self-imposed financial discipline can there be a situation of zero working capital now-a-days in some of the professionally managed organizations.

a) Yes

b) No

c) Impossible

d) Cannot say.

Ans: a

15. Over trading arises when a business expands beyond the level of funds available. The statement is:

a) Incorrect

b) Correct

c) Partially correct

d) I cannot say.

Ans: b

16. A Conservative Working Capital strategy calls for high levels of current assets in relation to sales.

a) I agree

b) Do not agree

c) I cannot say.

Ans: a

17. The term Working Capital leverage refer to the impact of level of working capital on company's profitability. This measures the responsiveness of ROCE for changes in current assets.

a) I agree

b) Do not agree

c) The statement is partially true.

Ans: a

18. The term spontaneous source of finance refers to the finance which naturally

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arise in the course of business operations. The statement is:

a) Correct

b) Incorrect

c) Partially Correct

d) I cannot say.

Ans: a

19. Under hedging approach to financing of working capital requirements of a firm, each asset in the balance sheet assets side would be offset with a financing instrument of the same approximate maturity. This statement is:

a) Incorrect

b) Correct

c) Partially correct

d) I cannot say.

Ans: b

20. Trade credit is a:

a) Negotiated source of finance

b) Hybrid source of finance

c) Spontaneous source of finance

d) None of the above.

Ans: c

21. Factoring is a method of financing whereby a firm sells its trade debts at a discount to a financial institution. The statement is:

a) Correct

b) Incorrect

c) Partially correct

d) I cannot say.

Ans: a

22. A factoring arrangement can be both with recourse as well as without recourse:

a) True

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b) False

c) Partially correct

d) Cannot say.

Ans: a

23. The Bank financing of working capital will generally be in the following form. Cash Credit, Overdraft, bills discounting, bills acceptance, line of credit; Letter of credit and bank guarantee.

a) I agree

b) I do not agree

c) I cannot say.

Ans: a

24. When the items of inventory are classified according to value of usage, the technique is known as:

a) XYZ Analysis

b) ABC Analysis

c) DEF Analysis

d) None of the above.

Ans: b

25. When a firm advises its customers to mail their payments to special Post Office collection centers, the system is known as.

a) Concentration banking

b) Lock Box system

c) Playing the float

d) None of the above.

Ans: b

Theoretical Questions

Question 1

DISCUSS the factors to be taken into consideration while determining the requirement of working capital.

Answer 1

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Some of the factors which need to be considered while planning for working capital requirement are:

10. **Cash**: Identify the cash balance which allows for the business to meet day- to-day expenses but reduces cash holding costs (example - loss of interest on long term investment had the surplus cash invested therein).
11. **Inventory: Identify the level of inventory** which allows for uninterrupted production but reduces the investment in raw materials and hence increases cash flow. The techniques like Just in Time (JIT) and Economic order quantity (EOQ) are used for this.
12. **Receivables:** Identify the **appropriate credit policy**, i.e., credit terms which will attract customers, such that any impact on cash flows and the cash conversion cycle will be offset by increased revenue and hence Return on Capital (or vice versa). The tools like Early Payment Discounts and allowances are used for this.
13. **Short-term Financing Options:** Inventory is ideally financed by credit granted by the supplier. However, depending on the cash conversion cycle, it may be necessary to utilize a bank loan (or overdraft), or to "convert debtors to cash" through "factoring" in order to finance working capital requirements.
14. **Nature of Business:** For e.g. in a business of restaurant, most of the sales arein Cash. Therefore, need for working capital is very less. On the other hand, there would be a higher inventory in case of a pharmacy or a bookstore.
15. **Market and Demand Conditions:** For e.g. if an item's demand far exceeds its production, the working capital requirement would be less as investment in finished goods inventory would be very less with continuous sales.
16. **Technology and Manufacturing Policies:** For e.g. in some businesses the **demand for goods is seasonal**, in that case a business may follow a policy for steady production throughout the whole year or rather may choose a policy of production only during the demand season.
17. **Operating Efficiency:** A company can reduce the working capital requirement by **eliminating waste, improving coordination, process improvements** etc.
18. **Price Level Changes & Exchange Rate Fluctuations:** For e.g. **rising prices necessitate the use of more funds** for maintaining an existing level of activity.For the same level of current assets, higher cash outlays are required. Therefore,the effect of rising prices is that a higher amount of working capital is required. Another example would be unfavorable exchange rate movement in case of imported raw materials would warrant additional cost of same.

Question 2

DISCUSS the liquidity vs. profitability issue in management of working capital.

Answer 2

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For uninterrupted and smooth functioning of the day to day business of an entity, it is important to maintain liquidity of funds evenly. As we have already learnt in previous chapters that each rupee of capital bears some cost. So, while maintaining liquidity the cost aspect needs to be borne in mind. Also, a higher working capital may be intended to increase the revenue & hence profitability, but at the same time unnecessary tying up of funds in idle assets not only reduces the liquidity but also reduces the opportunity to earn better return from a productive asset. Hence, a trade-off is required between the liquidity and profitability which increases the profitability without disturbing the day to day functioning. This requires **3Es** as discussed above i.e. **economy** in **financing**, **efficiency in utilisation** and **effectiveness in achieving** the intended objectives.
The trade-off between the components of working capital can be summarised as follows:

Component of Working Capital	Advantages of higher side (Profitability)	Trade-off (between Profitability and Liquidity)	Advantages of lower side (Liquidity)
Inventory	Fewer stock-outs increase the profitability.	Use techniques like EOQ, JIT etc. to carry optimum level of inventory.	Lower inventory requires less capital but endangered stock-out and loss of goodwill.
Receivables	Higher Credit period attract customers and increase revenue	Evaluate the credit policy; use the services of debt management (factoring) agencies.	Cash sales provide liquidity but fails to boost sales and revenue (due to lower credit period)
Pre-payment of expenses	Reduces uncertainty and profitable in inflationary environment.	Cost-benefit analysis required	Improves or maintains liquidity.
Cash and Cash equivalents	Payables are honored in time, improves the goodwill and helpful in getting future discounts.	Cash budgets and other cash management techniques can be used	Cash can be invested in some other investment avenues

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Payables and Expenses	Capital can be used in some other investment avenues	Evaluate the credit policy and related cost.	Payables are honored in time, improves the goodwill and helpful in getting future discounts.

Question 3

DISCUSS the estimation of working capital need based on operating cycle process.

Answer 3

Operating cycle is one of the most reliable methods of Computation of Working Capital.However, other methods like ratio of sales and ratio of fixed investment may also be used to determine the Working Capital requirements. These methods are briefly explained as follows:

(i) **Current Assets Holding Period:** To estimate working capital needs based on the average holding period of current assets and relating them to costs based on the company's experience in the previous year. This method is essentially based on the Operating Cycle Concept.

(ii) **Ratio of Sales:** To estimate working capital needs as a ratio of sales on the assumption that current assets change with changes in sales.

(iii) **Ratio of Fixed Investments:** To estimate Working Capital requirements asa percentage of fixed investments.

A number of factors will, however, be impacting the choice of method of estimating Working Capital. Factors such as seasonal fluctuations, accurate sales forecast, investment cost and variability in sales price would generally be considered. The production cycle and credit and collection policies of the firm will have an impact on Working Capital requirements. Therefore, they should be given due weightagein projecting Working Capital requirements.

Question 4

EXPLAIN briefly the functions of Treasury Department

Answer 4

The treasury department have evolved in importance over number of years from being responsible for only cash handling issues to technical areas revolving around hedging forex risks, composition of capital structure etc. The fundamental tasks for which treasury department of any enterprise is responsible are :-

1. **Cash Management:** It involves efficient cash collection process and managing payment of cash both inside the organisation and to third parties.

   There may be complete centralization within a group treasury or the treasury may simply advise subsidiaries and divisions on policy matter viz., collection/payment periods, discounts, etc.
   Treasury will also manage surplus funds in an investment portfolio. Investment policy will consider future needs for liquid funds and acceptable levels of risk as determined by company policy.

2. **Currency Management:** The treasury department manages the foreign

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currency risk exposure of the company. In a large multinational company (MNC) the first step will usually be to set off intra-group indebtedness. The use of matching receipts and payments in the same currency will save transaction costs and also will save the organization from any unfavorable exchange movements. Accordingly, Treasury might advise on the currency to be used when invoicing overseas sales.

The treasury will manage any net exchange exposures in accordance with company policy. If risks are to be minimized then forward contracts can be used either to buy or sell currency forward.

3. **Fund Management:** Treasury department is responsible for planning and sourcing the company's short, medium and long-term cash needs. They also facilitate temporary investment of surplus funds by mapping the time gap between funds inflow and outflow. Treasury department will also participate in the decision on capital structure and forecast future interest and foreign currency rates.

4. **Banking:** It is important that a company maintains a good relationship with its bankers. Treasury department carry out negotiations with bankers with respectto interest rates, foreign exchange rates etc. and act as the initial point of contactwith them. Short-term finance can come in the form of bank loans or through the sale of commercial paper in the money market.

5. **Corporate Finance:** Treasury department is involved with both acquisition and divestment activities within the group. In addition, it will often have responsibility for investor relations. The latter activity has assumed increased importance in markets where share-price performance is regarded as crucial andmay affect the company's ability to undertake acquisition activity or, if the pricefalls drastically, render it vulnerable to a hostile bid.

Question 5

EXPLAIN Baumol's Model of Cash Management

Answer 5

William J. Baumol's Economic Order Quantity Model, (1952)

According to this model, optimum cash level is that level of cash where the carrying costs and transactions costs are the minimum.

The carrying costs refer to the cost of holding cash, namely, the opportunity cost or interest foregone on marketable securities. The transaction costs refer to the cost involved in getting the marketable securities converted into cash. This happens when the firm falls short of cash and has to sell the securities resulting in clerical, brokerage, registration and other costs.

The optimum cash balance according to this model will be that point where these two costs are minimum. The formula for determining optimum cash balance is:

$$C=\sqrt{\frac{2U\times P}{S}}$$

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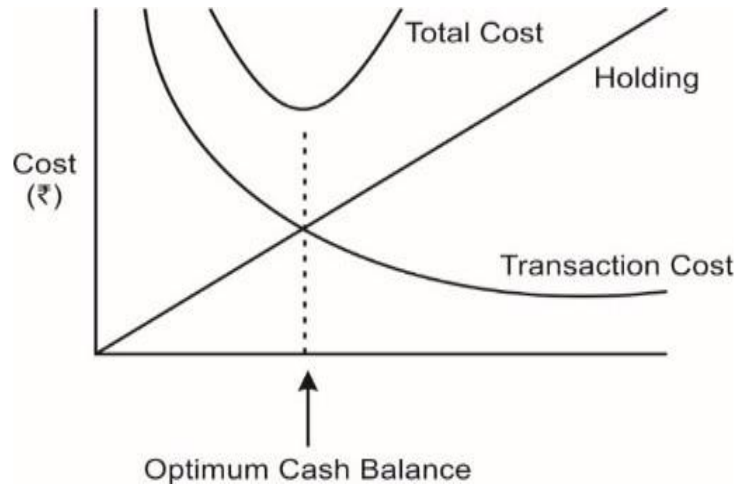
Where, C = Optimum cash balance
U = Annual (or monthly) cash disbursement

P = Fixed cost per transaction.
S = Opportunity cost of one rupee p.a. (or p.m.)This can be explained with the following diagram:



The model is based on the following assumptions:

(i) Cash needs of the firm are known with certainty.

(ii) The cash is used uniformly over a period of time and it is also known withcertainty.

(iii) The holding cost is known and it is constant.

(iv) The transaction cost also remains constant.

Question 6

STATE the advantage of Electronic Cash Management System.

Answer 6

Electronic-scientific cash management results in:

- Significant saving in time.
- Increase in interest earned & decrease in interest expense.
- Reduces paper-work & hence manpower.
- Greater accounting accuracy as it allows easy detection of book-keeping errors.
- More control over time and funds.
- Supports electronic payments.
- Faster transfer of funds from one location to another, where required.
- Speedy conversion of various instruments into cash.
- Making available funds wherever required, whenever required.

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- Reduction in the amount of 'idle float' to the maximum possible extent.
- Ensures no idle funds are placed at any place in the organization.
- It makes inter-bank balancing of funds much easier.
- It is a true form of centralized 'Cash Management'.
- Produces faster electronic reconciliation.
- Reduces the number of cheques issued.

Question 7

EXPLAIN with example the formula used for determining optimum cash balance according to Baumol's cash management model.

Answer 7

Same as Answer 30

Question 8

DISCUSS Miller-Orr Cash Management model.

Answer 8

Miller-Orr Cash Management Model (1966)

According to this model the net **cash flow is completely stochastic**.

When changes in cash balance occur randomly the application of control theory serves a useful purpose. The Miller-Orr model is one of such control limit models.

This model is designed to determine the time and size of transfers between an investment account and cash account. In this model control limits are set for cash balances. These limits may consist of h as upper limit, z as the return point; and zero as the lower limit.

- When the cash balance reaches the upper limit, the transfer of cash equal toh – z is invested in marketable securities account.
- When it touches the lower limit, a transfer from marketable securities account to cash account is made.
- During the period when cash balance stays between (h, z) and (z, 0) i.e. high and low limits no transactions between cash and marketable securities account is made.

The high and low limits of cash balance are set up on the basis of fixed cost associated with the securities transactions, the opportunity cost of holding cash and the degree of likely fluctuations in cash balances. These limits satisfy the demands for cash at the lowest possible total costs. The following diagram illustrates the Miller-Orr model.

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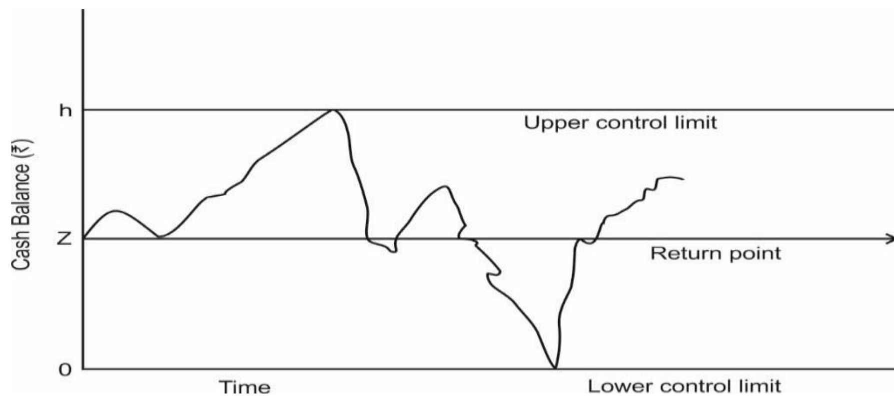
The MO Model is more realistic since it allows variations in cash balance within lower and upper limits. The finance manager can set the limits according to the firm's liquidity requirements i.e., maintaining minimum and maximum cash balance.



Question 9

EXPLAIN briefly the accounts receivable systems

Answer 9

Technological developments now-a-days provides an opportunity for improvement in accounts receivables process.The major innovations available are the integration of systems used in the management of accounts receivables, the automation and the use of e- commerce.

- **E-commerce** refers to the use of computer and electronic telecommunication technologies, particularly on an inter- organisational level, to support trading in goods and services. It uses technologies such as Electronic Data Inter-change (EDI), Electronic Mail, Electronic Funds Transfer (EFT) and Electronic Catalogue Systems to allow the buyer and seller to transact business by exchange of information between computer application systems such as Amazon,Flipkart etc.

(a) **Automated Accounts Receivable Management Systems**: Now-a- days all the big companies develop and maintain automated receivable management systems. Manual systems of recording the transactions and managing receivables are not only cumbersome but ultimately costly also. These integrated systems automatically update all the accounting records affected by a transaction. For example, if a transaction of credit sale is to be recorded, the system increases the amount the customer owes to the firm, reduces the inventory for theitem purchased, and records the sale. This system of a company allows the application and tracking of receivables and collections, using the automated receivables system allows the company to store important information for an unlimited number of customers and transactions, and accommodate efficient processing of customer payments and adjustments.

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Question 10

DESCRIBE Factoring.

Answer 10

Factoring is a relatively new concept in financing of accounts receivables. This refers to outright sale of accounts receivables to a factor or a financial agency. A factor is a firm that acquires the receivables of other firms. The factoring lays down the conditions of the sale in a factoring agreement. Thefactoring agency bears the risk of collection and services the accounts for a fee.

Factoring arrangement can be either on a recourse basis or on a non-recourse basis:

- **Recourse**: In case factor is unable to collect the amount from receivables then, factor can turn back the same to the organization for resolution (which generally is by replacing those receivables with new receivables)
- **Non-Recourse**: The factor bears the ultimate risk of loss in case of default and hence in such cases they charge higher commission.

There are a number of financial institutions providing factoring services in India. Some commercial banks and other financial agencies provide this service. The biggest advantages of factoring are the immediate conversion of receivables into cash and predicted pattern of cash flows. Financing receivables with the help of factoring can help a company having liquidity **without creating a net liability on its financial condition** and hence no impact on debt equity ratio. Besides, factoring is a flexible financial tool providing timely funds, efficient record keepings and effective management of the collection process. This is not considered as a loan. There is no debt repayment and hence no compromise to balance sheet, no long-term agreements or delays associated with other methods of raising capital. Factoring allows the firm to use cash for the growth needs of business.

Question 11

DESCRIBE the various forms of bank credit in financing the working capital of a business organization

Answer 11

The bank credit will generally be in the following forms:

- **Cash Credit:** This facility will be given by the banker to the customers by giving certain amount of credit facility on continuous basis. The borrower will not be allowed to exceed the limits sanctioned by the bank.
- **Bank Overdraft:** It is a short-term borrowing facility made available to the companies in case of urgent need of funds. The banks will impose limits on the amount they can lend. When the borrowed funds are no longer required they can quickly and easily be repaid. The banks issue overdrafts with a right to call them in at short notice.
- **Bills Discounting:** The Company which sells goods on credit will normally draw a bill on the buyer who will accept it and sends it to the seller of goods. The seller, in turn discounts the bill with his banker. The banker will generally earmark the discounting bill limit.
- **Bills Acceptance:** To obtain finance under this type of arrangement a company

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draws a bill of exchange on bank. The bank accepts the bill thereby promising to pay out the amount of the bill at some specified future date.

- **Line of Credit:** Line of Credit is a commitment by a bank to lend a certain amount of funds on demand specifying the maximum amount.
- **Letter of Credit:** It is an arrangement by which the issuing bank on the instructions of a customer or on its own behalf undertakes to pay or accept or negotiate or authorizes another bank to do so against stipulated documents subject to compliance with specified terms and conditions.
- **Bank Guarantees:** Bank guarantee is one of the facilities that the commercial banks extend on behalf of their clients in favour of third parties who will be the beneficiaries of the guarantees.

Practical problems

Question 1

Following information is forecasted by R Limited for the year ending 31st March, 2021:

	Balance as at 31st March, 2021 (` in lakh)	Balance as at 31st March, 2020 (` in lakh)
Raw Material	**65**	**45**
Work-in-progress	**51**	**35**
Finished goods	**70**	**60**
Receivables	**135**	**112**
Payables	**71**	**68**
Annual purchases of raw material (all credit)	**400**	
Annual cost of production	**450**	
Annual cost of goods sold	**525**	
Annual operating cost	**325**	
Annual sales (all credit)	**585**	

You may take one year as equal to 365 days. You are required to CALCULATE:

(i) **Net operating cycle period.**

(ii) **Number of operating cycles in the year.**

(iii) **Amount of working capital requirement.**

Answer 1

Working Notes:

1. **Raw Material Storage Period (R)**

$$= \frac{Average stock\ of\ raw material}{Average\ Cost\ of\ Raw\ Material\ Consumption per\ day} \times 365$$

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$$=\frac{\frac{Rs.45+Rs.65}{2}}{380}\times 365 = 52.83 \text{ or } 53 \text{days}$$

Annual Consumption of Raw Material = Opening Stock + Purchases -Closing Stock

= `45 + `400 – `65 = `380 lakh

2. Work – in - Progress (WIP) Conversion Period (W)

$$=\frac{Average stock\ of\ WIP}{Annual\ Cost\ of\ Production}\times 365$$

$$=\frac{\frac{Rs.35+Rs.51}{2}}{Rs.450}\times 365 = 34.87 \text{ or } 35 \text{ days}$$

3. Finished Stock Storage Period (F)

$$=\frac{Average\ Stock\ of\ Finished\ Goods}{Cost\ of\ Goods\ Sold}\times 365$$

$$\frac{\frac{Rs.60+Rs.70}{2}}{Rs.525}\times 365 = 45.19 \text{ or } 45 \text{ days.}$$

4. Receivables (Debtors) Collection Period (D)

$$=\frac{\text{AverageReceivables}}{\text{nnualCreditSales}}\times 365$$

$$=\frac{\frac{Rs.112+Rs.135}{2}}{Rs.585}\times 365 = 77.05 \text{ or } 7 \text{ days}$$

5. Payables (Creditors) Payment Period (C)

$$=\frac{\text{Average Payables formaterials}}{\text{Annual Credit purchases}}\times 365$$

$$\frac{\frac{Rs.68+Rs.71}{2}}{Rs.400}\times 365 = 63.41 \text{or } 64 \text{days}$$

(i) Net Operating Cycle Period

= R + W + F + D - C

= 53 + 35 + 45 + 77 – 64 = 146 days

(ii) Number of Operating Cycles in the Year

$$\frac{365}{\text{Operating Cycle Period}} = \frac{365}{146} = 2.5 \text{ times}$$

(iii) Amount of Working Capital Required

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$$\frac{\text{Annual Operating Cost}}{\text{Number of Operating Cycles}} = \frac{`325}{2.48} = `\ 130 \text{ lakh}$$

Question 2

The following data relating to an auto component manufacturing company is available for the year 2020-21:

Raw material held in storage	**20 days**
Receivables' collection period	**30 days**
Conversion process period	**10 days**
(raw material – 100%, other costs – 50% complete)	
Finished goods storage period	**45 days**
Credit period from suppliers	**60 days**
Advance payment to suppliers	**5 days**
Total cash operating expenses per annum	**Rs. 800 lakhs**

75% of the total cash operating expenses are for raw material. 360 days are assumed in a year.

You are required to CALCULATE:

(i) **Each item of current assets and current liabilities,**

(ii) **The working capital requirement, if the company wants to maintain a cash balance of Rs.10 lakhs at all times.**

Answer 2

Since WIP is 100% complete in terms of material and 50% complete in terms of other cost, the same has been considered for number of days for WIP inventory i.e. 10 days for material and 5 days for other costs respectively.

Particulars	For Raw Material	For Other Costs	Total
Cash Operating expenses	$\frac{75}{100} \times 800 = 600$	$\frac{25}{100} \times 800 = 200$	800.00
Raw Material Stock Holding	$\frac{20}{360} \times 600 = 33.33$	-	33.33
WIP Conversion	$\frac{10}{360} \times 600 = 16.67$	$\frac{5}{360} \times 200 = 2.78$	19.45

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Finished Goods Stock Holding	$\frac{45}{360} \times 600$=75	$\frac{45}{360} \times 200$=25	100.00
Receivable Collection Period	$\frac{30}{360} \times 600$=50	$\frac{30}{360} \times 200$=16.67	66.67
Advance to suppliers	$\frac{5}{360} \times 600$=8.33	-	8.33
Credit Period from suppliers	$\frac{60}{360} \times 600$=100	-	100.00

Computation of working capital

	₹ in lakhs
Raw Material Stock	33.33
WIP	19.45
Finished Goods stock	100.00
Receivables	66.67
Advance to Suppliers	8.33
Cash	10.00
	237.78
Less: Payables (Creditors)	100.00
Working capital	133.78

Question 3

The following figures and ratios are related to a company:

(i)	**Sales for the year (all credit)**	**` 90,00,000**
(ii)	**Gross Profit ratio**	**35 percent**
(iii)	**Fixed assets turnover (based on cost of goods sold)**	**1.5**
(iv)	**Stock turnover (based on cost of goods sold)**	**6**
(v)	**Liquid ratio**	**1.5:1**
(vi)	**Current ratio**	**2.5:1**
(vii)	**Receivables (Debtors) collection period**	**1 month**
(viii)	**Reserves and surplus to Share capital**	**1:1.5**
(ix)	**Capital gearing ratio**	**0.7875**

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(x)	Fixed assets to net worth	1.3 : 1

You are required to PREPARE:

(a) **Balance Sheet of the company on the basis of above details.**

(b) **The statement showing working capital requirement, if the company wants to make a provision for contingencies @15 percent of net working capital.**

Answer 3

Working Notes:

(i) Cost of Goods Sold = Sales – Gross Profit (35% of Sales)
= ` 90,00,000 – ` 31,50,000
= ` 58,50,000

(ii) Closing Stock = Cost of Goods Sold / Stock Turnover
= ` 58,50,000/6 = ` 9,75,000

(iii) Fixed Assets = Cost of Goods Sold / Fixed Assets Turnover
= ` 58,50,000/1.5
= ` 39,00,000

(iv) Current Assets and Current Liabilities Current Ratio = 2.5 and Liquid Ratio = 1.5 CA / CL = 2. … (i)

(CA – Inventories) / CL = 1.5 …(ii)

By subtracting equation (ii) from (i), we get,

Inventories / CL = 1

Current Liabilities = Inventories (stock) = ` 9,75,000

∴ Current Assets = ` 9,75,000 x 2.5 = ` 24,37,500

Or

Current Ratio / Quick Ratio = Current Assets / Quick Assets

2.5 / 1.5 = Current Assets / (Current Assets – Inventory)

	2.5/1.5 Current Assets – 2.5/1.5 x ` 9,75,000 = Current Assets	
	Hence, Current Assets = ` 24,37,500	
(v)	Liquid Assets (Receivables and Cash)	
		= Current Assets – Inventories (Stock)
		= ` 24,37,500 – ` 9,75,000
		= `14,62,500
(vi)	Receivables (Debtors)	= Sales × Debtors Collection period /12

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		= ` 90,00,000 × 1/12
		= ` 7,50,000
(vii)	Cash	= Liquid Assets – Receivables (Debtors)
		= `14,62,500 – ` 7,50,000 = ` 7,12,500
(viii)	Net worth	= Fixed Assets /1.3
		= ` 39,00,000/1.3 = ` 30,00,000

(ix) Reserves and Surplus

Reserves and Surplus / Share Capital = 1/1.5

Share Capital = 1.5 Reserves and Surplus … (i)

Now, Reserves and Surplus + Share Capital = Net worth … (ii)

From (i) and (ii), we get,

2.5 Reserves and Surplus = Net worth

Reserves and Surplus = ` 30,00,000 / 2.5 = ` 12,00,000

(x) Share Capital = Net worth – Reserves and Surplus

= ` 30,00,000 – ` 12,00,000

= ` 18,00,000

(xi) Long-term Debts

Capital Gearing Ratio = Long-term Debts / Equity Shareholders' Fund

Long-term Debts = ` 30,00,000 × 0.7875 = ` 23,62,500

(a) Balance Sheet of the Company

Particulars	Figures as the end of 31-03-2021 (`)	Figures as the end of 31-03-2020 (`)
I. EQUITY AND LIABILITIES		
Shareholders' funds		
(a) Share capital	18,00,000	-
(b) Reserves and surplus	12,00,000	-
Non-current liabilities		
(a) Long-term borrowings	23,62,500	-
Current liabilities	9,75,000	-
TOTAL	**63,37,500**	-
II. **ASSETS**		
Non-current assets		
Fixed assets	39,00,000	-

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Current assets		
Inventories	9,75,000	-
Trade receivables	7,50,000	-
Cash and cash equivalents	7,12,500	-
TOTAL	**63,37,500**	-

(b) Statement Showing Working Capital Requirement

		(`)	(`)
A.	Current Assets		
	(i) Inventories (Stocks)		9,75,000
	(ii) Receivables (Debtors)		7,50,000
	(iii) Cash in hand & at bank		7,12,500
	Total Current Assets		24,37,500
B.	Current Liabilities:		
	Total Current Liabilities		9,75,000
	Net Working Capital (A – B)		14,62,500
	Add: Provision for contingencies (15% of Net Working Capital)		2,19,375
	Working capital requirement		16,81,875

Question 4

PQ Ltd., a company newly commencing business in 2020-21 has the following projected Profit and Loss Account:

	(`)	**(`)**
Sales		**2,10,000**
Cost of goods sold		**1,53,000**
Gross Profit		**57,000**
Administrative Expenses	**14,000**	
Selling Expenses	**13,000**	**27,000**
Profit before tax		**30,000**
Provision for taxation		**10,000**
Profit after tax		**20,000**
The cost of goods sold has been arrived at asunder:		
Materials used	**84,000**	
Wages and manufacturing Expenses	**62,500**	
Depreciation	**23,500**	
	1,70,000	

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Less: Stock of Finished goods (10% of goods produced not yet sold)	**17,000**	
	1,53,000	

The figure given above relate only to finished goods and not to work-in- progress. Goods equal to 15% of the year's production (in terms of physical units) will be in process on the average requiring full materials but only 40% of the other expenses. The company believes in keeping materials equal to two months' consumption in stock.

All expenses will be paid one month in advance. Suppliers of materials will extend 1-1/2 months credit. Sales will be 20% for cash and the rest at two months' credit. 70% of the Income tax will be paid in advance in quarterly instalments. The company wishes to keep ` 8,000 in cash. 10% has to be added to the estimated figure for unforeseen contingencies.

PREPARE an estimate of working capital.

Note: All workings should form part of the answer.

Answer 4

Statement showing the requirements of Working Capital

Particulars	**(`)**	**(`)**
A. Current Assets:		
Inventory:		
Stock of Raw material (`96,600 × 2/12)	16,100	
Stock of Work-in-progress (As per Working Note)	16,350	
Stock of Finished goods (` 1,46,500 × 10/100)	14,650	
Receivables (Debtors) (`1,27,080 × 2/12)	21,180	
Cash in Hand	8,000	
Prepaid Expenses:		
Wages & Mfg. Expenses (` 66,250 × 1/12)	5,521	
Administrative expenses (` 14,000 × 1/12)	1,167	
Selling & Distribution Expenses (`13,000 × 1/12)	1,083	
Advance taxes paid {(70% of `10,000) × 3/12}	1,750	
Gross Working Capital	85,801	85,801
B. Current Liabilities:		
Payables for Raw materials (`1,12,700 × 1.5/12)	14,088	
Provision for Taxation (Net of Advance Tax)(`10,000 × 30/100)	3,00 0	
Total Current Liabilities	17,0	17,088

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	88	
C. Excess of CA over CL		68,713
Add: 10% for unforeseen contingencies		6,871
Net Working Capital requirements		75,584

Working Notes:

(i) Calculation of Stock of Work-in-progress

Particulars	**(`)**
Raw Material (` 84,000 × 15%)	12,600
Wages & Mfg. Expenses (`62,500 × 15% × 40%)	3,750
Total	16,350

(ii) Calculation of Stock of Finished Goods and Cost of Sales

Particulars	**(`)**
Direct material Cost [`84,000 + ` 12,600]	96,600
Wages & Mfg. Expenses [`62,500 + `3,750]	66,250
Depreciation	0
Gross Factory Cost	1,62,850
Less: Closing W.I.P	(16,350)
Cost of goods produced	1,46,500
Add: Administrative Expenses	14,000
	1,60,500
Less: Closing stock	(14,650)
Cost of Goods Sold	1,45,850
Add: Selling and Distribution Expenses	13,000
Total Cash Cost of Sales	1,58,850
Debtors (80% of cash cost of sales)	1,27,080

(iii) Calculation of Credit Purchase

Particulars	**(`)**
Raw material consumed	96,600
Add: Closing Stock	16,100
Less: Opening Stock	-
Purchases	1,12,700

Question 5

M.A. Limited is commencing a new project for manufacture of a plastic component. The following cost information has been ascertained for annual production of 12,000 units which is the full capacity:

	Costs per unit (`)
Materials	**40.00**
Direct labour and variable expenses	**20.00**

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Fixed manufacturing expenses	6.00
Depreciation	10.00
Fixed administration expenses	4.00
	80.00

The selling price per unit is expected to be ` 96 and the selling expenses ` 5 per unit, 80% of which is variable. In the first two years of operations, production and sales are expected to be as follows:

Year	Production (No. of units)	Sales (No. of units)
1	6,000	5,000
2	9,000	8,500

To assess the working capital requirements, the following additional information is available:

(a)	Stock of materials	2.25 months' average consumption
(b)	Work-in-process	Nil
(c)	Debtors	1 month's average sales.
(d)	Cash balance	` 10,000
(e)	Creditors for supply ofmaterials	1 month's average purchase during the year.
(f)	Creditors for expenses	1 month's average of all expenses duringthe year.

PREPARE, for the two years:

i. **A projected statement of Profit/Loss (Ignoring taxation); and**

ii. **A projected statement of working capital requirements.**

Answer 5

i. **M.A. Limited**

Projected Statement of Profit / Loss(Ignoring Taxation)

	Year 1	Year 2
Production (Units)	6,000	9,000
Sales (Units)	5,000	8,500
	(`)	(`)
Sales revenue (A) (Sales unit × ` 96)	4,80,000	8,16,000
Cost of production:		
Materials cost (Units produced × ` 40)	2,40,000	3,60,000
Direct labor and variable expenses (Units produced × ` 20)	1,20,000	1,80,000
Fixed manufacturing expenses (Production Capacity: 12,000 units ×	72,000	72,000

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` 6)		
Depreciation (Production Capacity : 12,000 units × ` 10)	1,20,000	1,20,000
Fixed administration expenses (Production Capacity : 12,000 units × ` 4)	48,000	48,000
Total Costs of Production	6,00,000	7,80,000
Add: Opening stock of finished goods (Year 1 : Nil; Year 2 : 1,000 units)	---	1,00,000
Cost of Goods available for sale (Year 1: 6,000 units; Year 2: 10,000 units)	6,00,000	8,80,000
Less: Closing stock of finished goods at average cost (year 1: 1000 units, year 2 : 1500 units) (Cost of Production × Closing stock/ unitsproduced)	(1,00,000)	(1,32,000)
Cost of Goods Sold	5,00,000	7,48,000
Add: Selling expenses – Variable (Salesunit × ` 4)	20,000	34,000
Add: Selling expenses -Fixed (12,000 units × ` 1)	12,000	12,000
Cost of Sales : (B)	5,32,000	7,94,000
Profit (+) / Loss (-): (A - B)	(-) 52,000	(+) 22,000

Working Notes:

1. Calculation of creditors for supply of materials:

	Year 1 (`)	Year 2 (`)
Materials consumed during the year	2,40,000	3,60,000
Add: Closing stock (2.25 month'saverage consumption)	45,000	67,500
	2,85,000	4,27,500
Less: Opening Stock	---	45,000
Purchases during the year	2,85,000	3,82,500
Average purchases per month(Creditors)	23,750	31,875

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2. Creditors for expenses:

	Year 1 (`)	Year 2 (`)
Direct labour and variable expenses	1,20,000	1,80,000
Fixed manufacturing expenses	72,000	72,000
Fixed administration expenses	48,000	48,000
Selling expenses (variable + fixed)	32,000	46,000
Total (including	2,72,000	3,46,000
Average per month	22,667	28,833

ii. Projected Statement of Working Capital requirements

	Year 1 (`)	Year 2 (`)
Current Assets:		
Inventories:		
- Stock of materials (2.25 month's average consumption)	45,000	67,500
- Finished goods	1,00,000	1,32,000
Debtors (1 month's average sales) (includingprofit)	40,000	68,000
Cash	10,000	10,000
Total Current Assets/ Gross working capital (A)	1,95,000	2,77,500
Current Liabilities:		
Creditors for supply of materials (Refer to working note 1)	23,750	31,875
Creditors for expenses (Refer to working note 2)	22,667	28,833
Total Current Liabilities: (B)	46,417	60,708
Estimated Working Capital Requirements: (A-B)	1,48,583	2,16,792

Projected Statement of Working Capital Requirement (Cash Cost Basis)

	Year 1 (`)	Year 2 (`)
(A) Current Assets		
Inventories:		

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	- Stock of Raw Material (6,000 units× `40 ×2.25/12); (9,000 units × `40 × 2.25 /12)	45,000	67,500
	- Finished Goods (Refer working note 3)	80,000	1,11,000
	Receivables (Debtors) (Refer working note 4)	36,000	56,250
	Minimum Cash balance	10,000	10,000
	Total Current Assets/ Gross working capital (A)	1,71,000	2,44,750
(B)	**Current Liabilities**		
	Creditors for raw material (Refer working note 1)	23,750	31,875
	Creditors for Expenses (Refer working note 2)	22,667	28,833
	Total Current Liabilities	46,417	60,708
	Net Working Capital (A – B)	1,24,583	1,84,042

Working Note:

1. Cash Cost of Production:

	Year 1 (`)	Year 2 (`)
Cost of Production as per projected Statement ofP&L	6,00,000	7,80,000
Less: Depreciation	1,20,000	1,20,000
Cash Cost of Production	4,80,000	6,60,000
Add: Opening Stock at Average Cost:	--	80,000
Cash Cost of Goods Available for sale	4,80,000	7,40,000
Less: Closing Stock at Avg. Cost $\left[\frac{Rs.\ 48,000 \times 100}{6,000}\right] : \left[\frac{Rs.\ 7,40,000 \times 100}{10,000}\right]$	(80,000)	(1,11,000)
Cash Cost of Goods Sold	4,00,000	6,29,000

1. Receivables (Debtors)

	Year 1 (`)	Year 2 (`)
Cash Cost of Goods Sold	4,00,000	6,29,000
Add : Variable Expenses @ `4	20,000	34,000
Add : Total Fixed Selling expenses(12,000 units × `1)	12,000	12,000

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Cash Cost of Debtors	4,32,000	6,75,000
Average Debtors	36,000	56,250

Question 6

Aneja Limited, a newly formed company, has applied to a commercial bankfor the first time for financing its working capital requirements. The following information is available about the projections for the current year:

Estimated level of activity: 1,04,000 completed units of production plus 4,000 units of work-in-progress. Based on the above activity, estimated cost perunit is:

Raw material	**` 80 per unit**
Direct wages	**` 30 per unit**
Overheads (exclusive of depreciation)	**` 60 per unit**
Total cost	**` 170 per unit**
Selling price	**` 200 per unit**

Raw materials in stock: Average 4 weeks' consumption, work-in-progress (assume 50% completion stage in respect of conversion cost) (materials issued at the start of the processing).

Finished goods in stock	**8,000 units**
Credit allowed by suppliers	**Average 4 weeks**
Credit allowed to debtors/receivables	**Average 8 weeks**
Lag in payment of wages	**Average 1.5 weeks**

Cash at banks (for smooth operation) is expected to be ` 25,000.

Assume that production is carried on evenly throughout the year (52 weeks)and wages and overheads accrue similarly. All sales are on credit basis only.
You are required to CALCULATE the net working capital required.

Answer 6

Calculation of Net Working Capital requirement:

	(`)	(`)
A. Current Assets:		
Inventories:		
- Raw material stock (Refer to Working note 3)	6,64,615	
- Work in progress stock (Refer to Working note 2)	5,00,000	
- Finished goods stock	13,60,000	

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(Refer to Working note 4)		
Receivables (Debtors) (Refer to Working note 5)	25,10,769	
Cash and Bank balance	25,000	
Gross Working Capital	50,60,384	50,60,384
B. Current Liabilities:		
Creditors for raw materials(Refer to Working note 6)	7,15,740	
Creditors for wages (Refer to Working note 7)	91,731	
	8,07,471	8,07,471
Net Working Capital (A - B)		42,52,913

Working Notes:

1. Annual cost of production

	(`)
Raw material requirements {(1,04,000 units × ` 80)+ `3,20,000}	86,40,000
Direct wages {(1,04,000 units × ` 30) + `60,000}	31,80,000
Overheads (exclusive of depreciation) {(1,04,000 × ` 60)+ `1,20,000}	63,60,000
Gross Factory Cost	1,81,80,000
Less: Closing W.I.P	(5,00,000)
Cost of Goods Produced	1,76,80,000
Less: Closing Stock of Finished Goods (`1,76,80,000 × 8,000/1,04,000)	(13,60,000)
Total Cash Cost of Sales	1,63,20,000

2. Work in progress stock

	(`)
Raw material requirements (4,000 units × ` 80)	3,20,000
Direct wages (50% × 4,000 units × ` 30)	60,000
Overheads (50% × 4,000 units × ` 60)	1,20,000

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	5,00,000

1. Raw material stock

It is given that raw material in stock is average 4 weeks' consumption. Since, the company is newly formed, the raw material requirement for production and work in progress will be issued and consumed during the year.

Hence, the raw material consumption for the year (52 weeks) is as follows:

	(`)
For Finished goods (1,04,000 × ` 80)	83,20,000
For Work in progress (4,000 × ` 80)	3,20,000
	86,40,000

Raw material stock

$\frac{.86,40,000}{52 \text{ week}} \times 4$ weeks =i.e. ` 6,64,615

2. **Finished goods stock:** 8,000 units @ ` 170 per unit = ` 13,60,000

3. **Debtors for sale:** $1,63,20,000 \times \frac{8}{52}$ = `25,10,769

4. **Creditors for raw material**:

Material Consumed (` 83,20,000 + ` 3,20,000)	` 86,40,000
Add: Closing stock of raw material	` 6,64,615
Purchases of Raw Material	` 93,04,615

Credit allowed by suppliers $= \frac{93,04,000}{52 \text{ week}} \times 4$ weeks =i.e. ` 7,15,740

5. **Creditors for wages**

Outstanding wage payment $= \frac{\text{Rs.}31,81,000}{52 \text{ week}} \times 1.5$ weeks =i.e. ` 91,731

Question 7

The management of Trux Company Ltd. is planning to expand its business and consults you to prepare an estimated working capital statement. The records of the company reveals the following annual information:

	(Rs)
Sales – Domestic at one month's credit	**18,00,000**
Export at three month's credit (sales price 10% below domestic price)	**8,10,000**

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Materials used (suppliers extend two months credit)	**6,75,000**
Lag in payment of wages – ½ month	**5,40,000**
Lag in payment of manufacturing expenses (cash) – 1 month	**7,65,000**
Lag in payment of Administration Expenses – 1 month	**1,80,000**
Selling expenses payable quarterly in advance	**1,12,500**
Income tax payable in four installments, of which one falls in the next financial year	**1,68,000**

Rate of gross profit is 20%. Ignore work-in-progress and depreciation.

The company keeps one month's stock of raw materials and finished goods (each) and believes in keeping Rs.2,50,000 available to it including the overdraft limit of Rs75,000 not yet utilized by the company.

The management is also of the opinion to make 10% margin for contingencies on computed figure.

You are required to PREPARE the estimated working capital statement for the next year.

Answer 7

Preparation of Statement of Working Capital Requirement for Trux Company Ltd.

	(₹)	(₹)
A. Current Assets		
(i) Inventories:		
Material (1 month) $\left[\frac{Rs. 6,75,000}{12\ months} \times 1\ month\right]$	56,250	
Finished goods (1 month) $\left[\frac{Rs. 21,60,000}{12\ months} \times 1\ month\right]$	1,80,000	2,36,250
(ii) Receivables (Debtors)		
For Domestic Sales $\left[\frac{Rs. 15,17,586}{12\ months} \times 1\ month\right]$	1,26,466	

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For Export Sales $\left[\frac{Rs.7,54,914}{12\ months} \times 1\ month\right]$		1,88,729	3,15,195
(iii)	Prepayment of Selling expenses $\left[\frac{Rs.1,12,500}{12\ months} \times 3\ month\right]$		28,125
(iii)	Cash in hand & at bank		1,75,000
	Total Current Assets		7,54,570
B.	**Current Liabilities:**		
(i)	Payables (Creditors) for materials (2months) $\left[\frac{Rs.6,75,000}{12\ months} \times 2\ month\right]$		1,12,500
(ii)	Outstanding wages (0.5 months) $\left[\frac{Rs.5,40,000}{12\ months} \times 0.5\ month\right]$		22,500
(iii)	Outstanding manufacturing expenses $\left[\frac{Rs.7,65,000}{12\ months} \times 1\ month\right]$		63,750
(iv)	Outstanding administrative expenses $\left[\frac{Rs.1,80,,000}{12\ months} \times 1\ month\right]$		15,000
(v)	Income tax payable		42,000
	Total Current Liabilities		2,55,750
	Net Working Capital (A – B)		4,98,820
Add:	10% contingency margin		49,882
	Total Working Capital required		5,48,702

Working Notes:

1. **Calculation of Cost of Goods Sold and Cost of Sales**

	Domestic (Rs)	Export (Rs)	Total (Rs)
Domestic Sales	18,00,000	8,10,000	26,10,000

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Less: Gross profit @ 20% on domestic sales and 11.11% on export sales (Working note-2)	3,60,000	90,000	4,50,000
Cost of Goods Sold	14,40,000	7,20,000	21,60,000
Add: Selling expenses (Working note-3)	77,586	34,914	1,12,500
Cash Cost of Sales	15,17,586	7,54,914	22,72,500

2. **Calculation of gross profit on Export Sales**

Let domestic selling price is Rs100. Gross profit is Rs.20, and then costper unit is Rs80

Export price is 10% less than the domestic price i.e. Rs 100– (1-0.1) = Rs 90Now, gross profit will be = Rs 90 – Rs.80 = Rs. 10

So, Gross profit ratio at export price will be = $\frac{Rs.10}{Rs.90} \times 100 = 11.11\%$

3. **Apportionment of Selling expenses between Domestic and Exports sales**:

Apportionment on the basis of sales value:

Domestic Sales $= \frac{Rs.1,12,500}{Rs.26,10,000} \times Rs.18,00,000 = Rs.77,586$

Exports Sales $= \frac{Rs.1,12,500}{Rs.26,10,000} \times Rs.18,10,000 = Rs.34,914$

4. Assumptions

   i. It is assumed that administrative expenses is related to production activities.

   ii. Value of opening and closing stocks are equal.

Question 8

The following information relates to Zeta Limited, a publishing company: The selling price of a book is ` 15, and sales are made on credit through a book club and invoiced on the last day of the month.Variable costs of production per book are materials (` 5), Labour (` 4), and overhead (` 2) The sales manager has forecasted the following volumes:

Month	**No. of Books**
November	**1,000**
December	**1,000**
January	**1,000**
February	**1,250**

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March	**1,500**
April	**2,000**
May	**1,900**
June	**2,200**
July	**2,200**
August	**2,300**

Customers are expected to pay as follows:

One month after the sale	**40%**
Two months after the sale	**60%**

The company produces the books two months before they are sold and the creditors for materials are paid two months after production. Variable overheads are paid in the month following production and are expected to increase by 25% in April; 75% of wages are paid in the month of production and 25% in the following month. A wage increase of 12.5% will take place on 1st March. The company is going through a restructuring and will sell one of its freehold properties in May for `25,000, but it is also planning to buy a new printing press in May for `10,000. Depreciation is currently `1,000 per month, and will rise to `1,500 after the purchase of the new machine. The company's corporation tax (of `10,000) is due for payment in March. The company presently has a cash balance at bank on 31 December 2020, of` 1,500. You are required to PREPARE a cash budget for the six months from Januaryto June, 2021.

Answer 8

Workings:

1. Sale receipts

Month	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**
Forecast sales (S)	1,000	1,000	1,000	1,250	1,500	2,000	1,900	2,200
	`	`	`	`	`	`	`	`
S×15	15,000	15,000	15,000	18,750	22,500	30,000	28,500	33,000
Debtors pay:								
1 month 40%		6,000	6,000	6,000	7,500	9,000	12,000	11,400
2 month 60%		-	9,000	9,000	9,000	11,250	13,500	18,000
	-	-	15,000	15,000	16,500	20,250	25,500	29,400

2. Payment for materials – books produced two months before sale

Month	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**
Qty produced	1,000	1,250	1,500	2,000	1,900	2,200	2,200	2,300

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(Q)								
	`	`	`	`	`	`	`	`
Materials (Q×5)	5,000	6,250	7,500	10,000	9,500	11,000	11,000	11,500
Paid (2 months after)	-	-	5,000	6,250	7,500	10,000	9,500	11,000

3. Variable overheads

Month	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Qty produced(Q)	1,000	1,250	1,500	2,000	1,900	2,200	2,200	2,300
	`	`	`	`	`	`	`	`
Var. overhead(Q×2)	2,000	2,500	3,000	4,000	3,800			
Var. overhead(Q×2.50)						5,500	5,500	5,750
Paid one month later		2,000	2,500	3,000	4,000	3,800	5,500	5,500

1. Wages payments

Month	Dec	Jan	Feb	Mar	Apr	May	Jun
Qty produced (Q)	1,250	1,500	2,000	1,900	2,200	2,200	2,300
	`	`	`	`	`	`	`
Wages (Q × 4)	5,000	6,000	8,000				
Wages (Q × 4.50)				8,550	9,900	9,900	10,350
75% thi smonth	3,750	4,500	6,000	6,412	7,425	7,425	7,762
25% thi smonth		1,250	1,500	2,000	2,137	2,475	2,475
		5,750	7,500	8,412	9,562	9,900	10,237

Cash budget – six months ended June

	Jan	Feb	Mar	Apr	May	Jun
	`	`	`	`	`	`
Receipts:						
Sales receipts	15,000	15,000	16,500	20,250	25,500	29,400

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Freehold property	-	-	-	-	25,000	-
	15,000	**15,000**	**16,500**	**20,250**	**50,500**	**29,400**
Payments:						
Materials	5,000	6,250	7,500	10,000	9,500	11,000
Var. overheads	2,500	3,000	4,000	3,800	5,500	5,500
Wages	5,750	7,500	8,412	9,562	9,900	10,237
Printing press	-	-	-	-	10,000	-
Corporation tax	-	-	10,000	-	-	-
	13,250	**16,750**	**29,912**	**23,362**	**34,900**	**26,737**
Net cash flow	1,750	(1,750)	(13,412)	(3,112)	15,600	2,663
Balance b/f	1,500	3,250	1,500	(11,912)	(15,024)	576
Cumulative cash flow	3,250	1,500	(11,912)	(15,024)	576	3,239

Question 9

From the information and the assumption that the cash balance in hand on 1st January 2021 is ` 72,500, PREPARE a cash budget. Assume that 50 per cent of total sales are cash sales. Assets are to be acquired in the months of February and April. Therefore, provisions should be made for the payment of ` 8,000 and ` 25,000 for the same. An application has been made to the bank for the grant of a loan of ` 30,000 and it is hoped that the loan amount will be received in the month of May. It is anticipated that a dividend of ` 35,000 will be paid in June. Debtors are allowed one month's credit. Creditors for materials purchased and overheads grant one month's credit. Sales commission at 3 per cent on sales is paid to the salesman each month.

Month	**Sales (`)**	**Materials Purchases (`)**	**Salaries & Wages(`)**	**Production Overheads (`)**	**Office and Selling Overheads (`)**
January	**72,000**	**25,000**	**10,000**	**6,000**	**5,500**
February	**97,000**	**31,000**	**12,100**	**6,300**	**6,700**
March	**86,000**	**25,500**	**10,600**	**6,000**	**7,500**
April	**88,600**	**30,600**	**25,000**	**6,500**	**8,900**
May	**1,02,500**	**37,000**	**22,000**	**8,000**	**11,000**
June	**1,08,700**	**38,800**	**23,000**	**8,200**	**11,500**

Answer 9

Cash Budget

	Jan `	Feb `	Mar `	Apr `	May `	June `	Total `

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Receipts							
Cash sales	36,000	48,500	43,000	44,300	51,250	54,350	2,77,400
Collections fromdebtors	-	36,000	48,500	43,000	44,300	51,250	2,23,050
Bank loan	-	-	-	-	30,000	-	30,000
Total	36,000	84,500	91,500	87,300	1,25,550	1,05,600	5,30,450
Payments							
Materials	-	25,000	31,000	25,500	30,600	37,000	1,49,100
Salaries an dwages	10,000	12,100	10,600	25,000	22,000	23,000	1,02,700
Production overheads	-	6,000	6,300	6,000	6,500	8,000	32,800
Office & selling overheads	-	5,500	6,700	7,500	8,900	11,000	39,600
Sales commission	2,160	2,910	2,580	2,658	3,075	3,261	16,644
Capital expenditure	-	8,000	-	25,000	-	-	33,000
Dividend	-	-	-	-	-	35,000	35,000
Total	12,160	59,510	57,180	91,658	71,075	1,17,261	4,08,844
Net cash flow	23,840	24,990	34,320	(4,358)	54,475	(11,661)	1,21,606
Balance, beginning of month	72,500	96,340	1,21,330	1,55,650	1,51,292	2,05,767	1,94,106
Balance, end ofmonth	96,340	1,21,330	1,55,650	1,51,292	2,05,767	1,94,106	3,15,712

Question 10

Consider the balance sheet of Maya Limited as on 31 December, 2020. The company has received a large order and anticipates the need to go to its bank to increase its borrowings. As a result, it has to forecast its cash requirements for January, February and March, 2021. Typically, the company collects 20 per cent of its sales in the month of sale, 70 per cent in the subsequent month, and 10 per cent in the second month after the sale. All sales are credit sales.

Equity & liabilities	**Amount (` in '000)**	**Assets**	**Amount (` in '000)**
Equity shares capital	**100**	**Net fixed assets**	**1,836**
Retained earnings	**1,439**	**Inventories**	**545**
Long-term borrowings	**450**	**Accounts receivables**	**530**

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Accounts payables	360	Cash and bank	50
Loan from banks	400		
Other liabilities	212		
	2,961		2,961

Purchases of raw materials are made in the month prior to the sale and amounts to 60 per cent of sales. Payments for these purchases occur in the month after the purchase. Labour costs, including overtime, are expected to be ` 1,50,000 in January, ` 2,00,000 in February, and ` 1,60,000 in March. Selling, administrative, taxes, and other cash expenses are expected to be ` 1,00,000 per month for January through March. Actual sales in November and December and projected sales for January through April are as follows (in thousands):

Month	`	Month	`	Month	`
November	500	January	600	March	650
December	600	February	1,000	April	750

On the basis of this information:

(a) **PREPARE a cash budget and DETERMINE the amount of additional bank borrowings necessary to maintain a cash balance of ` 50,000 at all times for the months of January, February, and March.**

(b) **PREPARE a pro forma balance sheet for March 31.**

Answer 10

a. Cash Budget **(in thousands)**

	Nov.	Dec.	Jan.	Feb.	Mar.
	`	`	`	`	`
Opening Balance **(A)**			**50**	**50**	**50**
Sales	500	600	600	1,000	650
Receipts:					
Collections, current month's sales			120	200	130
Collections, previous month's sales			420	420	700
Collections, previous 2 month's sales			50	60	60
Total **(B)**			**590**	**680**	**890**
Purchases		360	600	390	450
Payments:					
Payment for purchases			360	600	390
Labour costs			150	200	160
Other expenses			100	100	100

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Total **(C)**			**610**	**900**	**650**
Surplus/Deficit **(D) = (A + B – C)**			30	(170)	290
Minimum cash balance **(E)**			50	50	50
Additional borrowings **(F) = (E - D)**			20	220	(240)

	Jan.	**Feb.**	**Mar.**
	`	`	`
Additional borrowings	20	220	(240)
Cumulative borrowings (Opening balance of 400)	420	640	400

The amount of financing peaks in February owing to the need to pay for purchases made the previous month and higher labor costs. In March, substantial collections are made on the prior month's billings, causing largenet cash inflow sufficient to pay off the additional borrowings.

b. Pro forma Balance Sheet, 31st March, 2021

Equity & liabilities	**Amount (` in '000)**	**Assets**	**Amount (` in '000)**
Equity shares capital	100	Net fixed assets	1,836
Retained earnings	1,529	Inventories	635
Long-term borrowings	450	Accounts receivables	620
Accounts payables	450	Cash and bank	50
Loan from banks	400		
Other liabilities	212		
	3,141		3,141

Accounts receivable = Sales in March × 0.8 + Sales in February ×0.1
= `650 × 0.8 + `1,000 × 0.1 = `620

Inventories = ` 545 + Total purchases from January to March – Total sales from January to March ×0.6
= `545 + (`600 + `390 + `450) × (`600 + `1000 + `650) × 0.6 = `635

Accounts payable = Purchases in March = `450

Retained earnings = ` 1,439 + Sales – Payment for purchases – Labour costs and – Other expenses, all for January to March

= `1,439 + (`600 + `1000 + `650) – (`360 + `600 + `390) – (`150 + `200 + `160) – (`100 + `100 + `100) = `1,529

Question 11

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PQR Ltd. having an annual sale of ` 30 lakhs, is re-considering its present collection policy. At present, the average collection period is 50 days and the bad debt losses are 5% of sales. The company is incurring an expenditure of` 30,000 on account of collection of receivables. Cost of funds is 10 percent. The alternative policies are as under:

	Alternative I	Alternative II
Average Collection Period	**40 days**	**30 days**
Bad Debt Losses	**4% of sales**	**3% of sales**
Collection Expenses	**` 60,000**	**` 95,000**

DETERMINE the alternatives on the basis of incremental approach and state which alternative is more beneficial.

Answer 11

Evaluation of Alternative Collection Programmed

	Present Policy	**Alternative I**	**Alternative II**
	`	`	`
Sales Revenues	30,00,000	30,00,000	30,00,000
Average Collection Period (ACP) (days)	50	40	30
Receivables (Rs) $\left[sales \times \frac{ACP}{360}\right]$	4,16,667	3,33,333	2,50,000
Reduction in Receivables from Present Level (`)	–	83,334	1,66,667
Savings in Interest @ 10% p.a. **(A)**	–	` 8,333	` 16,667
% of Bad Debt Loss	5%	4%	3%
Amount (`)	1,50,000	1,20,000	90,000
Reduction in Bad Debts from Present Level **(B)**	–	30,000	60,000
Incremental Benefits from PresentLevel **(C) = (A) + (B)**	–	38,333	76,667
Collection Expenses (`)	30,000	60,000	95,000
Incremental Collection Expensesfrom Present Level **(D)**	–	30,000	65,000
Incremental Net Benefit **(C – D)**	–	` 8,333	` 11,667

Conclusion: From the analysis it is apparent that Alternative I has a benefit

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of ` 8,333 and Alternative II has a benefit of ` 11,667 over present level. Alternative II has a benefit of ` 3,334 more than Alternative I. Hence Alternative II is more viable.

(**Note:** In absence of Cost of Sales, sales has been taken for purpose of calculating investment in receivables. 1 year = 360 days.)

Question 12

As a part of the strategy to increase sales and profits, the sales manager of a company proposes to sell goods to a group of new customers with 10% risk of non-payment. This group would require one and a half months' credit and is likely to increase sales by ` 1,00,000 p.a. Production and Selling expenses amount to 80% of sales and the income-tax rate is 50%. The company's minimum required rate of return (after tax) is 25%. Should the sales manager's proposal be accepted? ANALYSE

Also COMPUTE the degree of risk of non-payment that the company should be willing to assume if the required rate of return (after tax) were (i) 30%, (ii) 40% and (iii) 60%.

Answer 12

Statement showing the Evaluation of Proposal

Particulars		`
A.	**Expected Profit:**	
	Net Sales	1,00,000
	Less: Production and Selling Expenses @ 80%	(80,000)
	Profit before providing for Bad Debts	20,000
	Less: Bad Debts @10%	(10,000)
	Profit before Tax	10,000
	Less: Tax @ 50%	(5,000)
	Profit after Tax	5,000
B.	**Opportunity Cost of Investment in Receivables**	(2,500)
C.	**Net Benefits (A – B)**	2,500

Advise: The sales manager's proposal should be accepted.

Working Note: Calculation of Opportunity Cost of Funds

Opportunity Cost = Total Cost of Credit Sales ×

$$\frac{\text{Collection period}}{12} \times \frac{\text{Required Rate of Return}}{100} \times = Rs..80,000 \times \frac{1.5}{12} \times \frac{25}{100} = Rs. 2,500$$

Statement showing the Acceptable Degree of Risk of Non-payment

Particulars	**Required Rate of Return**		
	30 %	**40 %**	**60 %**

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Sales	1,00,000	1,00,000	1,00,000
Less: Production and Sales Expenses	80,000	80,000	80,000
Profit before providing for Bad Debts	20,000	20,000	20,000
Less: Bad Debts (assume X)	X	X	X
Profit before tax	20,000 – X	20,000 – X	20,000 – X
Less: Tax @ 50%	(20,000 – X) 0.5	(20,000 – X) 0.5	(20,000 – X) 0.5
Profit after Tax	10,000 –0.5X	10,000 –0.5X	10,000 –0.5X
Required Return (given)	30% of 10,000*	40% of 10,000*	60% of 10,000*
	= `3,000	= `4,000	= `6,000

*Average Debtors = Total Cost of Credit Sales $\times \frac{\text{Collection period}}{12}$

= ` 80,000 $\times \frac{1.5}{12}$ = `10,000

Computation of the value and percentage of X in each case is as follows:

Case I 10,000 – 0.5x = 3,0000.5x

= 7,000

X = 7,000/0.5 = ` 14,000

Bad Debts as % of sales = ` 14,000/`1,00,000 × 100 = 14%

Case II	10,000 – 0.5x	= 4,000
	0.5x	= 6,000
	X	= 6,000/0.5 = ` 12,000
Bad Debts as % of sales ×100=12		= ` 12,000/`1,00,000
Case III	10,000 – 0.5x	= 6,000
	0.5x	= 4,000
	X	= 4,000/0.5 = ` 8,000

Bad Debts as % of sales = ` 8,000/`1,00,000 × 100 = 8%

Thus, it is found that the Acceptable Degree of risk of non-payment is 14%, 12%and 8% if required rate of return (after tax) is 30%, 40% and 60% respectively.

Question 13

Slow Payers are regular customers of Goods Dealers Ltd. and have approached

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the sellers for extension of credit facility for enabling them to purchase goods. On an analysis of past performance and on the basis of information supplied, the following pattern of payment schedule emerges in regard to Slow Payers:

Pattern of Payment Schedule	
At the end of 30 days	15% of the bill
At the end of 60 days	34% of the bill
At the end of 90 days	30% of the bill
At the end of 100 days	20% of the bill
Non-recovery	1% of the bill

Slow Payers want to enter into a firm commitment for purchase of goods of` 15 lakhs in 2020-21, deliveries to be made in equal quantities on the first day of each quarter in the calendar year. The price per unit of commodity is` 150 on which a profit of ` 5 per unit is expected to be made. It is anticipated by Goods Dealers Ltd., that taking up of this contract would mean an extra recurring expenditure of ` 5,000 per annum. If the opportunity cost of funds in the hands of Goods Dealers is 24% per annum, would you as the finance manager of the seller recommend the grant of credit to Slow Payers? ANALYSE. Workings should form part of your answer. Assume year of 365 days.

Answer 13

Statement showing the Evaluation of Debtors Policies

	Particulars	Proposed Policy `
A.	**Expected Profit:**	
	(a) Credit Sales	15,00,000
	(b) Total Cost	
	(i) Variable Costs	14,50,000
	(ii) Recurring Costs	5,000
		14,55,000
	(c) Bad Debts	15,000
	(d) Expected Profit [(a) – (b) – (c)]	30,000
B.	**Opportunity Cost of Investments in Receivables**	68,787
C.	**Net Benefits (A – B)**	(38,787)

Recommendation: The Proposed Policy should not be adopted since the net benefits under this policy are negative

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Working Note: Calculation of Opportunity Cost of Average Investments

$$\text{Opportunity Cost} = \text{Total Cost} \times \frac{\text{Collection period}}{365} \times \frac{\text{Rate of Return}}{100}$$

Particulars		15%	34%	30%	20%	Total
A.	Total Cost	2,18,250	4,94,700	4,36,500	2,91,000	14,40,450
B.	Collection period	30/365	60/365	90/365	100/365	
C.	Required Rate of Return	24%	24%	24%	24%	
D.	Opportunity Cost(A × B × C)	4,305	19,517	25,831	19,134	68,787

Question 14

PREPARE a working capital estimate to finance an activity level of 52,000 unitsa year (52 weeks) based on the following data:

Raw Materials - ` 400 per unit

Direct Wages - ` 150 per unit

Overheads (Manufacturing) - `200 per unit Overheads (Selling & Distribution) - `100 per unit

Selling Price - ` 1,000 per unit, Raw materials & Finished Goods remain in stock for 4 weeks, Work in process takes 4 weeks. Debtors are allowed 8 weeks for payment whereas creditors allow us 4 weeks.

Minimum cash balance expected is `50,000. Receivables are valued at Selling Price.

Answer 14

Cost Structure for 52,000 units	
Particulars	**Amount (`)**
Raw Material @ `400P	2,08,00,000
Direct Wages @ ` 150	78,00,000
Manufacturing Overheads @ ` 200	1,04,00,000
Selling and Distribution OH @ ` 100	52,00,000
Total Cost	4,42,00,000

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Sales @ ` 1,000	5,20,00,000

Particulars	Calculation	Amount (`)
A. Current Assets:		
Raw Material Stock	$2,08,00,000 \times 4/52$	16,00,000
Work in Progress (WIP) Stock**	$2,08,00,000 + \frac{(78,00,000 + 1,04,00,000)}{2} \times \frac{4}{52}$	23,00,000
Finished Goods Stock	$4,42,00,000 \times \frac{4}{52}$	34,00,000
Receivables	$5,20,00,000 \times \frac{8}{52}$	80,00,000
Cash		50,000
	Total Current Assets	1,53,50,000
B. Current Liabilities:		
Creditors	$2,08,00,000 \times \frac{4}{52}$	16,00,000
C. Working Capital Estimates (A-B)		**1,37,50,000**

Assuming that labour and overhead are incurred evenly throughout the year.

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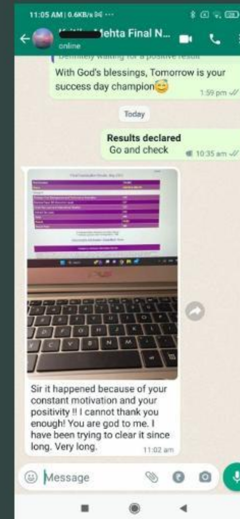

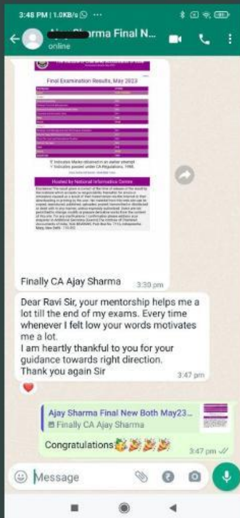

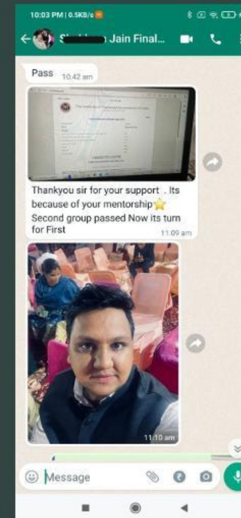

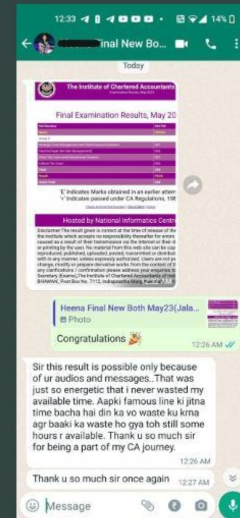

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Chapter 1
Introduction to strategic management

Attempt wise Distribution

MCQ													
Attempts	May' 18	Nov' 18	May' 19	Nov' 19	May' 20	Nov' 20	Jan' 21	Jul'21	Dec' 21	May' 22	Nov' 22	May' 23	Nov' 23
MTP			Q5,Q6,Q21, Q22,Q30, Q31,Q37, Q38	Q4, Q18		Q26, Q32		Q29	Q1, Q10, Q16	Q3, Q23, Q33	Q20	Q27	Q13, Q34, Q35
RTP			Q7,Q12, Q24	Q9, Q15		Q8, Q11, Q14, Q17, Q36			Q19, Q25		Q2		Q28
Q & A													
MTP	Q34, Q45		Q7			Q44		Q14, Q48	Q47		Q37	Q43	
PYP	Q50	Q1, Q12, Q51	Q46	Q21		Q29		Q6	Q49			Q4, Q10	
RTP	Q26, Q30, Q31, Q35, Q40	Q9, Q13, Q16, Q17, Q19, Q23, Q27	Q28,Q42	Q33, Q39		Q2, Q24, Q36		Q15	Q3, Q11	Q18, Q25	Q38, Q41	Q5, Q22, Q32	Q8, Q20

Section A

MULTIPLE CHOICE QUESTIONS

1. The philosophical base of strategic management falls within the concept of-

(a) Strategic Intent

(b) Portfolio Analysis

(c) Globalisation

(d) Vision Statement **(MTP 1 Mark Oct 21, Apr'22)**

Ans: (a)

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2. Jaipur Mart an online marketplace where people from all over Rajasthan come and sell their goods is charging zero commission for listing goods but they take 1% of the sales per month from the seller. It is defined as?

(a) Business Intent

(b) Business Idea

(c) Business Definition

(d) Business Model **(Nov'22)**

Ans :(d)

3. The statement "where we want to go "denotes company

(a) Objective

(b) Policy

(c) Strategy

(d) Vision **(MTP 1 Mark Mar '22)**

Ans: (c)

4. Which one is not the element of strategic intent?

(a) Business model

(b) Vision

(c) Business definition

(d) Business standard **(MTP Oct '19, 1 Mark)**

Ans: (d)

5. Objectives should be:

(i) Concrete and specific.

(ii) Related to time frame.

(iii) Standards for performance appraisal. Which of the above statements are true:

(a) (i) & (ii).

(b) (ii) & (iii).

(c) (i) & (iii).

(d) (i), (ii) and (iii) **(MTP-April '19, 1 Mark)**

Ans: (d)

6. An important activity in is taking corrective action.

(a) Strategy evaluation

(b) Strategy implementation

(c) Strategy formulation

(d) Strategy leadership **(March -19, 1 Mark)**

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Ans: (a)

7. **In the questions given below select the best answer out of options (a), (b), (c), or (d):**
Which of the following statement is not true with regards to strategy?
   (a) Strategy reduces uncertainty.
   (b) Strategy is long range blueprint of desired position.
   (c) Strategy relates organizations to the external environment.
   (d) Strategy is perfect and flawless. **(RTP May'19)**

Ans: (d)

8. **In the questions given below select the best answer out of options (a), (b), (c), or (d):**
   (i) **Strategy is-**
   (a) Proactive in action
   (b) Reactive in action
   (c) A blend of proactive and reactive actions
   (d) None of the above **(RTP May'20)**

Ans: (I) (c)

9. **In the questions given below select the best answer out of options (A), (B), (C), or (D): Which of the following statements correctly explain strategic management?**
   (i) **Strategic management provides framework for major decisions.**
   (ii) **Strategic management helps to enhance the longevity of the business.**
   (iii) **Strategic management is an inexpensive process.**
   (iv) **Strategic management helps organization to be more reactive than proactive.**
   (a) (I) and (ii)
   (b) (I), (ii) and (iii)
   (c) (I), (ii) and (iv)
   (d) (I), (iii) and (iv) **(RTP Nov'19)**

Ans: (a)

10. **Meba Ltd. had a huge capacity of 40,000 Kilo Litres production of Kerosene Oil, and they were able to achieve 90% of it almost always, while the teams were also aware that they can achieve 100% capacity with very less efforts, but always kept margins. Further, the business team was planning to setup two more plants of 20,000 Kilo Litre capacity each in the next five years. This was a welcomed move from state governments as well. From the above, which of the following aspects of objectives is missing by production team?**

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(a) They should be clear and quantifiable.

(b) They should be concise.

(c) They should be challenging.

(d) They should provide standard for comparative appraisal. **(MTP 2 Marks Nov'21)**

Ans: (c)

11. Which one is not the element of strategic intent?

(a) Business model

(b) Vision

(c) Business definition

(d) Business standard **(RTP May'20)**

Ans :(d)

12. Strategic decision making can take place at three common levels of an organization as follows:

(a) Divisional, group and individual.

(b) Executive, leader and manager.

(c) Corporate, business and functional.

(d) Strategic, tactical and operational. **(RTP May'19)**

Ans: (c)

13. What is one of the key purposes of having an organizational mission?

(a) Ensuring unanimity of purpose within the organization.

(b) Setting short-term operational goals.

(c) Providing a basis for marketing strategies.

(d) Specifying financial forecasts. **(MTP 1 Mark Oct '23)**

Ans: (a)

14. A person who searched for business opportunity and starts a new enterprise to make use of that opportunity called

(a) Employee

(b) Entrepreneur

(c) Entrepreneur

(d) Investor**(RTP Nov'20)**

Ans: (d)

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15. In the questions given below select the best answer out of options (A), (B), (C), or (D):
Statement that is typically focused on present business scope and broadly describes an organizations present capabilities, customer focus, activities, and business makeup is:

(a) Vision
(b) Mission
(c) Strategy
(d) Goals **(RTP Nov'19)**

Ans:(b)

16. The strategic landscape of healthcare sector around the world is changing rapidly because of-

(a) Doctors Educational Interests
(b) Indian Nurses going to abroad
(c) Internet and Technological advancement
(d) Patients being more aware **(MTP 1 Mark Nov'21)**

Ans: (c)

17. Strategic management allows an organization to be more:

(a) Authoritative
(b) Participative
(c) Commanding
(d) Proactive **(1 Mark May'20)**

Ans: (d)

18. Which of the following are responsible for formulating and developing realistic and attainable strategies?

(a) Corporate level and business level managers
(b) Corporate level and functional level managers
(c) Functional level managers and business level managers
(d) Corporate level managers, business level managers and functional level managers **(MTP Oct '19, 1 Mark)**

Ans: (d)

19. Drishti Care is a not-for profit eye hospital and research Centre. Which one of the following statements is likely to relate to Drishti Care's vision, rather than its mission statement?

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(a) Drishti Care places patient care before all else.

(b) Drishti Care will be the global leader in cutting edge eye surgery.

(c) Drishti Care offers the highest level of patient care throughout country.

(d) Drishti Care consultants strive to continually improve surgical techniques. **(RTP Nov'21)**

Ans: (b)

20. Shreya, the owner of Kalakaari boutiques, delegated tasks as per competencies of her team. What is she covering here?

(a) Risk

(b) Work Culture

(c) Employee friendly vision

(d) Proper use of mission statement **(MTP 1 Mark Sep'22)**

Ans:(d)

21. Which of the following statement is not true:

(a) Strategic environment is complex

(b) Strategic environment is turbulent.

(c) High cost of strategy makes them useless for charitable organization.

(d) Public sector units should implement business strategy **(MTP-April '19, 1 Mark)**

Ans: (c)

22. Strategy helps in:

(a) Unravelling complexity

(b) Reduce uncertainty

(c) Relate the goals with the resources.

(d) All of Above. **(MTP-April '19, 1 Mark)**

Ans: (d)

23. Greg was heading the Global Biscuits SBU for Jonky's Ltd. and he got an email congratulating him for being promoted as the head of entire business of Jonky's in India. Which of the following statements is true about Greg's position?

(a) Greg was a business level manager but now he is a corporate level manager

(b) Greg was a functional level manager but now he is a corporate level manager

(c) Greg was a business level manager and now also he is a business level manager

(d) Greg was a corporate level manager and now also he is a corporate level manager **(2 Marks March '22)**

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Ans: (a)

24. Which of the following statement is not true about strategic decisions?

(a) They need top-management involvement.

(b) Involve commitment of organizational resources.

(c) They are based on external environment

(d) They have insignificant impact on the long-term prosperity **(RTP May'19)**

Ans: (d)

25. An organization during its strategy planning envisaged entire scenarios and created a strategy framework. But in mean time after implementation, it realized that its framework is not effective in certain unique scenarios. What is the reason for the same?

(a) Strategy is "partly proactive and Partly reactive"

(b) Lack of analysis and proper planning.

(c) Strategy is highly reactive and highly proactive.

(d) Improper creation of strategic framework. **(RTP Nov'21)**

Ans: (a)

26. Members of Infinite Care, an NGO, have met and determined that they need to for mulate a philosophical basis for their activities. Thereby they have come up with a statement:- "Provide children till age 12, living in homeless or low-income situations, with the essential items they need to thrive – at home, at school and at play" Identify the area of strategic intent, which the members have stated?

(a) Vision

(b) Business Definition

(c) Goal and Objective

(d) Mission **(MTP 2 Marks Oct 20)**

Ans: (d)

27. Which one of the following, focuses on present business scope- 'who we are and what we do'?

(a) Mission Statement

(b) Vision Statement

(c) Goals and objectives

(d) Purpose **(MTP 1 Mark April '23)**

Ans: (a)

28. Which one of the following cannot be considered as a part of proactive approach

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in strategy? (RTP Nov'23)

(a) Planned strategy

(b) Deliberate management design

(c) Forecast about future market condition

(d) Adaptive reactions to changing circumstances

Ans: (d)

29. Which of the following is correct?

a) Strategy is always pragmatic and not flexible

b) Strategy is not always perfect, flawless and optimal

c) Strategy is always perfect, flawless and optimal

d) Strategy is always flexible but not pragmatic **(1 Mark March '21)**

Ans: (b)

30. Mission

(a) is an internally-focused definition of the organization's societal goals

(b) is a statement of a firms unique purpose and scope of operations

(c) does not limit the firm by specifying the industry in which the firm intends to compete

(d) is developed by a firm before the firm develops its strategic intent. **(MTP 1 Mark April 19, RTP May'19)**

Ans: (a)

31. What can be defined as the art and science of formulating, implementing and evaluating cross functional decisions that enable an organization to achieve its objectives?

(a) Strategy formulation

(b) Strategy evaluation

(c) Strategy implementation

(d) Strategic management **(MTP- March '19, 1 Mark)**

Ans: (d)

32. Which of the following is correct?

(b) Strategy is always pragmatic and not flexible

(c) Strategy is not always perfect, flawless and optimal

(d) Strategy is always perfect, flawless and optimal

(e) Strategy is always flexible but not pragmatic **(1 Mark May 20, Mar'21)**

Ans: (b)

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33. **Bank had strategically decided to setup a separate office in Mumbai back in 2016, specifically to invest in crypto currencies and in development of robust block chain facilities. Which importance of strategic management did BBL Bank made use of?**

    (a) Gives direction to the management of the company

    (b) Helps to be proactive instead of being reactive

    (c) Provides a framework for all major future decisions

    (d) Supports development of new SBUs like in this case separate office for Blockchain **(2 Marks April 22)**

Ans: (b)

34. **Imagine you are part of a strategic planning team for a company. As you work on defining the company's identity and its current business scope, which of the following elements primarily concentrates on answering the question, "Who we are and what we do?"**

    (a) Mission statement

    (b) Vision statement

    (c) Goals and Objectives

    (d) Purpose **(MTP 2 Marks Sep '23)**

Ans: (a)

35. **Mr. Prakash and Mr. Pal are partners in a thriving business venture. Recently, they have become aware of their employees' dissatisfaction with their working conditions. Mr. Prakash believes that the situation should be dealt with before the employees explode. Mr. Pal, on the other hand, believes that if the employees have an outburst, then they will handle it. Mr. Prakash and Mr. Pal business philosophy is:**

    (a) Reactive, Proactive

    (b) Reactive, Reactive

    (c) Proactive, Proactive

    (d) Proactive, Reactive **(MTP 2 Marks Oct '23)**

Ans: (d)

36. **In the questions given below select the best answer out of options (a), (b), (c), or (d):**

    (ii) Which of the following are responsible for formulating and developing realistic and attainable strategies?

    (a) Corporate level and business level managers

    (b) Corporate level and functional level managers

    (c) Functional managers and business level managers

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(d) Corporate level managers, business level managers and functional level managers **(RTP May'20)**

Ans: (d)

37. Which of these basic questions should a vision statement answer?

(a) What is our business?

(b) Who are our competitors?

(c) Where we are to go?

(d) Why do we exist? (**MTP 1 Mark March 19)**

Ans: (c)

38. Financial objectives involve all of the following except:

(a) Growth in revenues

(b) Larger market share

(c) Higher dividends

(d) Greater return on investment **(MTP 1 Mark March 19)**

Ans: (b)

Question & Answer

Question 1

Which of the following statements are correct and which are incorrect? Give reasons in brief for your answer.
Vision is one of the key elements of Strategic Intent. (PYP 2 Marks, Nov'18)

Answer 1

Correct: Vision implies the blueprint of the company's future position. It describes where the organization wants to land. It depicts the organization's aspirations and provides a glimpse of what the organization would like to become in future. Every sub system of the organization is required to follow its vision.

Question 2

Explain the difference between three levels of strategy formulation. (RTP May'20)

Answer 2

A typical large organization is a multidivisional organisation that competes in several different businesses. It has separate self-contained divisions to manage each of these. There are three levels of strategy in management of business -

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corporate, business, and functional.

The corporate level of management consists of the chief executive officer and other top level executives. These individuals occupy the apex of decision making within the organization. The role of corporate-level managers is to oversee the development of strategies for the whole organization. This role includes defining the mission and goals of the organization, determining what businesses it should be in, allocating resources among the different businesses and so on rests at the Corporate Level.

The development of strategies for individual business areas is the responsibility of the general managers in these different businesses or business level managers. A business unit is a self - contained division with its own functions - for example, finance, production, and marketing. The strategic role of business-level manager, head of the division, is to translate the general statements of direction and intent that come from the corporate level into concrete strategies for individual businesses.

Functional-level managers are responsible for the specific business functions or operations such as human resources, purchasing, product development, customer service, and so on. Thus, a functional manager's sphere of responsibility is generally confined to one organizational activity, whereas general managers oversee the operation of a whole company or division.

Question 3

How strategic decisions differ in nature from other routine decisions taken in day-to-day working of an organization? Explain. (RTP Nov'21)

Answer 3

Strategic decisions are different in nature than all other decisions which are taken at various levels of the organization during day-to-day working of the organizations. The major dimensions of strategic decisions are given below:

- Strategic issues require top management decisions.
- Strategic issues involve the allocation of large amounts of company resources.
- Strategic issues are likely to have a significant impact on the long term prosperity of the organization.
- Strategic issues are future oriented.
- Strategic issues usually have major multifunctional or multi-business consequences.
- Strategic issues necessitate consideration of factors in the organization's external environment.

Question 4

Strategic planning is an important constituent of strategic management. In the light of the same explain the meaning of strategic planning. Also outline the characteristics of strategic planning. (PYP 5 Marks May '23)

Answer 4

Yes, strategic planning is an important constituent of strategic management. It is a process of determining organizational strategy. It gives directions to the organization

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and involves making decisions and allocating resources to pursue the strategy. It is the formal blueprint of future course of an organization.

Strategic plans are made by the senior management for the entire organization after taking into account the organization strength and weaknesses in the light of opportunities and threats in the external environment. They involve acquisition and allocation of resources for the attainment of organizational objectives.

Strategic planning deals with one or more of three key questions:

- What are we doing?
- For whom do we do it?
- How to improve and excel?

Following are the characteristics of strategic planning:

- Strategic planning shapes the organisation and its resources.
- Strategic planning assesses the impact of environmental variables.
- Strategic planning takes a holistic view of the organisation.
- Strategic planning develops overall objectives and strategies.
- Strategic planning is concerned with the long-term success of the organisation.
- Strategic planning is a senior management responsibility.

Question 5

What benefits accrue by following a strategic approach to managing?(RTP May 23)

Answer 5

The following are the benefits of strategic approach to managing:

♦ Strategic management helps organisations to be more proactive instead of reactive in shaping its future. Organisations are able to analyse and take actions instead of being mere spectators. Thereby they are able to control their own destiny in a better manner. It helps them in working within vagaries of environment and shaping it, instead of getting carried away by its turbulence or uncertainties.

♦ Strategic management provides framework for all the major decisions of an enterprise such as decisions on businesses, products, markets, manufacturing facilities, investments and organisational structure. It provides better guidance to entire organisation on the crucial point - what it is trying to do.

♦ Strategic management is concerned with ensuring a good future for the firm. It seeks to prepare the corporation to face the future and act as pathfinder to various business opportunities. Organisations are able to identify the available opportunities and identify ways and means as how to reach them.

♦ Strategic management serves as a corporate defence mechanism against mistakes and pitfalls. It helps organisations to avoid costly mistakes in product market choices or investments. Over a period of time strategic management helps

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organisation to evolve certain core competencies and competitive advantages that assist in its fight for survival and growth.

Question 6

'ALBELA' Foods and 'Just BE' Foods are successfully competing chain of restaurants in India. ALBELA' s are known for their innovative approach, which has resulted in good revenues. On the other hand, Just BE is slow in responding to environmental change. The initial stages of Covid-19 pandemic and the ensuring strict lockdown had an adverse impact on both the companies. Realizing its severity and future consequences. ALBELA, foods immediately chalked out its post lockdown strategies, which include initiatives like:

(a) **Contactless dinning**
(b) **New category of foods in the menu for boosting immunity**
(c) **Improving safety measures and hygiene standards**
(d) **Introducing online food delivery app**

Seeing the positive buzz around these measures taken by ALBELA Food, Just BE Foods also thinks to introduce these measures.

(i) **Identify the strategic approach taken by 'ALBELA' Foods and 'Just BE' Foods.**
(ii) **Discuss these strategic· approach.**
(iii) **Which strategic approach is better and why? (PYP 5 Marks, July'21)**

Answer 6

i. ALBELA' foods are proactive in its approach. On the other hand, 'Just BE' foods are reactive in its approach.

- Proactive strategy is planned strategy. While continuing with the previously initiated business approaches that are working well, the newly launched managerial initiatives aim to strengthen the company's overall position and performance. These are outcomes of management's analysis and strategic thinking about the company's situation and its conclusions about the positioning of the company in the marketplace. If done well, it helps the company to effectively compete for buyer patronage.
- Reactive strategy is an adaptive reaction to changing circumstances. It is not always possible for a company to fully anticipate or plan for changes in the market. There is also a need to adapt strategy as new learnings emerge about which pieces of strategy are working well and which aren't. By itself also, the management may hit upon new ideas for improving the current strategy.

ii. In reference to the given case, proactive strategy seems to be better because ALBELA foods had been able to utilize available opportunities, reduce adverse impact, enhance the demand for product and is also able to avail the first mover advantage.

Question 7

Enumerate the task to be performed as a strategic manager of a company. (MTP-April '19, 5 Marks)

Answer 7

The primary tasks of the strategic manager is conceptualizing, designing and executing company strategies.

For this purpose, his tasks will include:

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- Defining the mission and goals of the organization.
- Determining what businesses it should be in.
- Allocating resources among the different businesses.
- Formulating strategies.
- Implementing strategies.
- Providing leadership for the organization.

Question 8

Falguni, CFO of Warships Advertisement Agency, stated that strategic management helps the organisation to develop certain core competencies and competitive advantages that facilitate management in the turbulent environment. Do you agree, if yes, then what and how does it facilitate in? (RTP Nov '23)

Answer 8

Yes, strategic management plays a crucial role in an organization's survival and growth, particularly in a turbulent environment. It provides the framework for developing and leveraging core competencies and competitive advantages that enable the organization to not only withstand challenges but also seize opportunities for expansion and success.

- **Survival:** In a turbulent environment characterized by rapid changes, uncertainties, and challenges, strategic management helps an organization adapt and respond effectively. By developing core competencies and competitive advantages, an organization becomes better equipped to navigate unexpected disruptions and stay relevant in the market.
- **Growth**: Strategic management goes beyond survival. It enables an organization to identify opportunities, innovate, and create value for its customers. By leveraging core competencies and competitive advantages, the organization can capture market share, expand its offerings, and achieve sustained growth.

Question 9

Essentials of a strategic vision. (RTP Nov'18)

Answer 9

Essentials of a strategic vision:

- ♦ The entrepreneurial challenge in developing a strategic vision is to think creatively about how to prepare a company for the future.
- ♦ Forming a strategic vision is an exercise in intelligent entrepreneurship.
- ♦ A well-articulated strategic vision creates enthusiasm among the members of the organization.
- ♦ The best-worded vision statement clearly illuminates the direction in which organization is headed.

Question 10

"Management at all levels develop strategies". Explain the different strategies

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formulated at different levels of management. (PYP 5 Marks May '23)

Answer 10

At diferent levels of management, various strategies are formulated to align with organizational goals and objectives which are as follows:

Corporate-Level Strategies: At the highest level of management, corporate-level strategies are developed. These strategies focus on the overall direction and scope of the entire organization. Major corporate-level strategies include Stability strategies, Growth strategies, Retrenchment strategies and Combination strategies.

Business-Level Strategies: Business-level strategies are developed by middle-level management and focus on individual business units or divisions within the organization. These strategies aim to achieve competitive advantage within specific markets. Common business-level strategies include Cost Leadership, Differentiation and Focus strategies.

Functional-Level Strategies: Functional-level strategies are formulated by lower-level management or department heads responsible for specific functional areas, such as marketing, finance, operations, or human resources. These strategies align with business-level strategies and focus on achieving functional objectives. These strategies include Marketing strategies, Financial strategies, Operations strategies, Research & Development strategy and Human Resource strategies.

In conclusion, management at all levels develops strategies that align with the organization's goals. Corporate-level strategies determine the overall direction, business-level strategies focus on competitive advantage within specific markets, and functional-level strategies aim to achieve functional objectives in support of the broader strategies.

Question 11

Mr. Mehta sharing with his friend in an informal discussion that he has to move very cautiously in his organization as the decisions taken by him has organization wide impact and involves large commitments of resources. He also said that his decisions decide the future of his organization. Where will you place Mr. Mehta in the organizational hierarchy and explain his role in the organization. (RTP Nov'21)

Answer 11

Mr. Mehta works in an organization at top level. He participates in strategic decision making within the organization. The role of corporate-level managers is to oversee the development of strategies for the whole organization. This role includes defining the mission and goals of the organization, determining what businesses it should be in, allocating resources among the different businesses, formulating and implementing strategies that span individual businesses, and providing leadership for the organization.

Question 12

List the different strategic levels in an organization. (PYP 2 Marks, Nov'18)

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Answer 12

There are three main strategic levels in an organization:

- Corporate level – consisting of CEO, Board of Directors and other senior executives.
- Business level – Divisional Managers and staff.
- Functional level – Functional Managers – Marketing, Finance, Production, Human Resource.

Question 13

'Objectives' and 'Goals' provide meaning and sense of direction to organizational endeavor. Explain. (RTP Nov'18)

Answer 13

Business organizations translate their vision and mission into objectives. Objectives are open-ended attributes that denote the future states or outcomes. Goals are close-ended attributes which are precise and expressed in specific terms. Thus, the goals are more specific and translate to objectives to short term perspective.
All organizations have objectives. The pursuit of objectives is an unending process such that organizations sustain themselves. They provide meaning and sense of direction to organizational endeavor. Organizational structure and activities are designed and resources are allocated around the objectives to facilitate their achievement. They also act as benchmarks for guiding organizational activity and for evaluating how the organization is performing.

Question 14

Kamal Sweets Corner, a very popular sweets shop in Ranchi, was facing tough competition from branded stores of packaged sweets and imported goods. The owners realised that their business reduced by 50% in the last six months, and this created a stressful business environment for them. To find a solution, they consulted a business consultant to help them develop a strategy to fight competition and sustain their century old family business. The business consultant advised them to innovate a new snack for the public and market it as a traditional snack of the region. The owners liked the idea and developed a new snack called Dahi Samosa, which very quickly became popular amongst the public and it helped regain the lost business of Kamal Sweets Corner.
One of the very crucial importance of strategic management was used by the business consultant to help the owners of Kamal Sweets Corner. Which one could it be? Also, was this strategy Reactive or Proactive? According to you who are more beneficial in general parlance? (MTP 5 Marks April 21)

Answer 14

The strategy used here was of developing a competitive advantage via product which helped Kamal Sweets Corner regain their lost business. This is also one of the major importance cum advantage of strategic management, that is helps to develop core competencies and competitive advantages to overcome competition.

This strategy was a Reactive strategy. Wherein, the owners saw their business fall to 50% of revenue and then seeking a strategic advisory. They did not plan proactively as to when the new shops were already opening. They reacted only when the business started to lose up.

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Generally, it is always beneficial to develop strategies proactively, so that the dip in businesses is small and manageable, and even if they are huge, the management has ample time to fix it.

Question 15

Dharma Singh, the procurement department head of Cyclic, a mountain biking equipment company, was recently promoted to look after sales department along with procurement department. His seniors at the corporate level have always liked his way of leadership and are assures that he would ensure the implementation of policies and strategies to the best of his capacity but have never involved him in decision making for the company.
Do you think this is the right approach? Validate your answer with logical reasoning around management levels and decision making. (RTP May'21)

Answer 15

Functional managers provide most of the information that makes it possible for business and corporate level managers to formulate realistic and attainable strategies.
This is so because functional managers like Dharma Singh are closer to the customer than the typical general manager is. A functional manager may generate important ideas that subsequently may become major strategies for the company. Thus, it is important for general managers to listen closely to the ideas of their functional managers and invoice them in decision making.
An equally great responsibility for managers at the operational level is strategy implementation: the execution of corporate and business level plans, and if they are involved in formulation, the clarity of thoughts while implementation can benefit too.
Thus, the approach of Cylix Corporate management is not right. They should involve Dharma Singh, as well as other functional managers too in strategic management.

Question 16

Define the role of corporate level managers. (Nov'18)

Answer 16

Corporate-level managers participate in strategic decision making within the organization. The role of corporate-level managers is to oversee the development of strategies for the whole organization. This role includes defining the mission and goals of the organization, determining what businesses it should be in, allocating resources among the different businesses, formulating and implementing strategies that span individual businesses, and providing leadership for the organization.

Question 17

What is strategic vision? (RTP Nov'18, PYP 2 Marks May'18)

Answer 17

A strategic vision delineates organisation's aspirations for the business, providing a panoramic view of the position where the organisation is going. A strategic vision points an organization in a particular direction, charts a strategic path for it to follow in preparing for the future, and moulds organizational identity. A Strategic vision is a road map of a company's future – providing specifics about technology and customer focus,

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the geographic and product markets to be pursued, the capabilities it plans to develop, and the kind of company that management is trying to create.

Question 18

What are 'objectives'? What characteristics it must possess to be meaningful? (RTP May'22)

Answer 18

Objectives are organizations performance targets — the results and outcomes it wants to achieve. They function as yardstick for tracking an organization's performance and progress.

Objectives with strategic focus relate to outcomes that strengthen an organization's overall business position and competitive vitality. Objectives, to be meaningful to serve the intended role, must possess the following characteristics:

- Objectives should define the organization's relationship with its environment.
    - **Objectives should be facilitative towards achievement of mission and purpose.**
    - **Objectives should provide the basis for strategic decision-making.**
    - **Objectives should provide standards for performance appraisal.**
    - **Objectives should be understandable.**
- Objectives should be concrete and specific.
- Objectives should be related to a time frame.
- Objectives should be measurable and controllable.
- Objectives should be challenging.
- Different objectives should correlate with each other.
- Objectives should be set within constraints.

Question 19

Yummy Foods and Tasty Foods are successfully competing in the business of ready to eat snacks in Patna. Yummy has been pioneer in introducing innovative products. These products will give them good sale. However, Tasty Foods will introduce similar products in reaction to the products introduced by the Yummy Foods taking away the advantage gained by the former (RTP Nov '18)

Answer 19

Yummy foods are proactive in its approach. On the other hand, Tasty Food is reactive. Proactive strategy is planned strategy whereas reactive strategy is adaptive reaction to changing circumstances. A company's strategy is typically a blend of proactive actions on the part of managers to improve the company's market position and financial performance and reactions to unanticipated developments and fresh market conditions.

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If organisational resources permit, it is better to be proactive rather than reactive. Being proactive in aspects such as introducing new products will give you advantage in the mind of customers.

At the same time, crafting a strategy involves stitching together a proactive/intended strategy and then adapting first one piece and then another as circumstances surrounding the company's situation change or better options emerge-a reactive/adaptive strategy. This aspect can be accomplished by Yummy Foods.

Question 20

ABC Pharmaceuticals, a leading pharmaceutical company, is in the process of formulating its strategic intent. The top management of ABC Pharmaceuticals wants to define the company's future direction, objectives, and goals. They aim is to create a vision that sets the organization apart and provides a roadmap for future growth. ABC Pharmaceuticals aspires to enrich the lives of people by producing high-quality pharmaceutical products at competitive prices and wants to become the world's leading pharmaceutical company by 2030." Based on this context, draft a vision and mission statement that could be formulated by the top management of ABC Pharmaceuticals. (RTP Nov '23)

Answer 20

ABC Pharmaceuticals may have following vision and mission:

Vision: Vision implies the blueprint of the company's future position. It describes where the organisation wants to land. ABC Pharmaceuticals may have vision "To be the globally recognized leader in pharmaceutical innovation and enriching the lives of people worldwide by providing high-quality, affordable, and accessible pharmaceutical products."

Mission: Mission delineates the firm's business, its goals and ways to reach the goals. It explains the reason for the existence of the firm in the society. It is designed to help potential shareholders and investors understand the purpose of the company.

ABC Pharmaceuticals may identify mission in the following lines:

- To improve the well-being of individuals and communities by relentlessly pursuing excellence in pharmaceutical research, development, and manufacturing.
- Committed to producing safe, effective, and sustainable medicines that address unmet medical needs and enhance the quality of life for patients.
- Through innovation, collaboration, and ethical practices, we aim to make a positive impact on global healthcare and become the trusted partner of healthcare providers and patients alike.

Question 21

Why an organization should have a mission? What considerations are to be kept in mind while writing a good mission statement of a company? (PYP 5 Marks, Nov'19)

Answer 21

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Organization should have a mission on account of the following reasons:

- To ensure unanimity of purpose within the organization.
- To develop a basis, or standard, for allocating organizational resources.
- To provide a basis for motivating the use of the organization's resources.
- To establish a general tone or organizational climate.
- To serve as a focal point for those who can identify with the organization's purpose and direction.
- To facilitate the translation of objective and goals into a work structure involving the assignment of tasks to responsible elements within the organization.
- To specify organizational purposes and the translation of these purposes into goals in such a way that cost, time, and performance parameters can be assessed and controlled.

The following points must be considered while writing a good mission statement of a company:

(i) To establish the special identity of the business - one that typically distinct it from other similarly positioned companies.

(ii) Good mission statements should be unique to the organization for which they are developed.

Needs which business tries to satisfy, customer groups it wishes to target and the technologies and competencies it uses and the activities it performs

Question 22

Mission statement of a company focuses on the question: 'who we are' and 'what we do'. Explain briefly. (RTP May'23)

Answer 22

A company's mission statement is typically focused on its present business scope — "who we are and what we do"; mission statements broadly describe an organizations present capability, customer focus activities and business makeup. An organisation's mission states what customers it serves, what need it satisfies, and what type of product it offers. It is an expression of the growth ambition of the organisation. It helps organisation to set its own special identity, business emphasis and path for development. Mission amplifies what brings the organization to this business or why it is there, what existence it seeks and what purpose it seeks to achieve as a business organisation.

In other words, the mission serves as a justification for the firm's very presence and existence; it legitimizes the firm's presence.

Question 23

Briefly explain the importance of strategic management. (RTP Nov '18)

Answer 23

Importance of Strategic Management: Strategic Management is very important for the survival and growth of business organizations in dynamic business environment. Other major benefits of strategic management are as follows:

- It helps organizations to be more proactive rather than reactive in dealing with its future. It facilitates the organisations to work within vagaries of environment and remains adaptable with the turbulence or uncertain future. Therefore, they

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are able to control their own destiny in a better way.

- It provides better guidance to entire organization on the crucial point – what it is trying to do. Also provides framework for all major business decisions of an enterprise such a decision on businesses, products, markets, organization structures, etc.
- It facilitates to prepare the organization to face the future and act as path finder to various business opportunities. Organizations are able to identify the available opportunities and identify ways and means as how to reach them.
- It serves as a corporate defense mechanism against mistakes and pitfalls. It helps organizations to avoid costly mistakes in product market choices or investments.
- Over a period of time, strategic management helps organizations to evolve certain core competencies and competitive

Question 24

Mr. Raj has been hired as a CEO by XYZ ltd a FMCG company that has diversified into affordable cosmetics. The company intends to launch Feelgood brand of cosmetics. XYZ wishes to enrich the lives of people with its products that are good for skin and are produced in ecologically beneficial manner using herbal ingredients. Draft vision and mission statement that may be formulated by Raj. (RTP Nov'20)

Answer 24

Feelgood brand of cosmetics may have following vision and mission:

Vision: Vision implies the blueprint of the company's future position. It describes where the organisation wants to land. Mr. Raj should aim to position "Feelgood cosmetics" as India's beauty care company. It may have vision to be India' largest beauty care company that improves looks, give extraordinary feeling and bring happiness to people.

Mission: Mission delineates the firm's business, its goals and ways to reach the goals. It explains the reason for the existence of the firm in the society. It is designed to help potential shareholders and investors understand the purpose of the company:

Mr. Raj may identify mission in the following lines:

- To be in the business of cosmetics to enhance the lives of people, give them confidence to lead.
- To protect skin from harmful elements in environment and sun rays.
- To produce herbal cosmetics using natural ingredients.

Question 25

ABC Ltd. currently sells its product in two major markets – Europe and Asia. While it is a market leader in Europe, ABC Ltd. has struggled to penetrate the more competitive Asian market. ABC Ltd. hired a strategic consultant to analyze the situation and submit his report to them. After the report received from the

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strategic consultant, it has therefore decided to pull out of Asia entirely and focus on its European markets only. This decision relates to which level in ABC Ltd. and explain the role of managers at this level in the organization. (RTP May '22)

Answer 25

Corporate level strategy relates to the markets and industries that the organization chooses to operate in, as well as other decisions that affect the organization as a whole. The role of corporate-level managers is to oversee the development of strategies for the whole organization. This role includes defining the mission and goals of the organization, determining what businesses it should be in, allocating resources among the different businesses, formulating and implementing strategies that span individual businesses, and providing leadership for the organization.

Question 26

Define strategic management. (RTP May'18)

Answer 26

The term 'strategic management' refers to the managerial process of developing a strategic vision, setting objectives, crafting a strategy, implementing and evaluating the strategy, and initiating corrective adjustments where deemed appropriate.

Question 27

State with reasons which of the following statements are correct/incorrect: For a small entrepreneur vision and mission are irrelevant. (RTP Nov'18)

Answer 27

Incorrect: Entrepreneur, big or small has to function within several influences from external forces. Competition in different form and different degree is present in all kind and sizes of business. Even entrepreneur with small businesses can have complicated environment. To grow and prosper they need to have clear vision and mission.

Question 28

Define Strategic Management. Also discuss the limitations of Strategic Management. (RTP May'19)

Answer 28

The term 'strategic management' refers to the managerial process of developing a strategic vision, setting objectives, crafting a strategy, implementing and evaluating the strategy, and initiating corrective adjustments where deemed appropriate.

The presence of strategic management cannot counter all hindrances and always achieve success as there are limitations attached to strategic management. These can be explained in the following lines:

- Environment is highly complex and turbulent. It is difficult to understand the complex environment and exactly pinpoint how it will shape-up in future. The organisational estimate about its future shape may awfully go wrong and jeopardise all strategic plans. The environment affects as the organisationhas to deal with suppliers, customers, governments and other external factors.

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- Strategic Management is a time-consuming process. Organisations spend a lot of time in preparing, communicating the strategies that may impede daily operations and negatively impact the routine business.
- Strategic Management is a costly process. Strategic management adds a lot of expenses to an organization. Expert strategic planners need to be engaged, efforts are made for analysis of external and internal environments devise strategies and properly implement. These can be really costly for organisations with limited resources particularly when small and medium organisation create strategies to compete.
- Competition is unpredictable. In a competitive scenario, where all organisations are trying to move strategically, it is difficult to clearly estimate the competitive responses to the strategies.

Question 29

What is strategic vision? Describe the essentials of strategic vision. (PYP 5 Marks, Nov'20)

Answer 29

Strategic Vision

A strategic vision is a **roadmap of a company's future** – providing specifics about technology and customer focus, the geographic and product markets to be pursued, the capabilities it plans to develop, and the kind of company that management is trying to create. It helps the company to answer the question **"where we are to go"** and **provides a convincing** rationale for why this makes good business sense for the company.

A strategic vision delineates organization's aspirations for the business, providing a panoramic view of the position where the organization is going. A strategic vision points an organization in a particular direction, charts a strategic path for it to follow in preparing for the future, and molds organizational identity.

Essentials of a strategic vision

- The entrepreneurial challenge in developing a strategic **vision is to think creatively about how to prepare a company for the future.**
- Forming a strategic vision is **an exercise in intelligent entrepreneurship.**
- A well-articulated strategic vision **creates enthusiasm among the members of the organization.**
- The best-worded vision statement **clearly illuminates the direction** in which organization is headed.

Question 30

"Strategy is partly proactive and partly reactive." Discuss. (RTP May 18 & Nov '20)

Answer 30

Strategy is partly proactive and partly reactive. In proactive strategy, organizations will analyze possible environmental scenarios and create strategic framework after proper planning and set procedures and work on these strategies in a predetermined manner. However, in reality no company can forecast both internal and external environment exactly. Everything cannot be planned in advance. It is not possible to

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anticipate moves of rival firms, consumer behaviour, evolving technologies and so on.

There can be significant deviations between what was visualized and what actually happens.

Strategies need to be attuned or modified in the light of possible environmental changes. There can be significant or major strategic changes when the environment demands. Reactive strategy is triggered by the changes in the environment and provides ways and means to cope with the negative factors or take advantage of emerging opportunities.

Question 31

State with reasons which of the following statements are correct/incorrect: Strategic management involves huge cost. (RTP May'18).

Answer 31

Correct: Strategic management is a costly process. Strategic management adds a lot of expenses to an organization. Expert strategic planners need to be engaged. Efforts are made for analysis of external and internal environments, devise strategies and properly implement them. These can be really costly for organizations with limited resources particularly when small and medium organization create strategies to compete.

Question 32

"A business organization cannot always plan all their strategies in advance and often need to blend planned strategies with reactive strategies." Do you agree with the statement? Give reasons. (MTP 5 Marks April 22, RTP May 23)

Answer 32

Yes, a business organization cannot always plan all their strategies in advance and often need to blend planned strategies with reactive strategies. In planned strategy, organisations will analyse possible environmental scenarios and create strategic framework after proper planning and set procedures and work on these strategies in a pre-determined manner. However, in reality no company can forecast both internal and external environment exactly. Everything cannot be planned in advance. It is not possible to anticipate moves of rival firms, consumer behaviour, evolving technologies and so on. There can be significant deviations between what was visualised and what actually happens. There can be significant or major strategic changes when the environment demands. Reactive strategy is triggered by the changes in the environment and provides ways and means to cope with the negative factors or take advantage of emerging opportunities.

Question 33

Strategic management helps an organization to work through changes in environment to gain competitive advantage. In light of statement discuss its benefits. (RTP Nov'19)

Answer 33

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Strategic management involves developing the company's vision, environmental scanning, strategy formulation, implementation, evaluation and control. It emphasizes the monitoring and evaluation of external opportunities and threats in the light of a company's strengths and weaknesses and designing strategies for the survival and growth. It helps in creation of competitive advantage to outperform the competitors and also guide the company successfully through all changes in the environment.

The major benefits of strategic management are:

(a) Strategic management gives a direction to the company to move ahead. It defines the goals and mission.

(b) It helps organizations to be proactive instead of reactive in shaping its future.

(c) It provides framework for all major decisions of an enterprise such as decisions on businesses, products, markets, manufacturing facilities, investments and organizational structure. It provides better guidance to entire organization on the crucial point - what it is trying to do.

(d) It helps organizations to identify the available opportunities and identify ways and means to achieve them.

(e) It serves as a corporate defense mechanism against mistakes and pitfalls.

(f) It helps to enhance the longevity of the business.

(g) It helps the organization to develop certain core competencies and competitive advantages that would facilitate survival and growth.

Question 34

Which of the following statements are 'correct' and which are 'incorrect'? Give reasons, in brief, for your answer: Every strategic move is the result of proactive planning. (MTP March '18, 2 Marks]

Answer 34

Incorrect: In business, things happen that cannot be fully anticipated or planned for. When market and competitive conditions take an unexpected turn or some aspect of a company's strategy hits a stone wall, some kind of strategic reaction or adjustment is required.

Question 35

Distinguish between vision and mission statement. (MTP Aug '18, April'22 5 Marks, RTP May'18, RTP May'19)

Answer 35

A Mission statement tells you the fundamental purpose of the organization. It concentrates on the present. It defines the customer and the critical processes. It informs you of the desired level of performance. On the other hand, a vision statement outlines what the organization wants to be. It concentrates on the future. It is a source of inspiration. It provides clear decision-making criteria.

A mission statement can resemble a vision statement in a few companies, but that can be a grave mistake. It can confuse people. Following are the major differences between vision and mission:

1. The vision states the future direction while the mission states the ongoing activities of the organisation.

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2. The vision statement can galvanize the people to achieve defined objectives, even if they are stretch objectives, provided the vision is specific, measurable, achievable, relevant and time bound. A mission statement provides a path to realize the vision in line with its values. These statements have a direct bearing on the bottom line and success of the organization.
3. A vision statement defines the purpose or broader goal for being in existence or in the business and can remain the same for decades if crafted well while a mission statement is more specific in terms of both the future state and the time frame. Mission describes what will be achieved if the organization is successful.

Question 36

What is strategic decision making? What tasks are performed by a strategic Manager?
(MTP Oct '19 & Sep '23, 5 Marks, RTP Nov'20, RTP Nov'23]

Answer 36

Decision making is a managerial process of selecting the best course of action out of several alternative courses for the purpose of accomplishment of the organizational goals. Decisions may be operational i.e., which relate to general day-to-day operations. They may also be strategic in nature. According to Jauch and Glueck **"Strategic decisions encompass the definition of the** business, products to be handled, markets to be served, functions to be performed and major policies needed for the organisation to execute these decisions to achieve the strategic objectives."

The primary task of the strategic manager is conceptualizing, designing and executing company strategies. For this purpose, his tasks include:

- Defining the mission and goals of the organization.
- Determining what businesses it should be in.
- Allocating resources among the different businesses.
- Formulating and implementing strategies that span individual businesses.
- Providing leadership for the organization

Question 37

ABC Limited is in a wide range of businesses which include apparels, lifestyle products, furniture, real estate and electrical products. The company is looking to hire a suitable Chief Executive Officer. Consider yourself as the HR consultant for ABC limited. You have been assigned the task to enlist the activities involved with the role of the Chief Executive Officer. Name the strategic level that this role belongs to and enlist the activities associated with it. (MTP 5 Marks Oct'22 & Sep '23, PYP Jan '21 5 Marks)

Answer 37

The role of Chief Executive Officer pertains to Corporate level.

The corporate level of management consists of the Chief Executive Officer (CEO) and other top-level executives. These individuals occupy the apex of decision making within the organization.

The role of Chief Executive Officer is to:

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1. oversee the development of strategies for the whole organization;
2. defining the mission and goals of the organization;
3. determining what businesses, it should be in;
4. allocating resources among the different businesses;
5. formulating, and implementing strategies that span individual businesses;
6. providing leadership for the organization;
7. ensuring that the corporate and business level strategies which company pursues are consistent with maximizing shareholders wealth; and
8. managing the divestment and acquisition process.

Question 38

Explain briefly the. key areas in which the strategic planner should concentrate his mind to achieve desired results. ExaRTP Nov '22 & May '21)

Answer 38

A strategic manager defines the strategic intent of the organisation and take it on the path of achieving the organisational objectives. There can be a number of areas that a strategic manager should concentrate on to achieve desired results. They commonly establish long-term objectives in seven areas as follows.

- Profitability.
- Productivity.
- Competitive Position.
- Employee Development.
- Employee Relations.
- Technological Leadership.
- Public Responsibility.

Question 39

Ramesh Sharma has fifteen stores selling consumer durables in Delhi Region. Four of these stores were opened in last three years. He believes in managing strategically and enjoyed significant sales of refrigerator, televisions, washing machines, air conditioners and like till four years back. With shift to the purchases to online stores, the sales of his stores came down to about seventy per cent in last four years.

Analyze the position of Ramesh Sharma in light of limitations of strategic management. (RTP Nov'19 & Nov '20)

Answer 39

Ramesh Sharma is facing declining sales on account of large scale shift of customers to online stores. While he is using the tools of strategic management, they cannot counter all hindrances and always achieve success. There are limitations attached to strategic management as follows:

♦ Environment under which strategies are made is highly complex and turbulent. Entry of online stores, a new kind of competitor brought a different dimension to selling consumer durables. Online stores with their size power could control the

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market and offer stiff competition to traditional stores.

- Another limitation of strategic management is that it is difficult to predict how things will shape-up in future. Ramesh Sharma, although managing strategically failed to see how online stores will impact the sales.
- Although, strategic management is a time-consuming process, he should continue to manage strategically. The challenging times require more efforts on his part.
- Strategic management is costly. Ramesh Sharma may consider engaging experts to find out preferences of the customers and attune his strategies to better serve them in a customized manner. Such customized offerings may be difficult to match by the online stores.
- The stores owned by Ramesh Sharma are much smaller than online stores. It is very difficult for him to visualize how online stores will be moving strategically.

Question 40

Define strategic intent. Briefly explain the elements of strategic intent. (RTP May'18, May'19, May'20)

Answer 40

Strategic Management is defined as a dynamic process of formulation, implementation, evaluation, and control of strategies to realize the organization's strategic intent. Strategic intent refers to purposes for what organization strives for. Top management must define "what they want to do" and "why they want to do". "Why they want to do" represents strategic intent of the firm. Clarity in strategic intent is extremely important for the future success and growth of the enterprise, irrespective of its nature and size.

Strategic intent can be understood as the philosophical base of strategic management. It implies the purposes which an organization endeavors to achieve. It is a statement that provides a perspective of the means, which will lead the organization, reach its vision in the long run. Strategic intent gives an idea of what the organization desires to attain in future.

Strategic intent provides the framework within which the firm would adopt a predetermined direction and would operate to achieve strategic objectives. Strategic intent could be in the form of vision and mission statements for the organization at the corporate level. It could be expressed as the business definition and business model at the business level of the organization.

Strategic intent is generally stated in broad terms but when stated in precise terms it is an expression of aims to be achieved operationally i.e., goals and objectives.

Elements of Strategic Intent

(i) **Vision:** Vision implies the blueprint of the company's future position. It describes where the organization wants to land. It depicts the organization's aspirations and provides a glimpse of what the organization would like to become in future. Every sub system of the organization is required to follow its vision.

(ii) **Mission:** Mission delineates the firm's business, its goals and ways to reach the goals. It explains the reason for the existence of the firm in the society. It is designed to help potential shareholders and investors understand the purpose of the company. A mission statement helps to identify, 'what business the company undertakes.' It defines the present capabilities, activities, customer focus and business makeup.

(iii) **Business definition**: It seeks to explain the business undertaken by the firm, with respect to the customer needs, target markets, and alternative technologies. With the

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help of business definition, one can ascertain the strategic business choices. Organizational restructuring also depends upon the business definition.

(iv) **Business model:** Business model, as the name implies is a strategy for the effective operation of the business, ascertaining sources of income, desired customer base, and financial details. Rival firms, operating in the same industry rely on the different business model due to their strategic choice.

(v) **Goals and objectives**: These are the base of measurement. Goals are the end results, that the organization attempts to achieve. On the other hand, objectives are time-based measurable targets, which help in the accomplishment of goals. These are the end results which are to be attained with the help of an overall plan, over the particular period. However, in practice no distinction is made between goals and objectives and both terms are used interchangeably.

The vision, mission, business definition, and business model explain the philosophy of the organization but the goals and objectives represent the results to be achieved in multiple areas of business.

Question 41

What should be the major components of a good mission statement? (RTP Nov'22)

Answer 41

Mission statements broadly describe an organizations' present capabilities, customer focus, activities, and business makeup. Following points are useful while writing a good mission statement of a company:

- Good mission statement is highly personalized – unique to the organization for which it is developed.
- *Mission statement should emphasize on giving an organization its own special identity, business emphasis and path for development.
- *Mission statement should clearly specify that, what needs it is trying to satisfy, customer groups it is targeting, technologies and competencies it uses and the activities it performs.
- Technology, competencies and activities are important in defining a company's business because they indicate the boundaries on its operation.
- The mission should not be to make profit.

Question 42

Distinguish between the following: Corporate and business level. (RTP May 19)

Answer 42

A typical large organization is a multi-divisional organization that competes in several different businesses. There are three main levels of management: corporate, business, and functional. Corporate level occupies the highest level of strategic decision making and cover actions dealing with the objective of the firm, acquisition and allocation of resources and coordination of strategies of various businesses for optimal performance. The corporate level of management consists of the Chief Executive Officer (CEO), other senior executives. The role of corporate level managers is to oversee the development of strategies for the whole organization. This role includes defining the mission and goals of the organization, determining what businesses it

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should be in, allocating resources and so on.

Business level comes below corporate level. Business level strategies are the courses of action adopted by an organization for each of its businesses separately, to serve identified customer groups and provide value to the customers by satisfaction of their needs.

Question 43

Explain the difference between three levels of strategy formulation. (MTP 5 Marks March '23, MTP Aug'18)

Answer 43

A typical large organization is a multidivisional organisation that competes in several different businesses. It has separate self-contained divisions to manage each of these. There are three levels of strategy in management of business - corporate, business, and functional.

The corporate level of management consists of the chief executive officer and other top level executives. These individuals occupy the apex of decision making within the organization. The role of corporate-level managers is to oversee the development of strategies for the whole organization. This role includes defining the mission and goals of the organization, determining what businesses it should be in, allocating resources among the different businesses and so on rests at the Corporate Level.

The development of strategies for individual business areas is the responsibility of the general managers in these different businesses or business level managers. A business unit is a self - contained division with its own functions - for example, finance, production, and marketing. The strategic role of business-level manager, head of the division, is to translate the general statements of direction and intent that come from the corporate level into concrete strategies for individual businesses.

Functional-level managers are responsible for the specific business functions or operations such as human resources, purchasing, product development, customer service, and so on. Thus, a functional manager's sphere of responsibility is generally confined to one organizational activity, whereas general managers oversee the operation of a whole company or division.

Question 44

What benefits accrue by following a strategic approach to managing?(MTP 5 Marks Oct 20)

Answer 44

The following are the benefits of strategic approach to managing:

- Strategic management helps organisations to be more proactive instead of reactive in shaping its future. Organisations are able to analyse and take actions instead of being mere spectators. Thereby they are able to control their own destiny in a better manner. It helps them in working within vagaries of environment and shaping it, instead of getting carried away by its turbulence or uncertainties.

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- Strategic management provides framework for all the major decisions of an enterprise such as decisions on businesses, products, markets, manufacturing facilities, investments and organisational structure. It provides better guidance to entire organisation on the crucial point - what it is trying to do.
- Strategic management is concerned with ensuring a good future for the firm. It seeks to prepare the corporation to face the future and act as pathfinder to various business opportunities. Organisations are able to identify the available opportunities and identify ways and means as how to reach them.
- Strategic management serves as a corporate defence mechanism against mistakes and pitfalls. It helps organisations to avoid costly mistakes in product market choices or investments. Over a period of time strategic management helps organisation to evolve certain core competencies and competitive advantages that assist in its fight for survival and growth.

Question 45

What is strategic vision? (MTP March '18, 2 Marks)

Answer 45

A strategic vision delineates organisation's aspirations for the business, providing a panoramic view of the position where the organisation is going. A strategic vision points an organization in a particular direction, charts a strategic path for it to follow in preparing for the future, and moulds organizational identity. A Strategic vision is a road map of a company's future – providing specifics about technology and customer focus, the geographic and product markets to be pursued, the capabilities it plans to develop, and the kind of company that management is trying to create.

Question 46

What are 'objectives'? What characteristics it must possess to be meaningful? (PYP 5 Marks May'19)

Answer 46

Objectives are organizations performance targets — the results and outcomes it wants to achieve. They function as yardstick for tracking an organization's performance and progress.

Objectives with strategic focus relate to outcomes that strengthen an organization's overall business position and competitive vitality. Objectives, to be meaningful to serve the intended role, must possess the following characteristics:

- Objectives should define the organization's relationship with its environment.

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- **Objectives should be facilitative towards achievement of mission and purpose.**
- **Objectives should provide the basis for strategic decision-making.**
- **Objectives should provide standards for performance appraisal.**
- **Objectives should be understandable.**

- Objectives should be concrete and specific.
- Objectives should be related to a time frame.
- Objectives should be measurable and controllable.
- Objectives should be challenging.
- Different objectives should correlate with each other.
- Objectives should be set within constraints.

Question 47

Yummy Foods and Tasty Foods are successfully competing in the business of ready to eat snacks in Patna. Yummy has been pioneer in introducing innovative products. These products will give them good sale. However, Tasty Foods will introduce similar products in reaction to the products introduced by the Yummy Foods taking away the advantage gained by the former (MTP 5 Marks Oct 21 & April '23)

Answer 47

Yummy foods are proactive in its approach. On the other hand, Tasty Food is reactive. Proactive strategy is planned strategy whereas reactive strategy is adaptive reaction to changing circumstances. A company's strategy is typically a blend of proactive actions on the part of managers to improve the company's market position and financial performance and reactions to unanticipated developments and fresh market conditions.

If organisational resources permit, it is better to be proactive rather than reactive. Being proactive in aspects such as introducing new products will give you advantage in the mind of customers.

At the same time, crafting a strategy involves stitching together a proactive/intended strategy and then adapting first one piece and then another as circumstances surrounding the company's situation change or better options emerge-a reactive/adaptive strategy. This aspect can be accomplished by Yummy Foods.

Question 48

Mission statement of a company focuses on the question: 'who we are' and 'what we do'. Explain briefly. (MTP 5 Marks Oct 20, Apr'21)

Answer 48

A company's mission statement is typically focused on its present business scope — "who we are and what we do"; mission statements broadly describe an organizations

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present capability, customer focus activities and business makeup. An organisation's mission states what customers it serves, what need it satisfies, and what type of product it offers. It is an expression of the growth ambition of the organisation. It helps organisation to set its own special identity, business emphasis and path for development. Mission amplifies what brings the organization to this business or why it is there, what existence it seeks and what purpose it seeks to achieve as a business organisation.

In other words, the mission serves as a justification for the firm's very presence and existence; it legitimizes the firm's presence.

Question 49

Briefly explain the importance of strategic management. (PYP 5 Marks Dec '21)

Answer 49

Importance of Strategic Management: Strategic Management is very important for the survival and growth of business organizations in dynamic business environment. Other major benefits of strategic management are as follows:

- It helps organizations to be more proactive rather than reactive in dealing with its future. It facilitates the organisations to work within vagaries of environment and remains adaptable with the turbulence or uncertain future. Therefore, they are able to control their own destiny in a better way.
- It provides better guidance to entire organization on the crucial point – what it is trying to do. Also provides framework for all major business decisions of an enterprise such a decision on businesses, products, markets, organization structures, etc.
- It facilitates to prepare the organization to face the future and act as path finder to various business opportunities. Organizations are able to identify the available opportunities and identify ways and means as how to reach them.
- It serves as a corporate defense mechanism against mistakes and pitfalls. It helps organizations to avoid costly mistakes in product market choices or investments.
- Over a period of time, strategic management helps organizations to evolve certain core competencies and competitive

Question 50

Define Strategic Management. Also discuss the limitations of Strategic Management. (PYP 5 Marks May 18 & May '19)

Answer 50

The term 'strategic management' refers to the managerial process of developing a strategic vision, setting objectives, crafting a strategy, implementing and evaluating the strategy, and initiating corrective adjustments where deemed appropriate.

The presence of strategic management cannot counter all hindrances and always achieve success as there are limitations attached to strategic management. These can be explained in the following lines:

- Environment is highly complex and turbulent. It is difficult to understand the complex environment and exactly pinpoint how it will shape-up in future. The

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organisational estimate about its future shape may awfully go wrong and jeopardise all strategic plans. The environment affects as the organisationhas to deal with suppliers, customers, governments and other external factors.

- Strategic Management is a time-consuming process. Organisations spend a lot of time in preparing, communicating the strategies that may impede daily operations and negatively impact the routine business.
- Strategic Management is a costly process. Strategic management adds a lot of expenses to an organization. Expert strategic planners need to be engaged, efforts are made for analysis of external and internal environments devise strategies and properly implement. These can be really costly for organisations with limited resources particularly when small and medium organisation create strategies to compete.
- Competition is unpredictable. In a competitive scenario, where all organisations are trying to move strategically, it is difficult to clearly estimate the competitive responses to the strategies.

Question 51

"Strategy is partly proactive and partly reactive." Discuss. (PYP 5 Marks Nov '18)

Answer 51

Strategy is partly proactive and partly reactive. In proactive strategy, organizations will analyze possible environmental scenarios and create strategic framework after proper planning and set procedures and work on these strategies in a predetermined manner. However, in reality no company can forecast both internal and external environment exactly. Everything cannot be planned in advance. It is not possible to anticipate moves of rival firms, consumer behaviour, evolving technologies and so on.

There can be significant deviations between what was visualized and what actually happens.

Strategies need to be attuned or modified in the light of possible environmental changes. There can be significant or major strategic changes when the environment demands. Reactive strategy is triggered by the changes in the environment and provides ways and means to cope with the negative factors or take advantage of emerging opportunities.

Section B

1 Strategy is a game plan used for which of the following?

(a) To take market position

(b) To attract and satisfy customers

(c) To respond to dynamic and hostile environment

(d) All of the above

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Ans: (d)

2 **Which of the following is correct?**

(a) Strategy is always pragmatic and not flexible

(b) Strategy is not always perfect, flawless and optimal

(c) Strategy is always perfect, flawless and optimal

(d) Strategy is always flexible but not pragmatic

Ans: (b)

3 **Strategy is-**

(a) Proactive in action

(b) Reactive in action

(c) A blend of proactive and reactive actions

(d) None of the above

Ans: (c)

4 **Reactive strategy can also be termed as-**

(a) Planned strategy

(b) Adaptive strategy

(c) Sound strategy

(d) Dynamic strategy

Ans: (b)

5 **Formulation of strategies and their implementation in a strategic management process is undertaken by-**

(a) Top level executives

(b) Middle level executives

(c) Lower level executives

(d) All of the above

Ans: (d)

6 **Which of the following are responsible for formulating and developing realistic and attainable strategies?**

(a) Corporate level and business level managers

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(b) Corporate level and functional level managers

(c) Functional managers and business level managers

(d) Corporate level managers, business level managers and functional level managers

Ans: (d)

7 Which of the following managers' role is to translate the general statements/ strategies into concrete strategies of their individual businesses-

(a) Supervisor

(b) Functional Manager

(c) CEO of the company

(d) All of the above

Ans: (b)

8 Which statement should be created first and foremost?

(a) Strategy

(b) Vision

(c) Objectives

(d) Mission

Ans: (b)

9 Strategic management enables an organization to ______, instead of companies just responding to threats in their business environment.

(a) be proactive

(b) determine when the threat will subside

(c) avoid the threats

(d) defeat their competitors

Ans: (a)

10 Read the following three statements:

(i) **Strategies have short-range implications.**

(ii) **Strategies are action oriented.**

(iii) **Strategies are rigidly defined.**

(iv) **From the combinations given below select an alternative that represents**

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statements that are true:

(a) (i) and (ii)

(b) (i) and (iii)

(c) (ii) and (iii)

(d) (i), (ii) and (iii)

Ans: (a)

11 What involves formulating, implementing, and evaluating cross-functional decisions that enable an organization to achieve its objectives?

(a) Strategy formulation

(b) Strategy evaluation

(c) Strategy implementation

(d) Strategic management

Ans: (d)

12 Strategic management allows an organization to be more

(a) Authoritative

(b) Participative

(c) Commanding

(d) Proactive

Ans: (d)

<u>Theoretical Questions Answers</u>

Question 1

Mr. Raj has been hired as a CEO by XYZ ltd a FMCG company that has diversified into affordable cosmetics. The company intends to launch Feelgood brand of cosmetics. XYZ wishes to enrich the lives of people with its products that are good for skin and are produced in ecologically beneficial manner using herbal ingredients. Draft vision and mission statement that may be formulated by Raj.

Answer 1

Feelgood brand of cosmetics may have following vision and mission:

Vision: Vision implies the blueprint of the company's future position. It describes where the organisation wants to land. Mr. Raj should aim to position "Feelgood cosmetics" as India's beauty care company. It may have vision to be India' largest beauty care company that improves looks, give extraordinary feeling and bring happiness to people.

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Mission: Mission delineates the firm's business, its goals and ways to reach the goals. It explains the reason for the existence of the firm in the society. It is designed to help potential shareholders and investors understand the purpose of the company:

Mr. Raj may identify mission in the following lines:

- To be in the business of cosmetics to enhance the lives of people, give them confidence to lead.
- To protect skin from harmful elements in environment and sun rays.
- To produce herbal cosmetics using natural ingredients.

Question 2

Yummy Foods and Tasty Foods are successfully competing in the business of ready to eat snacks in Patna. Yummy has been pioneer in introducing innovative products. These products will give them good sale. However, Tasty Foods will introduce similar products in reaction to the products introduced by the Yummy Foods taking away the advantage gained by the former.
Discuss the strategic approach of the two companies. Which is superior?

Answer 2

Yummy foods are proactive in its approach. On the other hand, Tasty Food is reactive. Proactive strategy is planned strategy whereas reactive strategy is adaptive reaction to changing circumstances. A company's strategy is typically a blend of proactive actions on the part of managers to improve the company'smarket position and financial performance and reactions to unanticipated developments and fresh market conditions. If organizational resources permit, it is better to be proactive rather than reactive. Being proactive in aspects such as introducing new products will give you advantage in the mind of customers.

At the same time, crafting a strategy involves stitching together a proactive/intended strategy and then adapting first one piece and then another as circumstances surrounding the company's situation change or better options emerge-a reactive/adaptive strategy. This aspect can be accomplished by Yummy Foods.

Question 3

Ramesh Sharma has fifteen stores selling consumer durables in Delhi Region. Four of these stores were opened in last three years. He believes in managing strategically and enjoyed significant sales of refrigerator, televisions, washing machines, air conditioners and like till four years back. With shift to the purchases to online stores, the sales of his stores came down to about seventy per cent in last four years. Analyse the position of Ramesh Sharma in light of limitations of strategic management.

Answer 3

Ramesh Sharma is facing declining sales on account of large scale shift of customers to online stores. While he is using the tools of strategic management, they cannot counter all hindrances and always achieve success. There arelimitations attached to strategic management as follows:

- Environment under which strategies are made is highly complex andturbulent. Entry of online stores, a new kind of competitor brought a different dimension

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to selling consumer durables. Online stores with theirsize power could control the market and offer stiff competition to traditional stores.

- ❖ Another limitation of strategic management is that it is difficult to predict how things will shape-up in future. Ramesh Sharma, although managing strategically failed to see how online stores will impact the sales.
- ❖ Although, strategic management is a time-consuming process, he should continue to manage strategically. The challenging times require more efforts on his part.
- ❖ Strategic management is costly. Ramesh Sharma may consider engaging experts to find out preferences of the customers and attune his strategies to better serve them in a customized manner. Such customized offerings may be difficult to match by the online stores.
- ❖ The stores owned by Ramesh Sharma are much smaller than online stores. It is very difficult for him to visualize how online stores will be moving strategically.

Question 4

Dharam Singh, the procurement department head of Cyclic, a mountain biking equipment company, was recently promoted to look after sales department along with procurement department. His seniors at the corporate level have always liked his way of leadership and are assures that he would ensure the implementation of policies and strategies to the best of his capacity but have never involved him in decision making for the company. Do you think this is the right approach? Validate your Answer with logical reasoning around management levels and decision making.

Answer 4

Functional managers provide most of the information that makes it possible for business and corporate level managers to formulate realistic and attainable strategies. This is so because functional managers like Dharam Singh are closer to the customer than the typical general manager is. A functional manager may generate important ideas that subsequently may become major strategies for the company. Thus, it is important for general managers to listen closely to the ideas of their functional managers and invoice them in decision making. An equally great responsibility for managers at the operational level is strategy implementation: the execution of corporate and business level plans, and if theyare involved in formulation, the clarity of thoughts while implementation can benefit too. Thus, the approach of Cylix Corporate management is not right. They should involve Dharam Singh, as well as other functional managers too in strategic management.

Question 5

ABC Limited is in a wide range of businesses which include apparels, lifestyle products, furniture, real estate and electrical products. The company is looking to hire a suitable Chief Executive Officer. Consider yourself as the HR consultant for ABC limited. You have been assigned the task to enlist the activities involved with the role of the Chief Executive Officer. Name the strategic level that this role belongs to and enlist the activities associated with it.

Answer 5

The role of Chief Executive Officer pertains to corporate level.

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The corporate level of management consists of the Chief Executive Officer (CEO) and other top-level executives. These individuals occupy the apex of decision making within the organization.

The role of Chief Executive Officer is to:

1. oversee the development of strategies for the whole organization;
2. defining the mission and goals of the organization;
3. determining what businesses, it should be in;
4. allocating resources among the different businesses;
5. formulating, and implementing strategies that span individual businesses;
6. providing leadership for the organization;
7. ensuring that the corporate and business level strategies which company pursues are consistent with maximizing shareholder's wealth; and
8. managing the divestment and acquisition process.

Question 6

What is Strategic Management? What benefits accrue by following a strategic approach to managing?

Answer 6

The term 'strategic management' refers to the managerial process of developinga strategic vision, setting objectives, crafting a strategy, implementing andevaluating the strategy, and initiating corrective adjustments were deemed appropriate.

The overall objective of strategic management is twofold:

❖ To create competitive advantage, so that the company can outperform the competitors in order to have dominance over the market.

❖ To guide the company successfully through all changes in the environment. The following are the benefits of strategic approach to managing:

❖ Strategic management helps organisations to be more proactive instead of reactive in shaping its future. Organisations are able to analyses and take actions instead of being mere spectators. Thereby they are able to control their own destiny in a better manner. It helps them in working within vagaries of environment and shaping it, instead of getting carried away by its turbulence or uncertainties.

❖ Strategic management provides framework for all the major decisions of an enterprise such as decisions on businesses, products, markets, manufacturing facilities, investments and organizational structure. It provides better guidance to entire organisation on the crucial point - what it is trying to do.

❖ Strategic management is concerned with ensuring a good future for the firm. It seeks to prepare the corporation to face the future and act as pathfinder to various business opportunities. Organisations are able to identify the available opportunities and identify ways and means as how to reach them.

❖ Strategic management serves as a corporate defence mechanism against

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mistakes and pitfalls. It helps organisations to avoid costly mistakes in product market choices or investments. Over a period of time strategic management helps organisation to evolve certain core competencies and competitive advantages that assist in its fight for survival and growth.

Question 7

Are there any limitations attached to strategic management in organizations? Discuss.

Answer 7

The presence of strategic management cannot counter all hindrances and always achieve success. There are limitations attached to strategic management. These can be explained in the following lines:

- Environment is highly complex and turbulent. It is difficult to understand the complex environment and exactly pinpoint how it will shape-up in future.The organizational estimate about its future shape may awfully go wrong and jeopardize all strategic plans.
- Strategic management is a time-consuming process. Organisations spend a lot of time in preparing, communicating the strategies that may impede daily operations and negatively impact the routine business.
- Strategic management is a costly process. Strategic management adds a lotof expenses to an organization. Expert strategic planners need to be engaged, efforts are made for analysis of external and internal environments devise strategies and properly implement. These can be really costly for organisations with limited resources.
- In a competitive scenario, where all organisations are trying to move strategically, it is difficult to clearly estimate the competitive responses to a firm's strategies.

Question 8

Explain the difference between three levels of strategy formulation.

Answer 8

A typical large organization is a multidivisional organisation that competes in several different businesses. It has separate self-contained divisions to manage each of these. There are three levels of strategy in management of business - corporate, business, and functional. The corporate level of management consists of the chief executive officer and other top-level executives. These individuals occupy the apex of decision making within the organization. The role of corporate-level managers is to oversee the development of strategies for the whole organization. This role includes defining the mission and goals of the organization, determining what businesses it shouldbe in, allocating resources among the different businesses and so on rests at the Corporate Level.

The development of strategies for individual business areas is the responsibility of the general managers in these different businesses or business level managers. A business unit is a self-contained division with its own functions - **For example**, finance,

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production, and marketing. The strategic role of business-level manager, head of the division, is to translate the general statements of direction and intent that come from the corporate level into concrete strategies for individual businesses.

Functional-level managers are responsible for the specific business functions or operations such as human resources, purchasing, product development, customer service, and so on. Thus, a functional manager's sphere of responsibility is generally confined to one organizational activity, whereas general managers oversee the operation of a whole company or division.

Question 9

"Strategy is partly proactive and partly reactive." Discuss.

Answer 9

Strategy is partly proactive and partly reactive. In proactive strategy, organizations will analyze possible environmental scenarios and create strategic framework after proper planning and set procedures and work on these strategies in a predetermined manner. However, in reality no company can forecast both internal and external environment exactly. Everything cannot be planned in advance. It is not possible to anticipate moves of rival firms, consumer behavior, evolving technologies and so on. There can be significant deviations between what was visualized and what actually happens. Strategies need to be attuned or modified in the light of possible environmental changes. There can be significant or major strategic changes when the environment demands. Reactive strategy is triggered by the changes in the environment and provides ways and means to cope with the negative factors or take advantage of emerging opportunities.

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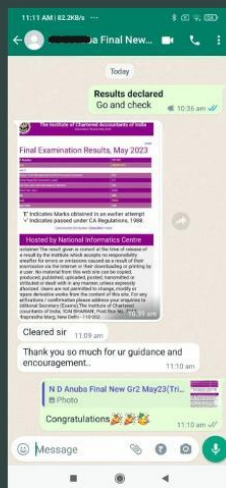

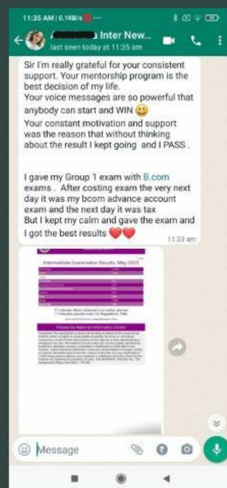

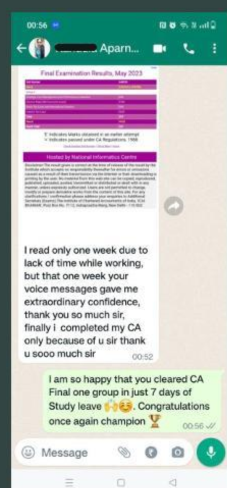

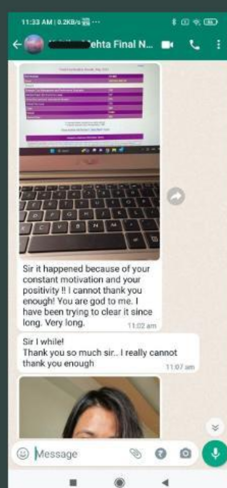

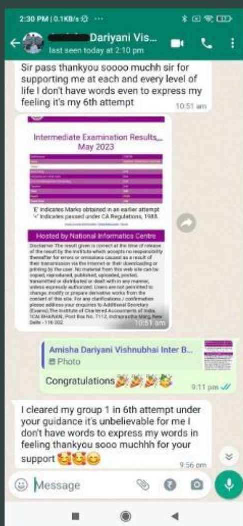

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Chapter 2

Strategic analysis external environment

Attempt wise Distribution

MCQ													
Attempts	May' 18	Nov' 18	May' 19	Nov' 19	May' 20	Nov' 20	Jan' 21	Jul' 21	Dec' 21	May' 22	Nov' 22	May' 23	Nov' 23
MTP				Q6					Q2				Q5
RTP			Q3					Q7		Q1		Q4	
Q & A													
MTP	Q31	Q6						Q19		Q28		Q11, Q20, Q32	Q36
PYP	Q37, Q38	Q8	Q35	Q34		Q16	Q10	Q5	Q3	Q23		Q9	
RTP	Q1,Q12,Q13,Q17,Q22	Q15, Q18, Q29, Q30	Q33	Q25		Q27		Q4, Q7	Q14	Q24	Q2, Q21		Q26

Section A

MULTIPLE CHOICE QUESTIONS

1. **Halder & Sons have invested in latest technology in terms of latest printing machines from Germany and Israel. But recent advent of internet has posed a big threat to their printing business as majority of their clients have now turned to more environment friendly options. They are not able to sell off their machines which are now redundant. What condition are they facing right now? (RTP May '22)**

    (a) Improper market analysis

    (b) Exit Barriers

    (c) Paralysis of Strategic Vision

    (d) Weak SWOT Analysis

Ans: (b)

2. **During which stage of the Product Life Cycle will marketing strategies need to concentrate on differentiating a product from competing products, building brand loyalty and offering incentives to attract competitor's customers to switch?**

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(a) Decline

(b) Growth

(c) Maturity

(d) Introduction **(MTP 2 Marks Nov 21)**

Ans: (c)

3. What will happen in case many new businesses enter a market?

(a) Barriers to entry will rise.

(b) Competitive rivalry will intensify.

(c) Capacity of industry will fall.

(d) Industry will become more lucrative. **(RTP May'19)**

Ans: (d)

4. Raju started a samosa stall in a local market and the existing momos and bhelpuri stall owners started creating problems for him. This is an example of- (May '23)

(a) Bargaining power of suppliers

(b) Threat of new entrants

(c) Substitute products

(d) Nature of rivalry in industry (**Chapter Business Level Strategies)**

Ans: (b)

5. Imagine you are tasked with analyzing the competitive landscape for a new product launch. In this context, which of the following factors is not relevant to understanding the competitive landscape?

(a) Identifying the competitor

(b) Understanding the customer

(c) Determining the strength of the competitors

(d) Determining the weakness of the competitors (**MTP 2 Marks Sep '23)**

Ans(b)

6. Competitive landscape requires the application of:

(a) Competitive advantage

(b) Competitive strategy

(c) Competitive acumen

(d) Competitive intelligence **(MTP Oct'19, 1 Mark)**

Ans: (d)

7. ABC Ltd. has identified that all three of its main products are at the maturity phase of the product life cycle. Which of the following is ABC Ltd. likely to be experiencing due to this?

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(a) High, but declining sales

(b) Growing numbers of competitors

(c) Product diversification and differentiation strategies

(d) Adoption of price skimming strategies. **(RTP May'21)**

Ans: (c)

Question & Answer

Question 1

What are the common barriers that are faced by new entrants when an existing firm earns higher profits? (RTP May'18, RTP May '23)

Answer 1

A firm's profitability tends to be higher when other firms are blocked from entering the industry. New entrants can reduce industry profitability because they add new production capacity leading to increase supply of the product even at a lower price and can substantially erode existing firm's market share. Barriers to entry represent economic forces (or 'hurdles') that slow down or impede entry by other firms.

Common barriers to entry include:

(i) **Capital requirements**: When a large amount of capital is required to enter an industry, firms lacking funds are effectively barred from the industry, thus enhancing the profitability of existing firms in the industry.

(ii) **Economies of scale**: Many industries are characterized by economic activities driven by economies of scale. Economies of scale refer to the decline in the per-unit cost of production (or other activity) as volume grows. A large firm that enjoys economies of scale can produce high volumes of goods at successively lower costs. This tends to discourage new entrants.

(iii) **Product differentiation**: Production differentiation refers to the physical or perceptual differences, or enhancements, that make a product special or unique in the eyes of customers. Firms in the personal care products and cosmetics industries actively engage in product differentiation to enhance their products' features. Differentiation works to reinforce entry barriers because the cost of creating genuine product differences may be too high for the new entrants.

(iv) **Switching costs:** To succeed in an industry, new entrant must be able to persuade existing customers of other companies to switch to its products. To make a switch, buyers may need to test a new firm's product, negotiate new purchase contracts, and train personnel to use the equipment, or modify facilities for product use. Buyers often incur substantial financial (and psychological) costs in switching between firms. When such switching costs are high, buyers are often reluctant to change.

(v) **Brand identity**: The brand identity of products or services offered by existing firms can serve as another entry barrier. Brand identity is particularly important for infrequently purchased products that carry a high unit cost to the buyer. New entrants often encounter significant difficulties in building up the brand identity, because to do so they must commit substantial resources over a long period.

(vi) **Access to distribution channels**: The unavailability of distribution channels for new

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entrants poses another significant entry barrier. Despite the growing power of the internet, many firms may continue to rely on their control of physical distribution channels to sustain a barrier to entry to rivals. Often, existing firms have significant influence over the distribution channels and can retard or impede their use by new firms.

(vii) **Possibility of aggressive retaliation**: Sometimes the mere threat of aggressive retaliation by incumbents can deter entry by other firms into an existing industry. For example, introduction of products by a new firm may lead existing firms to reduce their product prices and increase their advertising budgets.

Question 2

A startup company is thinking of launching of a low cost detergent powder in the market. The market of the said product is already dominated by a big FMCG player.

You are advised to put forward your suggestions to the management of the company to deal with the problems of 'Entry 'Barrier' while launching the low cost detergent powder. (RTP Nov'22)

Answer 2

There are number of factors that can act as entry barrier for the start -up company. An FMCG, big in size, is already dominating the market space and will act as a strong deterrent for the new start-up. The following will be some suggestions to the management of the start-up to deal with the problem of entry barriers:

1. The company is working on producing low cost detergent. Keeping other expenses also on the lower side the management can create price advantage that is competitive to the existing established players including the large FMCG.
2. The company focussing on single product in comparison to multiple products of an FMCG can develop competencies to produce and sell the low cost detergent that are difficult to deploy by the FMCG by its strategy that addresses needs of multiple products.
3. The start-up needs to have strong financial strength to sustain the onslaught from the dominant FMCG and other players. The start-up can identify sources of capital well in advance and be able to use it judiciously to their advantage.
4. The start-up should identify the customer segments that are likely to switch to the product well in advance so as to target the same and generate the initial hold on the market. Once the product gets some hold and their brands get some identity, the market can be further developed to address other customers.
5. The start-up should identify the environmental factors that go to their advantage. These may include special scheme of the government to encourage entrepreneurs, tax holiday, low interest rates, advantages available to small and medium sized enterprises alike.
6. It has to create an image in the market that its products are qualitative and 'Made in India' to attract a particular segment of customers.
7. They need to have a team of experts and dedicated management professionals who can implement strategies formulated by top management.

Question 3

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What are the factors which determine the nature of rivalry in an industry? (PYP 5 Marks Dec '21)

OR

Discuss in what conditions rivalry among competitors tends to be cut-throat and profitability of the industry goes down. (PYP 5 Marks, Nov'19)

Answer 3

The intensity of rivalry in an industry is a significant determinant of an industry's attractiveness and profitability. The intensity of rivalry can influence the costs of suppliers, distribution, and of attracting customers and thus, can directly affect the profitability. "The more intensive the rivalry, the less attractive is the industry". Rivalry among competitors tends to be cutthroat and an industry's profitability is low when;

(i) An industry has no clear leader. Therefore, continuous war for leadership.

(ii) Competitors in the industry are numerous.

(iii) Competitors operate with high fixed costs. Thus, aiming for better Return on Investment with more fierce tactics.

(iv) Competitors face high exit barriers, and therefore, continue to fight for market share.

(v) Competitors have little opportunity to differentiate their offerings.

(vi) The industry faces slow or diminished growth.

Question 4

ABC Ltd. manufactures and sells air purifier 'Fresh Breath'. The 'Fresh Breath' has seen sales growth of around 1% for the last two years, after strong growth in the previous five years. This is due to new products entering the market in competition with the 'Fresh Breath'. ABC Ltd. is therefore considering cutting its prices to be in line with its major rivals with a hope to maintain the market share. Market research indicates that this will now cause a significant increase in the level of sales, even though in previous years' price cuts have had little effect on demand. ABC ltd. is also planning to launch a promotional campaign to highlight the benefits of the 'Fresh Breath' against its rival products. Identify and explain the stage of the product life cycle in which 'Fresh Breath' falls. (RTP May'21)

Answer 4

Product Life Cycle is a useful concept for guiding strategic choice. PLC is an S-shaped curve which exhibits the relationship of sales with respect of time for a product that passes through the four successive stages of introduction (slow sales growth), growth (rapid market acceptance) maturity (slowdown in growth rate) and decline (sharp downward drift).

The product 'Fresh Breath' of ABC Ltd. falls under Maturity stage of product life cycle. In this stage, the competition gets tough and market gets stabilized. Profit comes down because of stiff competition. At this stage, ABC Ltd. have to work for maintaining stability by cutting the prices to be in line with its major rivals with a hope to maintain the market share and by launching a promotional campaign to highlight the benefits of the 'Fresh Breath' against its rival products.

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Question 5

There are many companies in the market offering COVID vaccine. Analyze the product in terms of threat of new entrants. (PYP 5 Marks, July'21)

Answer 5

There are three companies offering a vaccine for COVID-19 in India and a fourth company is awaiting approval from authorities.

This product involves huge capital requirements and hence not every existing pharma company is likely to get into the competition. However, once approved for use, the entire world is the target market. This would lead to economies of scale helping the company to recover the investments made. The product differentiation is in terms of the low after effect of the vaccine and the effectiveness of the vaccine in controlling COVID-19. Brand identity is becoming very important with people preferring international brands compared to a home – grown company. **Factors like switching cost, access to distribution channels and possibility of aggressive retaliation do not apply at present** because governments across the world are controlling these factors and the vaccine has not entered the phase of free competition.

Question 6

Atrix Ltd. is a company engaged in the designing, manufacturing, and marketing of mechanical instruments like speed meters, oil pressure gauges, and so on. Their products are fitted into two and four wheelers. During the last couple of years, the company has been observing a fall in the market share. This is on account of shift to the new range of electronic instruments. The customers are switching away mechanical instruments that have been the backbone of Atrix Ltd. As a CEO of Atrix Ltd., what can be the strategic options available with you. (MTP 5 Marks Aug '18)

Answer 6

Atrix is having a product portfolio that is evidently in the decline stage. The product is being replaced with the technologically superior product. Strategically the company should minimize their dependence on the existing products and identify other avenues for the survival and growth. As a CEO of Atrix Ltd., following can be the strategic options available with the CEO:

- Invest in new product development and switchover to the new technology. Atrix Ltd. also need time to invest in emerging new technology.
- They can acquire or takeover a competitor, provided they have or are able to generate enough financial resources.
- They may also consider unrelated growth and identify other areas for expansion. This will enable Atrix Ltd. to spread their risks.
- In longer run, they should divest the existing products. However, they may continue with the existing products in a limited manner for such time there is demand for the product.

Question 7

Competitive pressures operate as a composite in five areas of the overall market. Elaborate. (RTP May'21)

Answer 7

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Competition makes organizations work harder, however, it is neither a coincidence nor bad luck. All organizations have competition and its benefit are enjoyed by the markets. The customers are able to get better products at lower costs. They get better value for their money because of competition. A powerful and widely used tool for systematically
diagnosing the significant competitive pressures in a market and assessing the strength and importance of each is the Porter's five-forces model of competition. This model holds that the state of competition in an industry is a composite of competitive pressures operating in five areas of the overall market as follows:

(i) **Rivalry among current players**: Competitive pressures associated with the market maneuvering and jockeying for buyer patronage that goes on among rival sellers in the industry.
(ii) **Threat of new entrants:** Competitive pressures associated with the threat of new entrants into the market.
(iii) **Threats from substitutes:** Competitive pressures coming from the attempts of companies in other industries to win buyers over to their own substitute products.
(iv) **Bargaining power of suppliers:** Competitive pressures stemming from supplier bargaining power and supplier-seller collaboration.
(v) **Bargaining power of customers:** Competitive pressures stemming from buyer bargaining power and seller-buyer collaboration.

Question 8

What do you mean by "Economies of Scale"? (PYP 2 Marks, Nov'18 & May '18)

Answer 8

Economies of scale refer to the decline in the per unit cost of production as volume grows. A large firm that enjoys economies of scale can produce high volume of goods at lower costs. This tends to discourage new entrants.

Question 9

Buyers of an industry's products or services can sometimes exert considerable pressure on the company. In the light of the five forces as propagated by Michael Porter explain this force. Also state as to when this leverage is evident. (PYP 5 Marks May '23)

Answer 9

Bargaining Power of Buyers: This is another force that influences the competitive condition of an industry. This force becomes heavier depending on the possibility of buyers forming groups or cartels. Mostly, this is a phenomenon seen in industrial products. Quite often, users of industrial products come together formally or even informally and exert pressure on the producer. The bargaining power of the buyers influences not only the prices that the producer can charge but also influences costs and investments of the producer. This is because powerful buyers usually bargain for better services which involves more investment on the part of the producer.

Buyers of an industry's products or services can sometimes exert considerable pressure on existing firms to secure lower prices or better services. This leverage is particularly evident when;

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(i) Buyers have full knowledge of the source(s) of products and their substitutes. Thus, challenging the price being charged by producers.

(ii) They spend a lot of money on the industry's products i.e. they are big buyers. Thus, in a position to demand favourable terms of contract.

The industry's product is not perceived as critical to the buyer's needs and buyers are more concentrated than firms supplying the product. They can easily switch to the substitutes available.

Question 10

Mohan has joined as the new CEO of XYZ Corporation and aims to make it a dominant technology company in the next five years. He aims to develop competencies for managers for achieving better performance and a competitive advantage for XYZ Corporation. Mohan is well aware of the importance of resources and capabilities in generating competitive advantage.
Discuss the four major characteristics of resources and capabilities required by XYZ Corporation to sustain the competitive advantage and its ability to earn profits from it. (PYP 5 Marks, Jan'21,PYP May'23 5 Marks)

Answer 10

XYZ Corporation is aiming to transform into a dominant technology company under the leadership of Mohan, the new CEO. He aims to develop competencies for managers for achieving better performance and a competitive advantage for the corporation. Mohan is also well aware of the importance of resources and capabilities in generating and sustaining the competitive advantage. Therefore, he must focus on characteristics of resources and capabilities of the corporation.
The sustainability of competitive advantage and a firm's ability to earn profits from it depends, to a great extent, upon four major characteristics of resources and capabilities which are as follows:

1. **Durability:** The period over which a competitive advantage is sustained depends in part on the rate at which a firm's resources and capabilities deteriorate. In industries where the rate of product innovation is fast, product patents are quite likely to become obsolete. Similarly, capabilities which are the result of the management expertise of the CEO are also vulnerable to his or her retirement or departure. On the other hand, many consumer brand names have a highly durable appeal.
2. **Transferability:** Even if the resources and capabilities on which a competitive advantage is based are durable, it is likely to be eroded by competition from rivals. The ability of rivals to attack position of competitive advantage relies on their gaining access to the necessary resources and capabilities. The easier it is to transfer resources and capabilities between companies, the less sustainable will be the competitive advantage which is based on them.
3. **Imitability:** If resources and capabilities cannot be purchased by a would-be imitator, then they must be built from scratch. How easily and quickly can the competitors build the resources and capabilities on which a firm's competitive advantage is based? This is the true test of imitability. Where capabilities require networks of organizational routines, whose effectiveness depends on the corporate culture, imitation is difficult.

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4. **Appropriability:** Appropriability refers to the ability of the firm's owners to appropriate the returns on its resource base. Even where resources and capabilities are capable of offering sustainable advantage, there is an issue as to who receives the returns on these resources.

Question 11

The CEO of ABC Enterprises, Mr. Rasik Mehta, had the idea of creating a fitness shake called Robust, which prompted the company to conduct research and development. The company conducted a market survey and feasibility study, which indicated that the idea was feasible and had potential for profitability. Consequently, the product was manufactured, marketed, and launched, which led to its success. As a result, the production of Robust grew, and it became widely available. However, with time, the demand for the product decreased, leading to its obsolescence. Identify and explain the concept highlighted in the above case? (MTP 5 Marks April '23)

Answer 11

The case highlights the concept of Product Life Cycle (PLC), which outlines the various stages a product goes through, including introduction, growth, maturity and decline. Successful businesses must adapt their strategies to each stage to remain profitable.

Product Life Cycle (PLC) is a useful concept for guiding strategic choice. Essentially, PLC is S-shaped curve which exhibits the relationship of sales with respect of time for a product that passes through the four successive stages of introduction (slow sales growth), growth (rapid market acceptance) maturity (slowdown in growth rate) and decline (sharp downward drift). If businesses are substituted for product, the concept of PLC could work just as well.

The first stage of PLC is the introduction stage in which competition is almost negligible, prices are relatively high, and markets are limited. The growth in sales is at a lower rate because of lack of knowledge on the part of customers.

The second stage of PLC is growth stage. In the growth stage, the demand expands rapidly, prices fall, competition increases, and market expands. The customer has knowledge about the product and shows interest in purchasing it.

The third stage of PLC is maturity stage. In this stage, the competition gets tough, and market gets stabilised. Profit comes down because of stiff competition. At this stage organisations may work for maintaining stability.

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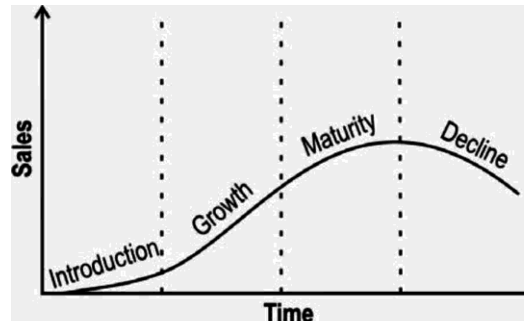
The fourth stage of PLC is declining stage in which the sales and profits fall down sharply due to some new product replaces the existing product. So, a combination of strategies can be implemented to stay in the market either by diversification or



retrenchment.

Figure: Product Life Cycle

Question 12

State with reasons the following statement is correct/incorrect:
Substitutes can also exert significant competitive pressures. (RTP May'18)

Answer 12

Correct: According to porter's five forces model, a final force that can influence industry profitability is the availability of substitutes for an industry's product. To predict profit pressure from this source, firms must search for products that perform the same, or nearly the same, function as their existing products.

Question 13

State with reasons which of the following statements are correct/incorrect:
Key success factors determine competitive success. (RTP May'18)

Answer 13

Correct: The purpose of identifying Key Success Factors is to make judgments about things that are more important to competitive success and the things that are less important. To compile a list of every factor that matters even a little bit defeats the purpose of concentrating management attention on the factors truly critical to long-term competitive success.

Question 14

Easy Access is a marketing services company providing consultancy to a range of business clients. Easy Access and its rivals have managed to persuade the Government to require all marketing services companies to complete a time-consuming and bureaucratic registration process and to comply with an industry code of conduct. Do you think that by doing this Easy Access and its rivals has an advantage in some way to fight off competitors? Explain. (RTP Nov'21, RTP Nov '23)

Answer 14

Yes, Easy Access and its rivals get advantage by this move. The new bureaucratic process is making it more complicated for organizations to start up and enter in Easy Access market, increasing barriers to entry and thereby reducing the threat of new entrants. New entrants can reduce an industry's profitability, because they add

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new production capacity, leading to increase in supply of the product, sometimes even at a lower price and can substantially erode existing firm's market share position. However, New entrants are always a powerful source of competition. The new capacity and product range they bring in throws up a new competitive pressure. The b bigger the new entrant, the more severe the competitive effect. New entrants also place a limit on prices and affect the profitability of existing players, which is known as Price War.

Question 15

State with reasons which of the following statements are correct/incorrect: Competitive strategy is designed to help firms achieve competitive advantage. (RTP Nov'18).

Answer 15

Correct: Competitive strategy is designed to help firms achieve competitive advantage. Having a competitive advantage is necessary for a firm to compete in the market. Competitive advantage comes from a firm's ability to perform activities more effectively than its rivals.

Question 16

Why companies should go global? Mention any five reasons. (PYP 5 Marks, Nov'20)

Answer 16

There are several reasons why companies go global. These are discussed as follows:

- One reason could be the **rapid shrinking of time and distance across the globe** - thanks to faster communication, speedier transportation, growing financial flows and rapid technological changes.
- It is being realized that the **domestic markets are no longer adequate and rich**. Companies globalize to take advantage of opportunities available elsewhere.
- A new product may **gradually get acceptance and grow locally and then globally**. This may initially be in form of exports and then later production facilities may begin in other countries.
- Organizations may go global **to take advantage of cheaper raw material and Labour costs**.
- Companies often **set up overseas plants to reduce high transportation costs.**
- The motivation to go global in **high-tech industries** is slightly different. Companies in electronics and telecommunications must spend large sums on research and development for new products and thus may be compelled to seek **ways to improve sales volume to support high overhead expenses.**
- The companies may also go global **to take advantage of local taxation laws.**
- **To form strategic alliances to ward off economic and technological threats** and leverage their respective comparative and competitive advantages.

Question 17

Dinesh Yadav is the owner of a beverage-based private company in Sonipat, Haryana. His unit is producing fruit juices, cold drinks, soda and lime. While its products have significant market share in the northern part of country, the sales are on decline in last couple of years. He seeks help of a management

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expert who advises him to first understand the competitive landscape. Explain the steps to be followed by Dinesh Yadav to understand competitive landscape. [RTP May '18)

Answer 17

Steps to understand the competitive landscape:

(i) **Identify the competitor:** The first step to understand the competitive landscape is to identify the competitors in the firm's industry and have actual data about their respective market share.

(ii) **Understand the competitors:** Once the competitors have been identified, the strategist can use market research report, internet, newspapers, social media, industry reports, and various other sources to understand the products and services offered by them in different markets.

(iii) **Determine the strengths of the competitors:** What are the strength of the competitors? What do they do well? Do they offer great products? Do they utilize marketing in a way that comparatively reaches out to more consumers. Why do customers give them their business?

(iv) **Determine the weaknesses of the competitors:** Weaknesses (and strengths) can be identified by going through consumer reports and reviews appearing in various media. After all, consumers are often willing to give their opinions, especially when the products or services are either great or very poor.

(v) **Put all of the information together:** At this stage, the strategist should put together all information about competitors and draw inference about what they are not offering and what the firm can do to fill in the gaps. The strategist can also know the areas which need to be strengthen by the firm.

Question 18

State with reasons the following statement is correct/incorrect:
Porter's five forces model considers new entrants as a significant source of competition. (RTP Nov'18)

Answer 18

Correct: Direct marketing is done through various advertising media that interact directly with customer. Teleshopping is a form of direct marketing which operates without conventional intermediaries and employs television and other IT devices for reaching the customer. The communication between the marketer and the customer is direct through third party interfaces such as telecom or postal systems.

Question 19

Examine the significance of KSFs (Key Success Factors) for competitive success. (MTP 5 Marks March '21, PYP 3 Marks, Nov'18)

Answer 19

As industry's Key Success Factors (KSFs) are those things that most affect industry members' ability to prosper in the market place – the particular strategy elements, product attributes, resources, competencies, competitive capabilities and business outcomes that spell the difference between profit & loss and ultimately, between competitive success or failure. KSFs by their very nature are so important that all firms in the industry must pay close attention to them. They are the prerequisites for industry success, or, to put it in another way, KSFs are

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the rules that shape whether a company will be financially and competitively successful.

Question 20

Explain briefly the primary activities that are grouped into five main activities under Value chain analysis. (MTP 5 Marks April '23)

Answer 20

The primary activities of the organization are grouped into five main areas: inbound logistics, operations, outbound logistics, marketing and sales, and service.

- **Inbound logistics** are the activities concerned with receiving, storing and distributing the inputs to the product/service. This includes materials handling, stock control, transport etc.
- **Operations transform these inputs into the final product or service**: machining, packaging, assembly, testing, etc.
- Outbound logistics collect, store and distribute the product to customers. For tangible products this would be warehousing, materials handling, transport, etc. In the case of services, it may be more concerned with arrangements for bringing customers to the service, if it is a fixed location (e.g., sports events).
- Marketing and sales provide the means whereby consumers/users are made aware of the product/service and are able to purchase it. This would include sales administration, advertising, selling and so on. In public services, communication networks which help users' access a particular service are often important.
- Service are all those activities, which enhance or maintain the value of a product/service, such as installation, repair, training and spares.

Question 21

Rajiv Arya is owner of an electrical appliance company that specializes in manufacturing of domestic vacuum cleaners. There are four other manufacturers with similar products and sales volume. Current rival firms also own a number of patents related to the product. The supplier base for procurement of raw material is also very large as there are multiple suppliers. Identify Porter's Five Forces that may be classified as significant for the company? Explain. (RTP Nov'22)

Answer 21

The competitive rivalry will be a significant force in case of company of Rajiv Arya as all the rivals are similar in sizes and are manufacturing similar products. It is difficult for any single manufacturer to dominate the market. Large number of patents will make it difficult for new entrants to break into the market. Further, as there are a large number of small suppliers the power that suppliers can exert will also be low.

There is no information relating to substitutes and bargaining power of customers in the information given in scenario. However, a domestic vacuum cleaner will directly compete with other options such as house maids. Availability of house maids at low cost can significantly disturb the sales of products.

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Further, as the products are similar customers can easily shift from one company to another. This will only enhance competitive rivalry.

The competitive rivalry will be significant in Rajiv Arya's dealing industry as all rivals are similar in sizes and manufacture similar products, making it difficult for anyone manufacturer to dominates the market or gain market share. The large number of patents will make it hard for new entrants to break into the market, while the fact that Rajiv Arya buys from a large number of small suppliers suggests that supplier power is also low. Finally, there is no information relating to substitutes and bargaining power of customers in the information given in scenario.

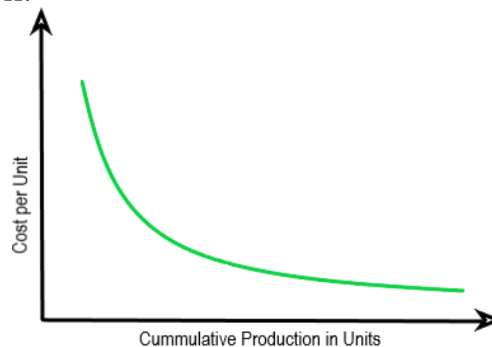
Question 22

Explain the concept of Experience Curve and highlight its relevance in strategic management. (MTP 5 Marks Oct 20, Oct'18, RTP May 18)

Answer 22

Experience curve is similar to learning curve which explains the efficiency gained by workers through repetitive productive work. Experience curve is based on the commonly observed phenomenon that unit costs decline as a firm accumulates experience in terms of a cumulative volume of production. It is represented diagrammatically as follows:
The implication is that larger firms in an industry would tend to have lower unit costs as compared to those of smaller organizations, thereby gaining a competitive cost advantage. Experience curve results from a variety of factors such as learning effects, economies of scale, product redesign and technological improvements in production.

The concept of experience curve is relevant for a number of areas in strategic management. For instance, experience curve is considered a barrier for new firms contemplating entry in an industry. It is also used to build market share and discourage competition.



Question 23

"The bargaining power of suppliers determines an industry's attractiveness and profitability." Discuss. (PYP 5 Marks May'22)

Answer 23

Quite often, suppliers too, exercise considerable bargaining power over purchasing companies. The more specialised the offering from the supplier, greater may be its clout. Further, when the suppliers are limited in number, they may openly exhibit their bargaining power. The bargaining power of suppliers determines the cost of raw materials and other inputs of the industry, and therefore, an industry's attractiveness

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and profitability. Suppliers can influence the profitability of an industry in a number of ways. Suppliers can command bargaining power over a firm when;

(i) Their products are crucial to the buyer and substitutes are not available.

(ii) They can erect/ensure high switching costs.

(iii) They are more concentrated than their buyers. Less suppliers, more buyers.

Question 24

What are the five competitive forces in an industry as identified by Michael Porter? (RTP May '22)

Answer 24

Five forces model of Michael Porter is a powerful and widely used tool for systematically diagnosing the significant competitive pressures in the market and assessing their strength and importance. The model holds that the state of competition in an industry is a composite of competitive pressures operating in five areasof the overall market. These five forces are:

1. **Threat of new entrants**: New entrants are always a powerful source of com- petition. The new capacity and product range they bring in throw up new competitive pressure. And the bigger the new entrant, the more severe the competitive effect. New entrants also place a limit on prices and affect the profitability of existing players.
2. **Bargaining power of customers**: This is another force that influences the competitive condition of the industry. This force will become heavier depend- ing on the possibilities of the buyers' forming groups or cartels. Mostly, thisis a phenomenon seen in industrial products. Quite often, users of industrial products come together formally or informally and exert pressure on the producer. The bargaining power of the buyers influences not only the prices that the producer can charge but also influences in many cases, costs and investments of the producer because powerful buyers usually bargain for better services which involve costs and investment on the part of the producer.
3. **Bargaining power of suppliers**: Quite often suppliers, too, exercise considerable bargaining power over companies. The more specialized the offering from the supplier, greater is his clout. And, if the suppliers are also limited in number, they stand a still better chance to exhibit their bargaining power.The bargaining power of suppliers determines the cost of raw materials and other inputs of the industry and, therefore, industry attractiveness and profitability.
4. **Rivalry among current players**: The rivalry among existing players is quite obvious. This is what is normally understood as competition. For any player, the competitors influence strategic decisions at different strategic levels. The impact is evident more at functional level in the prices being charged, advertising, and pressures on costs, product and so on.
5. **Threats from substitutes**: Substitute products are a latent source of competition in an industry. In many cases they become a major constituent of com- petition. Substitute products offering a price advantage and/or performance improvement to the consumer can drastically alter the competitive character of an industry. And they can bring it about all of a sudden. **For example**, coir suffered at the hands of synthetic fiber. Wherever substantial investment in R&D is taking place,

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threats from substitute products can be expected. Substitutes, too, usually limit the prices and profits in an industry.

The five forces together determine industry attractiveness/profitability. This is so because these forces influence the causes that underlie industry attractiveness/ profitability. **For example**, elements such as cost and investment needed for being a player in the industry decide industry profitability, and all such elements are governed by these forces. The collective strength of these five competitive forces determines the scope to earn attractive profits. The strength of the forces may vary from industry to industry.

Question 25

Buyers can exert considerable pressure on business. Do you agree? Discuss. (RTP Nov'19)

Answer 25

Buyers of an industry's products or services can exert considerable pressure on existing firms to secure lower prices or better services. This is evident in situations where buyers enjoy superior position than the seller of product. This leverage is particularly evident when:

(i) Buyers have full knowledge of the sources of products and their substitutes.
(ii) They spend a lot of money on the industry's products, i.e., they are big buyers.

The industry's product is not perceived as critical to the buyer's needs and buyers are more concentrated than firms supplying the product. They can easily switch to the substitutes available.

Question 26

A company has recently launched a new product in the market. Initially, it faced slow sales growth, limited markets, and high prices. However, over time, the demand for the product expanded rapidly, prices fell, and competition increased. Identify the stages of the product life cycle (PLC) that the company went through. (RTP Nov '23)

Answer 26

The company went through the following stages of the product life cycle (PLC):

Introduction stage: Initially, the company faced slow sales growth, limited markets, and high prices, which are characteristic of the introduction stage. During this stage, competition is almost negligible, and customers have limited knowledge about the product.

Growth stage: Over time, the demand for the product expanded rapidly, prices fell, and competition increased. These are typical features of the growth stage in the PLC. In this stage, the product gains market acceptance, and customers become more aware of the product's benefits and show interest in purchasing it.

Question 27

Eco-carry bags Ltd., a recyclable plastic bags manufacturing, and trading company has seen a potential in the ever-growing awareness around hazards of plastics and the positive outlook of the society towards recycling and reusing plastics.

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A major concern for Eco-carry bags Ltd. are paper bags and old cloth bags. Even though they are costlier than recyclable plastic bags, irrespective, they are being welcomed positively by the consumers.

Identify and explain that competition from paper bags and old cloth bags fall under which category of Porter's Five Forces Model for Competitive Analysis? (RTP May'20)

Answer 27

Eco-carry bags Ltd. faces competition from paper bags and old cloth bags and falls under Threat of Substitutes force categories in Porter's Five Forces Model for Competitive Analysis. Paper and cloth bags are substitutes of recyclable plastic bags as they perform the same function as plastic bags. Substitute products are a latent source of competition in an industry. In many cases, they become a major constituent of competition. Substitute products offering a price advantage and/or performance improvement to the consumer can drastically alter the competitive character of an industry.

Question 28

Write short note on "Phases and significance of Product Life Cycle". (MTP 5 Marks April 22)

Answer 28

Product Life Cycle (PLC) is a useful concept for guiding strategic choice. Essentially, PLC is S- shaped curve which exhibits the relationship of sales with respect of time for a product that passes through the four successive stages of introduction (slow sales growth), growth (rapid market acceptance) maturity (slowdown in growth rate) and decline (sharp downward drift). If businesses are substituted for product, the concept of PLC could work just as well.

The first stage of PLC is the introduction stage in which competition is almost negligible, prices are relatively high, and markets are limited. The growth in sales is at a lower rate because of lack of knowledge on the part of customers.

The second stage of PLC is growth stage. In the growth stage, the demand expands rapidly, prices fall, competition increases, and market expands. The customer has knowledge about the product and shows interest in purchasing it.

The third stage of PLC is maturity stage. In this stage, the competition gets tough, and market gets stabilised. Profit comes down because of stiff competition. At this stage organisations may work for maintaining stability.

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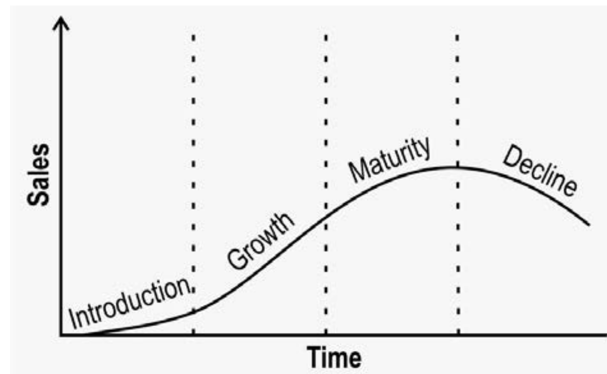
The fourth stage of PLC is declining stage in which the sales and profits fall down sharply due to some new product replaces the existing product. So, a combination of strategies can be implemented to stay in the market either by diversification or



retrenchment.

Figure: Product Life Cycle

Significance of PLC

The main advantage of PLC is that it can be used to diagnose a portfolio of products (or businesses) in order to establish the stage at which each of them exists. Particular attention is to be paid on the businesses that are in the declining stage. Depending on the diagnosis, appropriate strategic choice can be made. For instance, expansion may be a feasible alternative for businesses in the introductory and growth stages. Mature businesses may be used as sources of cash for investment in other businesses which need resources. A combination of strategies like selective harvesting, retrenchment, etc. may be adopted for declining businesses. In this way, a balanced portfolio of businesses may be built up by exercising a strategic choice based on the PLC concept.

Question 29

Explain Porter's five forces model as to how businesses can deal with the competition. [MTP March '19, 5 Marks, MTP Oct '18, 6 Marks, RTP Nov '18)

Answer 29

To gain a deep understanding of a company's industry and competitive environment, managers do not need to gather all the information they can find and waste a lot of time digesting it. Rather, the task is much more focused. A powerful and widely used tool for systematically diagnosing the significant competitive pressures in a market and assessing the strength and importance of each is the Porter's five-forces model of competition. This model holds that the state of competition in an industry is a composite of competitive pressures operating in five areas of the overall market:

- Competitive pressures associated with the market maneuvering and jockeying for buyer patronage that goes on among rival sellers in the industry.
- Competitive pressures associated with the threat of new entrants into the market.
- Competitive pressures coming from the attempts of companies in other industries to win buyers over to their own substitute products.

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- Competitive pressures stemming from supplier bargaining power and supplier-seller collaboration.
- Competitive pressures stemming from buyer bargaining power and seller-buyer Collaboration.

Question 30

Define key success factors (KSFs). (RTP Nov'18)

Answer 30

An industry's key success factors (KSFs) are those things or strategic elements that affect industry members' ability to prosper in a market place. For a business organization within an industry, it may include, cost structure, technology, distribution system and so on. It is correct to state that the KSFs help to shape whether a company will be financially and competitively successful.

Question 31

Which of the following statements are 'correct' and which are 'incorrect'? Give reasons, in brief, for your answer:

Economies of scale discourages new entrants. (MTP March '18, 2 Marks)

Answer 31

Correct: Economies of scale refer to the decline in the per-unit cost of production (or other activity) as volume grows. A large firm that enjoys economies of scale can produce high volumes of goods at successively lower costs. This tends to discourage new entrants.

Question 32

Pulkit was very confident about cloud kitchen business model, and he bought three real estate spaces in very hideous localities. Later due to government and court orders the cloud kitchens had to be only operated in a well-ventilated space, which made his investment redundant. What aspect of industry competition is Pulkit currently faced as a result of this situation? (MTP 5 Marks April '23)

Answer 32

Pulkit may be facing exit barriers due to his investment in the real estate spaces. Exit barriers are factors that make it difficult for a company to exit a particular market or industry. In this case, Pulkit's investment in the real estate spaces may make it difficult for him to exit the cloud kitchen industry or switch to a different business model. If Pulkit is unable to find new spaces or make the necessary renovations, he may be forced to continue operating in the hideous localities, which may impact his brand image and customer experience. This can create an exit barrier for Pulkit as it may be difficult for him to turn to a different business model or exit the industry entirely.

Additionally, Pulkit may have incurred significant sunk costs in the purchase and renovation of the real estate spaces, which can create a further exit barrier. Sunk costs refer to costs that have already been incurred and cannot be recovered. If Pulkit has invested a significant amount of money in the real estate spaces, he may

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be hesitant to exit the industry or switch to a different business model as it may mean that he has to write off the sunk costs.

Therefore, Pulkit may be facing exit barriers due to his investment in the real estate spaces, which may make it difficult for him to adapt to the new requirements or exit the industry entirely.

Question 33

Rahul Sharma is Managing Director of a company which is manufacturing trucks. He is worried about the entry of new businesses. What kind of barriers will help Rahul against such a threat? (RTP May'19)

Answer 33

A firm's profitability tends to be higher when other firms are blocked from entering the industry. New entrants can reduce industry profitability because they add new production capacity leading to increase supply of the product even at a lower price and can substantially erode existing firm's market share. Barriers to entry represent economic forces (or 'hurdles') that slow down or impede entry by other firms. Common barriers to entry include:

(viii) **Capital requirements**: When a large amount of capital is required to enter an industry, firms lacking funds are effectively barred from the industry, thus enhancing the profitability of existing firms in the industry.

(ix) **Economies of scale**: Many industries are characterized by economic activities driven by economies of scale. Economies of scale refer to the decline in the per-unit cost of production (or other activity) as volume grows. A large firm that enjoys economies of scale can produce high volumes of goods at successively lower costs. This tends to discourage new entrants.

(x) **Product differentiation**: Production differentiation refers to the physical or perceptual differences, or enhancements, that make a product special or unique in the eyes of customers. Firms in the personal care products and cosmetics industries actively engage in product differentiation to enhance their products' features. Differentiation works to reinforce entry barriers because the cost of creating genuine product differences may be too high for the new entrants.

(xi) **Switching costs:** To succeed in an industry, new entrant must be able to persuade existing customers of other companies to switch to its products. To make a switch, buyers may need to test a new firm's product, negotiate new purchase contracts, and train personnel to use the equipment, or modify facilities for product use. Buyers often incur substantial financial (and psychological) costs in switching between firms. When such switching costs are high, buyers are often reluctant to change.

(xii) **Brand identity**: The brand identity of products or services offered by existing firms can serve as another entry barrier. Brand identity is particularly important for infrequently purchased products that carry a high unit cost to the buyer. New entrants often encounter significant difficulties in building up the brand identity, because to do so they must commit substantial resources over a long period.

(xiii) **Access to distribution channels**: The unavailability of distribution channels for new entrants poses another significant entry barrier. Despite the growing power of the internet, many firms may continue to rely on their control of physical distribution channels to sustain a barrier to entry to rivals. Often, existing firms have significant influence over the distribution channels and can retard or impede their use by new

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firms.

(xiv) **Possibility of aggressive retaliation**: Sometimes the mere threat of aggressive retaliation by incumbents can deter entry by other firms into an existing industry. For example, introduction of products by a new firm may lead existing firms to reduce their product prices and increase their advertising budgets.

Question 34

Discuss in what conditions rivalry among competitors tends to be cut-throat and profitability of the industry goes down. (PYP 5 Marks, Nov'19)

Answer 34

The intensity of rivalry in an industry is a significant determinant of an industry's attractiveness and profitability. The intensity of rivalry can influence the costs of suppliers, distribution, and of attracting customers and thus, can directly affect the profitability. "The more intensive the rivalry, the less attractive is the industry". Rivalry among competitors tends to be cutthroat and an industry's profitability is low when;

(i) An industry has no clear leader. Therefore, continuous war for leadership.

(ii) Competitors in the industry are numerous.

(iii) Competitors operate with high fixed costs. Thus, aiming for better Return on Investment with more fierce tactics.

(iv) Competitors face high exit barriers, and therefore, continue to fight for market share.

(v) Competitors have little opportunity to differentiate their offerings.

(vi) The industry faces slow or diminished growth.

Question 35

Dinesh Yadav is the owner of a beverage-based private company in Sonipat, Haryana. His unit is producing fruit juices, cold drinks, soda and lime. While its products have significant market share in the northern part of country, the sales are on decline in last couple of years. He seeks help of a management expert who advises him to first understand the competitive landscape. Explain the steps to be followed by Dinesh Yadav to understand competitive landscape. [PYP May '19 & July 21 5 Marks)

Answer 35

Steps to understand the competitive landscape:

(vi) **Identify the competitor:** The first step to understand the competitive landscape is to identify the competitors in the firm's industry and have actual data about their respective market share.

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(vii) **Understand the competitors:** Once the competitors have been identified, the strategist can use market research report, internet, newspapers, social media, industry reports, and various other sources to understand the products and services offered by them in different markets.

(viii) **Determine the strengths of the competitors:** What are the strength of the competitors? What do they do well? Do they offer great products? Do they utilize marketing in a way that comparatively reaches out to more consumers. Why do customers give them their business?

(ix) **Determine the weaknesses of the competitors:** Weaknesses (and strengths) can be identified by going through consumer reports and reviews appearing in various media. After all, consumers are often willing to give their opinions, especially when the products or services are either great or very poor.

(x) **Put all of the information together:** At this stage, the strategist should put together all information about competitors and draw inference about what they are not offering and what the firm can do to fill in the gaps. The strategist can also know the areas which need to be strengthen by the firm.

Question 36

Rajiv Arya is owner of an electrical appliance company that specializes in manufacturing of domestic vacuum cleaners. There are four other manufacturers with similar products and sales volume. Current rival firms also own a number of patents related to the product. The supplier base for procurement of raw material is also very large as there are multiple suppliers. Identify Porter's Five Forces that may be classified as significant for the company? Explain. (MTP 5 Marks Oct '23)

Answer 36

The competitive rivalry will be a significant force in case of company of Rajiv Arya as all the rivals are similar in sizes and are manufacturing similar products. It is difficult for any single manufacturer to dominate the market. Large number of patents will make it difficult for new entrants to break into the market. Further, as there are a large number of small suppliers the power that suppliers can exert will also be low.

There is no information relating to substitutes and bargaining power of customers in the information given in scenario. However, a domestic vacuum cleaner will directly compete with other options such as house maids. Availability of house maids at low cost can significantly disturb the sales of products.

Further, as the products are similar customers can easily shift from one company to another. This will only enhance competitive rivalry.

The competitive rivalry will be significant in Rajiv Arya's dealing industry as all rivals are similar in sizes and manufacture similar products, making it difficult for anyone manufacturer to dominates the market or gain market share. The large number of patents will make it hard for new entrants to break into the market, while the fact that Rajiv Arya buys from a large number of small suppliers suggests that supplier power is also low. Finally, there is no information relating to substitutes and bargaining power of customers in the information given in scenario.

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Question 37

What are the five competitive forces in an industry as identified by Michael Porter? (PYP 5 Marks ,May '18)

Answer 37

Five forces model of Michael Porter is a powerful and widely used tool for systematically diagnosing the significant competitive pressures in the market and assessing their strength and importance. The model holds that the state of competition in an industry is a composite of competitive pressures operating in five areasof the overall market. These five forces are:

1. **Threat of new entrants**: New entrants are always a powerful source of com- petition. The new capacity and product range they bring in throw up new competitive pressure. And the bigger the new entrant, the more severe the competitive effect. New entrants also place a limit on prices and affect the profitability of existing players.
2. **Bargaining power of customers**: This is another force that influences the competitive condition of the industry. This force will become heavier depend- ing on the possibilities of the buyers' forming groups or cartels. Mostly, thisis a phenomenon seen in industrial products. Quite often, users of industrial products come together formally or informally and exert pressure on the producer. The bargaining power of the buyers influences not only the prices that the producer can charge but also influences in many cases, costs and investments of the producer because powerful buyers usually bargain for better services which involve costs and investment on the part of the producer.
3. **Bargaining power of suppliers**: Quite often suppliers, too, exercise considerable bargaining power over companies. The more specialized the offering from the supplier, greater is his clout. And, if the suppliers are also limited in number, they stand a still better chance to exhibit their bargaining power.The bargaining power of suppliers determines the cost of raw materials and other inputs of the industry and, therefore, industry attractiveness and profitability.
4. **Rivalry among current players**: The rivalry among existing players is quite obvious. This is what is normally understood as competition. For any player, the competitors influence strategic decisions at different strategic levels. The impact is evident more at functional level in the prices being charged, advertising, and pressures on costs, product and so on.
5. **Threats from substitutes**: Substitute products are a latent source of competition in an industry. In many cases they become a major constituent of com- petition. Substitute products offering a price advantage and/or performance improvement to the consumer can drastically alter the competitive character of an industry. And they can bring it about all of a sudden. **For example**, coir suffered at the hands of synthetic fiber. Wherever substantial investment in R&D is taking place, threats from substitute products can be expected. Substitutes, too, usually limit the prices and profits in an industry.

The five forces together determine industry attractiveness/profitability. This is so because these forces influence the causes that underlie industry attractiveness/ profitability. **For example**, elements such as cost and investment needed for being

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a player in the industry decide industry profitability, and all such elements are governed by these forces. The collective strength of these five competitive forces determines the scope to earn attractive profits. The strength of the forces may vary from industry to industry.

Question 38

Which of the following statements are 'correct' and which are 'incorrect'? Give reasons, in brief, for your answer:

Economies of scale discourages new entrants. (PYP May'18 2 Marks)

Answer 38

Correct: Economies of scale refer to the decline in the per-unit cost of production (or other activity) as volume grows. A large firm that enjoys economies of scale can produce high volumes of goods at successively lower costs. This tends to discourage new entrants.

Section B

1. KSFs stand for:

(a) Key strategic factors

(b) Key supervisory factors

(c) Key success factors

(d) Key sufficient factors

Ans: (c)

2. Competitive landscape requires the application of-

(a) Competitive advantage

(b) Competitive strategy

(c) Competitive acumen

(d) Competitive intelligence

Ans: (d)

3. The term PESTLE analysis is used to describe a framework for analyzing:

(a) Macro Environment

(b) Micro Environment

(c) Both Macro and Micro Environment

(d) None of above

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Ans: (a)

4. **'Attractiveness of firms' while conducting industry analysis should be seen in-**
   (a) Relative terms
   (b) Absolute terms
   (c) Comparative terms
   (d) All of the above

Ans: (a)

5. **What is not one of Michael Porter's five competitive forces?**
   (a) New entrants
   (b) Rivalry among existing firms
   (c) Bargaining power of unions
   (d) Bargaining power of suppliers

Ans: (c)

6. **Which of the following constitute Demographic Environment?**
   (a) Nature of economy i.e. capitalism, socialism, Mixed
   (b) Size, composition, distribution of population, sex ratio
   (c) Foreign trade policy of Government
   (d) Economic policy i.e. fiscal and monetary policy of Government

Ans: (b)

7. **All are elements of Macro environment except:**
   (a) Society
   (b) Government
   (c) Competitors
   (d) Technology

Ans: (c)

8. **The emphasis on product design is very high, the intensity of competition is low, and the market growth rate is low in the _ stage of the industry life cycle.**
   (a) Maturity
   (b) Introduction

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(c) Growth

(d) Decline

Ans: (b)

Scenario Based Questions

Question 1

Suresh Singhania is the owner of an agri-based private company in Sangrur, Punjab. His unit is producing puree, ketchups and sauces. While its products have significant market share in the northern part of country, the sales are on decline in last couple of years. He seeks help of a management expert who advises him to first understand the competitive landscape. Explain the steps to be followed by Suresh Singhania to understand competitive landscape.

Answer 1

Steps to understand the competitive landscape

(i) **Identify the competitor:** The first step to understand the competitive landscape is to identify the competitors in the firm's industry and have actual data about their respective market share.

(ii) **Understand the competitors:** Once the competitors have been identified,the strategist can use market research report, internet, newspapers, social media, industry reports, and various other sources to understand the products and services offered by them in different markets.

(iii) **Determine the strengths of the competitors:** What is the strength of the competitors? What do they do well? Do they offer great products? Do they utilize marketing in a way that comparatively reaches out to more consumers? Why do customers give them their business?

(iv) **Determine the weaknesses of the competitors:** Weaknesses (and strengths) can be identified by going through consumer reports and reviews appearing in various media. After all, consumers are often willing to give their opinions, especially when the products or services are either great or very poor.

(v) **Put all of the information together:** At this stage, the strategist should put together all information about competitors and draw inference about what they are not offering and what the firm can do to fill in the gaps. The strategist can also know the areas which need to be strengthen by the firm.

Question 2

Eco-carry bags Ltd., a recyclable plastic bags manufacturing, and trading company has seen a potential in the ever-growing awareness around hazards of plastics and the positive outlook of the society towards recycling and reusing plastics.

A major concern for Eco-carry bags Ltd. are paper bags and old cloth bags. Even though they are costlier than recyclable plastic bags, irrespective, they are being welcomed positively by the consumers. Identify and explain that competition

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from paper bags and old cloth bags fall under which category of Porter's Five Forces Model for Competitive Analysis?

Answer 2

Eco-carry bags Ltd. faces competition from paper bags and old cloth bags and falls under Threat of Substitutes force categories in Porter's Five Forces Model for Competitive Analysis. Paper and cloth bags are substitutes of recyclable plastic bags as they perform the same function as plastic bags. Substitute products are a latent source of competition in an industry. In many cases, they become a major constituent of competition. Substitute products offering a price advantage and/or performance improvement to the consumer can drastically alter the competitive character of an industry.

Question 3

Baby Turtle is a children's clothing brand that has been created a new age demand for washable diapers. The major benefit for the brand has been that not many companies have shown interest in the product, thinking it is not viable, however, customers, majorly working mothers are loving their product. The core material needed for production is also used in many other water proofing products in various industries. Baby Turtle sources this material from a renowned supplier at comparatively low prices. Which of the five forces of competitive pressure would Baby Turtle experience due to above setup and what are major factors that create such pressure for a product? Do you think Baby Shark has an advantage in some way to fight off this pressure?

Answer 3

Baby Turtle would experience, Bargaining Power of Suppliers, as a competitive pressure for their washable diaper product. This is because the core material for production is sourced from a single supplier, who is renowned and in a position to create pressure in terms of prices.

Further, other factors that lead to such pressure are:

1. Their products are crucial to the buyer and substitutes to the material required for production are not available.
2. Suppliers can manipulate switching cost as the brand is in inception stage and making margins are important.

An advantage that Baby Turtle has is even though the material required has no substitutes, but it used to make many other products and thus there are many other suppliers who can provide that material. It might affect operations in short term but will help to fight off the pressure created by existing supplier.

Question 4

Explain the concept of Experience Curve and highlight its relevance in strategic management.

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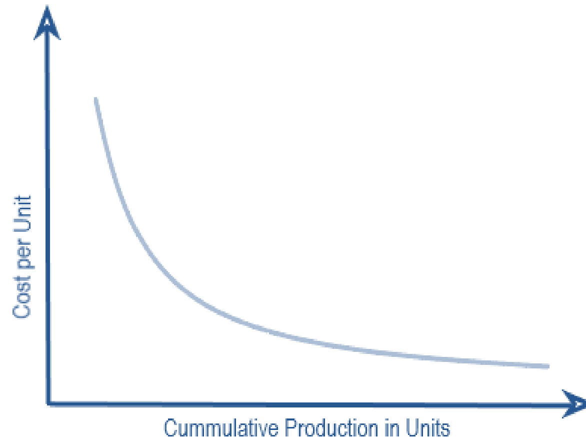
Answer 4

Experience curve is similar to learning curve which explains the efficiency gained by workers through repetitive productive work. Experience curve is based on the commonly observed phenomenon that unit costs decline as a firm accumulates experience in terms of a cumulative volume of production.It is represented diagrammatically as shown in the next page.



The implication is that larger firms in an industry would tend to have lower unit costs as compared to those of smaller organizations, thereby gaining a competitive cost advantage. Experience curve results from a variety of factors such as learning effects, economies of scale, product redesign and technological improvements in production.

The concept of experience curve is relevant for a number of areas in strategic management. For instance, experience curve is considered a barrier for new firms contemplating entry in an industry. It is also used to build market share and discourage competition.

Question 5

Write a short note on Product Life Cycle (PLC) and its significance in portfolio diagnosis.

Answer 5

Product Life Cycle is an important concept in strategic choice and S-shaped curve which exhibits the relationship of sales with respect of time for a product that passes through the four successive stages.

The first stage of PLC is the introduction stage in which competition is almost negligible, prices are relatively high and markets are limited. The growth in sales is also at a lower rate.

The second stage of PLC is the growth stage, in which the demand expands rapidly, prices fall, competition increases and market expands.

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The third stage of PLC is the maturity stage, where in the competition gets tough and market gets stabilized. Profit comes down because of stiff competition.

The fourth stage is the declining stage of PLC, in which the sales and profits fall down sharply due to some new product replaces the existing product.

Product Life Cycle

PLC can be used to diagnose a portfolio of products (or businesses) in order to establish the stage at which each of them exists. Particular attention is to be paid on the businesses that are in the declining stage. Depending on the diagnosis, appropriate strategic choice can be made. For instance, expansion may be a feasible alternative for businesses in the introductory and growth stages. Mature businesses may be used as sources of cash for investment in other businesses which need resources. A combination of strategies like selective harvesting, retrenchment, etc. may be adopted for declining businesses. In this way, a balanced portfolio of businesses may be built up by exercising a stratqegic choice based on the PLC concept.

Question 6

Explain Porter's five forces model as to how businesses can deal with the competition.

Answer 6

To gain a deep understanding of a company's industry and competitive environment, managers do not need to gather all the information they can find and waste a lot of time digesting it. Rather, the task is much more focused. A powerful and widely used tool for systematically diagnosing the significant competitive pressures in a market and assessing the strength and importance of each is the Porter's five-forces model of competition. This model holds that the state of competition in an industry is a composite of competitive pressures operating in five areas of the overall market:

- Competitive pressures associated with the market manoeuvring and jockeying

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for buyer patronage that goes on among rival sellers in the industry.

- Competitive pressures associated with the threat of new entrants into the market.
- Competitive pressures coming from the attempts of companies in other industries to win buyers over to their own substitute products.
- Competitive pressures stemming from supplier bargaining power and supplier-seller collaboration.
- Competitive pressures stemming from buyer bargaining power and seller-buyer Collaboration.

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Chapter 3

STRATEGIC ANALYSIS: INTERNAL ENVIRONMENT

MCQ													
Attempts	May' 18	Nov' 18	May' 19	Nov' 19	May' 20	Nov' 20	Jan' 21	Jul' 21	Dec' 21	May' 22	Nov '22	May' 23	Nov' 23
MTP			Q3,Q26,Q27,Q30,Q36	Q18, Q19, Q20, Q29		Q28, Q32, Q37				Q8, Q17		Q12, Q25, Q38	Q11, Q21
PYP									Q39				
RTP			Q5, Q7, Q15, Q35	Q10, Q16, Q40		Q4, Q23, Q31, Q33		Q13	Q1, Q6, Q24	Q22		Q34	Q2, Q9, Q14
Q & A													
MTP		Q1, Q40	Q17, Q47	Q11, Q14				Q36, Q43, Q45	Q30,Q38	Q34	Q3, Q39		Q4
PYP	Q12	Q6, Q8	Q44	Q46		Q28			Q31, Q42	Q41	Q9, Q20		
RTP	Q13, Q29, Q32	Q16,Q21,Q22, Q24,Q37	Q2,Q27	Q35, Q48		Q10, Q23, Q25		Q18, Q26	Q19, Q33	Q15		Q5	Q7

Section A

1. **Trekking Poles is a small company based in the Himalayan ranges in India. It is known in the region for its hill walking sticks. Trekking Poles sell specialist walking equipment in their small shop at the foot of the mountains. They do not have a website yet are able to sell their products at premium prices. Which of the following one of Porter's generic strategies best fits Trekking Poles?**

   (a) Cost leadership

   (b) Differentiation

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(c) Focused cost leadership

(d) Focused differentiation. **(RTP Nov'21)**

Ans: (d)

2. Big retail stores (e.g., Big Bazaar) and supermarkets have special core competencies in the areas of:

A. **Merchandising**

B. **Securing supplies at lower cost**

C. **In-house activity management**

D. **Computerized stock ordering and billing systems**

E. **Own brand labels Select the correct options:**

(a) A, C, D

(b) B, D, E

(c) A, B, C, D

(d) A, B, D, E **(RTP Nov'23)**

Ans:(d)

3. A core competence is all except?

(a) Valuable

(b) Rare

(c) Impossible to imitate

(d) Non-substitutable **(MTP April '19, 1 Mark)**

Ans: (c)

4. In the questions given below select the best answer out of options (a), (b), (c), or (d): The marketing strategy which is used to reduce or shift the demand is:

(a) Enlightened Marketing

(b) Synchro-Marketing

(c) Place Marketing

(d) Demarcating **(RTP May'20)**

Ans: (d)

5. A thing that a firm does especially well in comparison to the rival firms is:

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(a) Opportunity availed.

(b) Successful leadership.

(c) Competitive advantage.

(d) Comparative advantage. **(RTP May'19)**

Ans:(c)

6. A Ltd. has recently decided to install a new IT system to improve the efficiency of its payroll function. A ltd. believes this will reduce the cost of running the payroll system by 20%. Which one of the following levels of strategy is the above IT system most closely linked to?

(a) Corporate level

(b) Functional level

(c) Business level

(d) Strategic level **(RTP Nov'21)**

Ans: (b)

7. According to C.K. Praha lad and Gary Hamel, major core competencies are identified in three areas - ________, and application to other markets.

(a) Competitor differentiation, customer value.

(b) Competitor differentiation, focus.

(c) Cost leadership, differentiation.

(d) Profits, growth **(RTP May'19).**

Ans: (a)

8. Best Cost provider strategies

(a) Seek to attract buyers on the basis of charging low price for low quality

(b) Aim at giving customers less value for more money

(c) Seek to attract buyers on the basis of charging high price for high quality

(d) Aim to giving customers low cost and better quality **(MTP 1 Mark Mar '22 & March '23)**

Ans: (d)

9. Indian Company plans to offer snack during travel through ropeways and two free movies tickets on completion of the travel. This marketing technique is known as_________

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(a) Augmented marketing

(b) Synchro

(c) Social

(d) Demarketing **(RTP Nov'23)**

Ans: (a)

10. In the questions given below select the best answer out of options (A), (B), (C), or (D): Porter' cost leadership is a strategy

(a) Functional level

(b) Business level

(c) Corporate level

(d) Implementation **(RTP Nov'19)**

Ans: (b)

11. ABC Fashion provides early access and exclusive designs to its exclusive clientele, emphasizing personalized experiences. Which marketing type does this exemplify?

(a) Augmented marketing

(b) Service marketing

(c) Person marketing

(d) Relationship marketing (**MTP 2 Marks Oct '23)**

Ans:(d)

12. Tomtom a sneaker brand wanted to understand their competitive landscape and thus were looking for the weakest competitors to buy them and thereby decrease competition. Which of the following will be most helpful for them to begin with their plans?

(a) Mergers and Acquisition Planning

(b) BCG Growth Matrix

(c) Strategic Group Mapping

(d) GE Stop Light Matrix **(MTP 2 Marks March '23)**

Ans: (c)

13. Sanjivni Pharmaceuticals Limited manufacturers a cough syrup Zeus. It has modified

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Zeus syrup, claiming that the Zeus cough syrup is sugar-free, and the consumer will not feel drowsiness after consuming this cough syrup. Consumers found this product as unique. The sales of Zeus cough syrup have increased as expected. The price of this sugar-free syrup is higher by 20% than the earlier syrup. Identify the strategy adopted by Sanmina Pharmaceuticals Limited.

(a) Focus strategy

(b) Best cost provider strategy

(c) Differentiation strategy

(d) Cost leadership strategy. **(RTP May'21)**

Ans: (c)

14. XYZ is a high-end department store chain that is struggling to survive. A number of other department store chains compete with it and are also struggling. How should XYZ best analyse the industry in order to work out how to increase performance?

(a) Identify groups of department stores that compete in a similar way.

(b) Show the competitive pathways that various competitors will adopt.

(c) Determine the combined effect of all the stores' different strategies.

(d) Ignore key success factors that affect discount stores. **(RTP Nov'23)**

Ans:(a)

15. According to Porter, which of the following is important to achieve competitive advantage?

(a) Differentiation and cost advantage.

(b) Outsourcing activities.

(c) Having strong relationship with buyer and sellers.

(d) Focus on most competitive businesses. **(RTP May'19)**

Ans:(a)

16. In the questions given below select the best answer out of options (A), (B), (C), or (D): Which of the following is not true for core competency?

(a) It distinguishes a company competitively.

(b) It is a source of competitive advantage.

(c) It is an individual skill and separate technique.

(d) It is often visible in the form of organizational functions. **(RTP Nov'19)**

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Ans: (c)

17. Dharam, an organic farming expert was consulting a group of farmers to build sustainable brand of their corn produce. He suggested to follow the strategy of the biggest player in this business. Which of the following can be used to identify such a player?

(a) BCG Matrix

(b) ADL Matrix

(c) Dominant Force Analysis of the Industry

(d) Strategic Group Mapping **(2 Marks April 22)**

Ans: (d)

18. Anything that a firm does especially well compared to rival firms is referred to as.

(a) Competitive advantage

(b) Comparative advantage

(c) Opportunity cost

(d) Sustainable advantage **(MTP Oct'19,Mar'19 1 Mark)**

Ans: (a)

19. Best-cost provider strategy involves providing customers more value for the money by emphasizing:

(a) Low cost and low quality difference

(b) Low cost and better quality difference

(c) High cost and low quality difference

(d) High cost and better quality difference (**MTP Oct '19, 1 Mark**)

Ans: (b)

20. In Michael Porter's generic strategy__emphasizes producing standardized products at a very low per unit-cost for consumers who are price sensitive.

(a) Cheap leadership

(b) Inferior product leadership

(c) Cost leadership

(d) Cost benefit **(MTP Oct '19, 1 Mark, New SM)**

Ans: (c)

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21. A renowned coffee chain offers a loyalty program where customers earn points for every purchase, which can be redeemed for free drinks or snacks. This marketing technique is known as:

(a) Augmented Marketing

(b) Synchro Marketing

(c) Social Marketing

(d) Relationship Marketing **(MTP 1 Mark Sep '23)**

Ans:(d)

22. Airlines providing special lounge access to loyal customers is a type of which marketing? (RTP May '22, RTP May'23)

(a) Augmented Marketing

(b) Direct Marketing

(c) Relationship Marketing

(d) Services Marketing

Ans: (c)

23. In the questions given below select the best answer out of options (a), (b), (c), or (d): Competitive rivalry has the most effect on the firm's strategies than the firm's other strategies.

(a) Business level

(b) Corporate level

(c) Functional level

(d) All of these **(RTP May'20)**

Ans: (a)

24. ABC is a marketing consultancy business. ABC's most recent corporate analysis has identified that three new businesses have recently entered its market and started aggressively targeting ABC's key client. As part of ABC's corporate analysis, these three new businesses would be a

(a) Strength

(b) Opportunity

(c) Weakness

(d) Threat**. (RTP Nov'21)**

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Ans: (d)

25. In case of home appliances, the concept of offering additional customer services and benefits to the customers, can be considered as

(a) Social Marketing

(b) Augmented Marketing

(c) Concentrated Marketing

(d) Differential Marketing **(MTP 1 Mark April '23)**

Ans: (b)

26. Internal ________are activities in an organization that are performed especially well.

(a) Opportunities

(b) Competencies

(c) Strengths

(d) Management **(MTP March '19, 1 Mark, New SM)**

Ans: (c)

27. A firm successfully implementing a differentiation strategy would expect:

(a) Customers to be sensitive to price increases.

(b) To charge premium prices.

(c) Customers to perceive the product as standard.

(d) To automatically have high levels of power over suppliers.

(**MTP March '19, Apr'21 1 Mark)**

Ans: (b)

28. Low cost, differentiation and focus are:

(a) SBU level strategies

(b) Corporate level strategies

(c) Business level strategies

(d) Functional level strategies **(MTP 1 Mark Oct 20)**

Ans: (c)

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29. D Mart sells fast moving consumer goods at wholesale prices to retail customers, is a strategy of?

(a) Market Penetration

(b) Cost Differentiation

(c) Cost Leadership

(d) Market Development **(MTP 1 Mark Oct '21 & March '23)**

Ans: (c)

30. Which of the following is not part of external analysis:

(a) Customer segments.

(b) Organizational constraints.

(c) Entry barriers.

(d) Competitors. **(MTP April'19, 1Mark)**

Ans: (b)

31. 'Strategic group mapping' helps in-

(a) Identifying the strongest rival companies

(b) Identifying weakest rival companies

(c) Identifying weakest and strongest rival companies

(d) None of the above **(MTP 1 Mark Oct 20, RTP May'20)**

Ans: (c)

32. The process of creating, maintaining, and enhancing strong, value-laden relationships with customers and other stakeholder is:

(a) Social marketing

(b) Augmented marketing

(c) Direct marketing

(d) Relationship marketing **(MTP 1 Mark May 20)**

Ans: (d)

33. In the questions given below select the best answer out of options (a), (b), (c), or (d):

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Differentiation Strategy can be achieved by following measures:

1. **Match products with tastes and preferences of customers.**
2. **Elevate the performance of the product.**
3. **Rapid product innovation Which of the above is true?**

(a) 1and (2)

(b) (1) and (3)

(c) (2) and (3)

(d) (1), (2) and (3) **(RTP May'20)**

Ans:(d)

34. The activity of identifying the strongest and weakest companies is known as: (RTP May 23)

(a) Strategic Audit

(b) Portfolio Analysis

(c) Strategic Surveillance

(d) Strategic Group mapping **(Chapter Dynamics of Competitive Strategy)**

Ans: (d)

35. A __________ consists of those rival firms which have similar competitive approaches and positions in the market.

(a) BCG Matrix.

(b) Strategic group.

(c) Strategy Map.

(d) Industry **(RTP May'19).**

Ans: (b)

36. Michael Porter Generic strategies to gain competitive advantage include all except:

(a) Cost leadership

(b) Differentiation

(c) Focus

(d) Revenue generation **(MTP April '19, 1 Mark)**

Ans: (d)

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37. Perscopter, a manufacturer of private helicopter offers unique features that fullfill the demands of a narrow market. It competes in market based on its uniqueness and custom-oriented private helicopters. Perscopter provides limited number of high-end helicopters with ultimate features. Which business strategy is being followed by Perscopter?

(a) Differentiation

(b) Focused differentiation

(c) Cost leadership

(d) Focused cost leadership **(MTP 2 Marks May 20)**

Ans: (b)

38. Which one out of the following, is not a generic strategy as suggested by Michael Porter?

(a) Focus Strategy

(b) Differentiation Strategy

(c) Cost Leadership Strategy

(d) Best-Cost Provider Strategy **(MTP 1 Mark April '23)**

Ans: (d)

39. Marketing and Sales of Hindustan Unilever Limited and lowering of operating cost by Walmart are examples of what?

(a) Competitive Advantage

(b) Core Competency

(c) Strategic Planning

(d) Key Performance Indicators (KPIs) **(1 Mark Nov 21)**

Ans: (b)

40. In the questions given below select the best answer out of options (A), (B), (C), or (D): Best-cost provider strategy is related to providing customers more value for money by:

(a) Highlighting low cost and low quality difference.

(b) Emphasizing low cost and better quality difference.

(c) Producing high cost and low quality difference.

(d) Managing high cost and low quality difference. **(RTP Nov'19)**

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Ans: (b)

Question & Answer

Question 1

Which of the following statements are 'correct' and which are 'incorrect'? Give reasons, in brief, for your answer:

A core competence is a unique strength of an organization which may not be shared by others. [MTP Aug'18, 2 Marks]

Answer 1

Correct: A core competence is a unique strength of an organization which may not be shared by others. If business is organized on the basis of core competence, it is likely to generate competitive advantage. A core competence provides potential access to a wide variety of markets. Core competencies should be such that it is difficult for competitors to imitate them.

Question 2

What is a strategic group? Discuss the procedure for constructing a strategic group map. (RTP May '19)

Answer 2

A strategic group consists of those rival firms which have similar competitive approaches and positions in the market. Companies in the same strategic group can resemble one another in any of the several ways – have comparable product-line breadth, same price/quality range, same distribution channels, same product attributes, identical technological approaches, offer similar services and technical assistance and so on.
The procedure for constructing a strategic group map and deciding which firms belong in which strategic group is as follows:

- Identify the competitive characteristics that differentiate firms in the industry typical variables are price/quality range (high, medium, low); geographic coverage (local, regiona l, national, global); degree of vertical integration (none, partial, full); product -line breadth (wide, narrow); use of distribution channels (one, some, all); and degree of service offered (no-frills, limited, full).
- Plot the firms on a two-variable map using pairs of these differentiating characteristics.
- Assign firms that fall in about the same strategy space to the same strategic group.
- Draw circles around each strategic group making the circles proportional to the size of the group's respective share of total industry sales revenues.

Question 3

What do you mean by differentiation strategy? How is it achieved? (MTP 5 Marks Sep'22)

Answer 3

Differentiation strategy is aimed at broad mass market and involves the creation of a

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product or service that is perceived by the customers as unique. The uniqueness can be associated with product design, brand image, features, technology, dealer network or customer service. Because of differentiation, the business can charge a premium for its product.

Differentiation strategy should be pursued only after a careful study of buyers' needs and preferences to determine the feasibility of incorporating one or more differentiating features into a unique product that features the desired attributes.

To achieve differentiation, following measures can be adopted by an organization:

1. Offer utility for the customers and match the products with their tastes and preferences.
2. Elevate the performance of the product.
3. Offer the promise of high quality product/service for buyer satisfaction.
4. Rapid product innovation.
5. Taking steps for enhancing image and its brand value.
6. Fixing product prices based on the unique features of the product and buying capacity of the customer.

Question 4

BudgetSmart Retailers, a renowned supermarket chain, faced fierce competition in the grocery retail sector due to escalating operational expenses. Rising costs from rent, labor, and inventory management challenged their profitability amidst the emergence of discount stores and online competitors. To counter this, BudgetSmart Retailers optimized their supply chain through bulk procurement, revamped store layouts for cost efficiency and customer experience, embraced lean operational practices to minimize waste, and conducted comprehensive staff training to boost productivity and customer service efficiency.Identify and explain the strategy adopted by BudgetSmart Retailers to enhance the profitability. (MTP 5 Marks Sep '23)

Answer 4

Budget Smart Retailers adopted a cost leadership strategy to enhance profitability in the fiercely competitive grocery retail sector. It is a low-cost competitive strategy that aims at broad mass market. It requires vigorous pursuit of cost reduction in the areas of procurement, production, storage and distribution of product or service and also economies in overhead costs. Because of its lower costs, the cost leader is able to charge a lower price for its products than most of its competitors and still earn satisfactory profits.

By negotiating bulk procurement deals with suppliers, BudgetSmart Retailers lowered their cost of goods, allowing them to offer competitive prices to customers. The revamping of store layouts aimed to maximize space utilization and product placement, reducing operational costs and improving the overall shopping experience. Embracing lean principles minimized waste in the supply chain, reducing unnecessary expenses and improving efficiency. Comprehensive staff training boosted employee productivity and customer service efficiency, contributing to cost reduction and enhanced customer satisfaction.

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Question 5

Domolo is a premium cycles and cycling equipments brand which targets high spending customer with a liking for quality and brand name. Their cycles range from rupees fifteen thousand to rupees one lac. The recent trend of fitness through cycling has created humongous demand for cycles and peripherals like helmets, lights, braking systems, fitness applications, etc. The customer base has grown 150% in the last three months. Mr. Vijay, who is an investor wants to tap in this industry and bring about cheaper options to people who cannot spend so much. Which business level strategy would best suit for Mr. Vijay's idea and what are the major sub- strategies that can be implemented to capture maximum market? (MTP 5 Marks April 21,RTP May '23)

Answer 5

The Best Cost Provider strategy would ensure a better reach to the not so affluent customers and provide them with good quality cycles and equipments, thus tapping in on the increasing trend of cycling.

Two sub-strategies that can be implemented are:

1. Offering lower prices than rivals for the same quality of products
2. Charging same prices for better quality of products

The idea of Mr. Vijay is to provide almost same quality of products in terms of functionality if not so in terms of branding, to customer who do not have huge sums of money to pay. Thus, sub- strategy number one, offering lower prices for almost same quality should be implemented to become the best cost provider of cycles and related equipments in the market.

Question 6

Define Augmented Marketing. Give two examples. (PYP 2 Marks, Nov'18)

Answer 6

Augmented Marketing is provision of additional customer services and benefits built around the core and actual products that relate to introduction of hi-tech services like movies on demand, online computer repair services, etc. Such innovative offerings provide a set of benefits that promise to elevate customer service to unprecedented levels.

Question 7

Define the term 'Marketing'. Distinguish between social marketing and service marketing. (MTP 5 Marks Sep'22, RTP Nov'23, PYP 5 Marks May'18)

Answer 7

In general, marketing is an activity performed by business organizations. In the present day for business, it is considered to be the activities related to identifying the needs of customers and taking such actions to satisfy them in return of some consideration. The term marketing constitutes different processes, functions, exchanges and activities that

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create perceived value by satisfying needs of individuals.

Social marketing and service marketing are marketing strategies primarily with different orientations. Social Marketing refers to the design, implementation, and control of programs seeking to increase the acceptability of a social ideas, cause, or practice among a target group. For instance, the publicity campaign for prohibition of smoking or encouraging girl child, etc.

Question 8

Sohan and Ramesh are two friends who are partners in their business of making biscuits. Sohan believe in making profits through selling more volume of products. Hence, he believes in charging lesser price to the customers. Ramesh, however of the opinion that higher price should be charged to create an image of exclusivity and for this, he proposes that the product to undergo some change.

Analyze the nature of generic strategy used by Sohan and Ramesh. (PYP 5 Marks, Nov'18)

Answer 8

Considering the generic strategies of Porter there are three different bases: cost leadership, differentiation and focus. Sohan and Ramesh are contemplating pricing for their product.

Sohan is trying to have a low price and high volume are thereby trying for cost leadership. Cost leadership emphasizes producing standardised products at a very low per unit cost for consumers who are price sensitive.

Ramesh desires to create perceived value for the product and charge higher prices. He is trying to adopt differentiation. Differentiation is aimed at producing products and services considered unique industry wide and directed at consumers who are relatively price insensitive.

Question 9

What is cost leadership strategy? Under what circumstances an organization can gain competitive advantages from cost leadership strategy? Is there any risk in pursuing cost leadership strategy? (PYP 5 Marks Nov 22)

Answer 9

Cost leadership strategy emphasizes producing standardized products at a very low per-unit cost for consumers who are price-sensitive. It frequently results from productivity increases and aggressive pursuit of cost reduction throughout the development, production, marketing, and distribution processes. It allows a firm to earn higher profits than its competitors.

The circumstances in which an organization can gain competitive advantages from cost leadership strategy are:

- when the market is composed of many price-sensitive buyers.

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- when there are few ways to achieve product differentiation.
- when buyers do not care much about differences from brand to brand.
- when there are a large number of buyers with significant bargaining power.

The basic idea is to underprice competitors and thereby gain market share driving some of the competitors out of the market.

Some risks of pursuing cost leadership are:

- that competitors may imitate the strategy, therefore driving overall industry profits down
- that technological breakthroughs in the industry may make the strategy ineffective; or that buyer interests may swing to other differentiating features besides price.

Question 10

Airlines industry in India is highly competitive with several players. Businesses face severe competition and aggressively market themselves with each other. Luxury Jet is a private Delhi based company with a fleet size of 9 small aircrafts with seating capacity ranging between 6 seats to 9 seats. There aircrafts are chartered by big business houses and high net worth individuals for their personalised use. With customised tourism packages their aircrafts are also often hired by foreigners. Identify and explain the Michael Porter's Generic Strategy followed by Luxury Jet. (RTP Nov'22, RTP May'18, RTP Nov'20)

Answer 10

The Airlines industry faces stiff competition. However, Luxury Jet has attempted to create a niche market by adopting focused differentiation strategy. A focused differentiation strategy requires offering unique features that fulfil the demands of a narrow market.

Luxury Jet compete in the market based on uniqueness and target a narrow market which provides business houses, high net worth individuals to maintain strict schedules. The option of charter flights provided several advantages including, flexibility, privacy, luxury and many a times cost saving. Apart from conveniences, the facility will provide time flexibility. Travelling by private jet is the most comfortable, safe and secure way of flying your company's senior business personnel.

Chartered services in airlines can have both business and private use. Personalized tourism packages can be provided to those who can afford it.

Question 11

'Coffee Beans' is a coffeehouse chain that operates across the globe in different countries. 'Coffee Beans' has adopted a strategy to build business by establishing product uniqueness or qualities and gain competitive advantage based on features of its offerings in coffee business. Which type of strategy 'Coffee Beans' has adopted? (MTP 5 Marks Oct '19)

Answer 11

Coffee Beans is opting for differentiation strategy. This strategy is aimed at broad

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mass market and involves the creation of a product or service that is perceived by the customers as unique. The uniqueness can be associated with product design, brand image, features, technology, dealer network or customer service. Because of differentiation, Coffee Beans can charge a premium for its product.

Question 12

Explain the meaning of core competencies. (PYP 2 Marks, May'18)

Answer 12

A core competency a unique strength of an organization which may not be shared by others. It is defined as a combination of skills and techniques rather than individual skill or separate technique. Core competencies are those capabilities that are critical to a business achieving competitive advantage. In order to qualify as a core competence, the competency should differentiate the business from any other similar businesses.

Question 13

Explain Best-cost provider strategy (RTP May'18)

Answer 13

Best-cost provider strategy involves providing customers more value for the money by emphasizing low cost and better-quality difference. It can be done:

(a) through offering products at lower price than what is being offered by rivals for products with comparable quality and features or

(b) charging similar price as by the rivals for products with much higher quality and better features.

Question 14

Telecom industry is growing at a rapid speed in India. There is a cut throat competition among the service providers in the industry. Identify the capabilities that will best serve as a source of competitive advantage for a firm over its rivals? (MTP Oct '19, Apr'22 5 Marks)

Answer 14

Core competencies are capabilities that serve as a source of competitive advantage for a firm over its rivals. Core competency as the collective learning in the organization, especially coordinating diverse production skills and integrating multiple streams of technologies. An organization's combination of technological and managerial know-how, wisdom and experience are a complex set of capabilities and resources that can lead to a competitive advantage compared to a competitor.

Question 15

A business consultancy firm specializes in environment management consultancy. It advises client companies on how to set up environmental management accounting systems. For measuring recording and analyzing environmental costs. A large part of its business involves performing environmental audits to check whether companies have achieved an international assurance standard in environmental management; this is

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something that rival consultancy firms do not do. The firm also carries out other management consultancy projects for client, but these make up only a small proportion of its total annual fee income. Identify the strategy categories by Michael Porter which best describes the strategy of this firm. (RTP May '22)

Answer 15

By concentrating mainly on the 'market' for consultancy services in environmental management, the firm is pursuing a focus strategy. By offering audit services, which rival firms do not, this indicates a differentiation strategy within this chosen market niche. Hence, the firm is following Focus differentiation strategy. A focused differentiation strategy requires offering unique features that fulfil the demands of a narrow market. Similar to focused low-cost strategy, narrow markets are defined in different ways in different settings. Some firms using a focused differentiation strategy concentrate their efforts on a particular sales channel, such as selling over the internet only. Others target particular demographic groups. Firms that compete based on uniqueness and target a narrow market are following a focused differentiations strategy.

Question 16

State with reasons of the following statements are correct/incorrect: Tele-shopping is an instance of direct marketing. (RTP Nov'18)

Answer 16

Correct: Strategies may require changes in structure as the structure dictates how resources will be allocated. Structure should be designed to facilitate the strategic pursuit of a firm and, therefore, should follow strategy. Without a strategy or reasons for being, companies find it difficult to design an effective structure.

Question 17

Infant care is a successful store chain that caters products for expectant mothers and new moms. They offer everything from nursing classes to strollers, toys, infant clothes, diapers and baby furniture. Due to a one-stop shop for infants, they are charging a premium for its pro ducts. Identify and explain how the strategy adopted by infant care. [MTP March '19, 5 Marks)

Answer 17

Infant care is opting for differentiation strategy. A one-stop shop is a benefit for this type of customers, seeking convenience in a time. Infant care is catering the products only related to infants that is perceived by the customers as unique. Because of differentiation, the Infant care is charging a premium for its product.

Question 18

Write a short note on the concept of cost leadership strategy and how to achieve it? (RTP May'21)

Answer 18

Cost leadership strategy requires vigorous pursuit of cost reduction in the areas of procurement, production, storage and distribution of product or service and also economies in overhead costs. Accordingly, the cost leader is able to charge a lower price for its products than its competitors and still make satisfactory profits. The low cost leadership should be such that no competitors are able to imitate so that it

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can result in sustainable competitive advantage to the cost leader firm.

To achieve cost leadership, following are the actions that could be taken:

1. Forecast the demand of a product or service promptly.
2. Optimum utilization of the resources to get cost advantages.
3. Achieving economies of scale leads to lower per unit cost of product/service.
4. Standardization of products for mass production to yield lower cost per unit.
5. Invest in cost saving technologies and try using advance technology for smart working.
6. Resistance to differentiation till it becomes essential.

Question 19

Explain in brief the various basis of differentiation strategy. (MTP 5 Marks March '23, RTP Nov '21 & Nov '23)

Answer 19

There are several basis of differentiation, major being: Product, Pricing and Organization.

Product: Innovative products that meet customer needs can be an area where a company has an advantage over competitors. However, the pursuit of a new product offering can be costly – research and development, as well as production and marketing costs can all add t o the cost of production and distribution. The payoff, however, can be great as customer's flock to be among the first to have the new product.

Pricing: It fluctuates based on its supply and demand and may also be influenced by the customer's ideal value for a product. Companies that differentiate based on product price can either determine to offer the lowest price or can attempt to establish superiority through higher prices.

Organisation: Organisational differentiation is yet another form of differentiation. Maximizing the power of a brand or using the specific advantages that an organization possesses can be instrumental to a company's success. Location advantage, name recognition and customer loyalty can all provide additional ways for a company differentiate itself from the competition.

Question 20

Quick N Sturdy Inc., a multinational company, is undergoing feasibility study to introduce new luxury and sports car for specific group of customers. The product is meant for customers with distinctive preferences and special requirements. The product is not a standard one and as such the target market is also narrow. Company knows that demand for the product is large enough to be profitable for the company, but small enough to be ignored by other major industry players. The company wants to position itself in the niche market with the prime consideration to offer unique features in the product for the target market.

In the given situation, identify the generic strategy as suggested by Michael

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Porter. Also state the advantages and disadvantages of such strategy. (PYP 5 Marks Nov 22)

Answer 20

Quick N Sturdy Inc. has adopted Focused Differentiation Strategy which is one of the Michael Porter's Generic strategies. A focused differentiation strategy requires offering unique features that fulfil the demands of a narrow market. Some firms using a focused differen tiation strategy concentrate their efforts on a particular sales channel, such as selling over the internet only. Others target particular demographic groups. Firms that compete based on uniqueness and target a narrow market are following a focused differentiation strategy.

Advantages of Focused Strategy

1. Premium prices can be charged by the organisations for their focused product/services.
2. Due to the tremendous expertise in the goods and services that the organisations following focus strategy offer, rivals and new entrants may find it difficult to compete.

Disadvantages of Focused Strategy

1. The firms lacking in distinctive competencies may not be able to pursue focus strategy.
2. Due to the limited demand of product/services, costs are high, which can cause problems.
3. In the long run, the niche could disappear or be taken over by larger competitors by acquiring the same distinctive competencies.

Question 21

Explain the meaning of cost leadership strategy. (RTP Nov'18)

Answer 21

A number of cost elements affect the relative attractiveness of generic strategies. A successful cost leadership strategy usually permeates the entire firm, as evidenced by high efficiency, low overhead cost, and waste reduction. The low cost leadership should be such that no competitors are able to imitate so that it can result in sustainable competitive advantage to the cost leader firm.

Question 22

Distinguish between cost leadership and differentiation strategies. (MTP 5 Marks Mar'18, May 20 & Oct 20 & April '22, RTP Nov '18 & Nov '20)

Answer 22

According to Porter, strategies allow organizations to gain competitive advantage from three different bases: cost leadership, differentiation, and focus. Cost leadership emphasizes producing standardized products at a very low per-unit cost for consumers who are price-sensitive. Differentiation is a strategy aimed at producing products and services considered unique industry wide and directed at consumers who are relatively price-insensitive.

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A primary reason for pursuing forward, backward, and horizontal integration strategies is to gain cost leadership benefits. But cost leadership generally must be pursued in conjunction with differentiation. Different strategies offer different degrees of differentiation. A differentiation strategy should be pursued only after a careful study of buyers' needs and preferences to determine the feasibility of incorporating one or more differentiating features into a unique product. A successful differentiation strategy allows a firm to charge a higher price for its product and to gain customer loyalty.

Question 23

Why is it necessary to do a SWOT analysis before selecting a particular strategy for a business organization? (MTP Aug '18, 5 Marks, RTP May '20)

Answer 23

An important component of strategic thinking requires the generation of a series of strategic alternatives, or choices of future strategies to pursue, given the company's internal strengths and weaknesses and its external opportunities and threats. The comparison of strengths, weaknesses, opportunities, and threats is normally referred to as SWOT analysis.

- **Strength:** Strength is an inherent capability of the organization which it can use to gain strategic advantage over its competitors.
- **Weakness:** A weakness is an inherent limitation or constraint of the organization which creates strategic disadvantage to it.
- **Opportunity:** An opportunity is a favourable condition in the organisation's environment which enables it to strengthen its position.
- **Threat:** A threat is an unfavourable condition in the organisation's environment which causes a risk for, or damage to, the organisation's position.

SWOT analysis helps managers to craft a business model *(or* models) that will allow a company to gain a competitive advantage in its industry *(or* industries). Competitive advantage leads to increased profitability, and this maximizes a company's chances of surviving in the fast-changing, competitive environment. Key reasons for SWOT analyses are:

- It provides a logical framework.
- It presents a comparative account.
- It guides the strategist in strategy identification.

Question 24

Gennex is a company that designs, manufactures and sells computer hardware and software. Gennex is well known for its innovative products that has helped the company to have advantage over its competitors. It also spends on research and development and concerned with innovative softwares. Often the unique features of their product helps them to gain competitive advantage. Gennex using the strategy is consistently gaining its position in the industry over its competitors. Identify and explain the strategy which Gennex has opted to gain the competitive advantage. [MTP April '19, 5 Marks, RTP Nov '18)

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Answer 24

According to Porter, strategies allow organizations to gain competitive advantage from three different bases: cost leadership, differentiation, and focus. Porter called these base generic strategies.

Gennex has opted differentiation strategy. Its products are designed and produced to give the customer value and quality. They are unique and serve specific customer needs that are not met by other companies in the industry. Highly differentiated and unique hardware and software enables Gennex to charge premium prices for its products hence making higher profits and maintain its competitive position in the market.

Differentiation strategy is aimed at broad mass market and involves the creation of a product or service that is perceived by the customers as unique. The uniqueness can be associated with product design, brand image, features, technology, dealer network or customer service.

Question 25

A differentiation strategy may help to remain profitable even with rivalry, new entrants, suppliers' power, substitute products, and buyers' power. Explain. (RTP May'20)

Answer 25

A differentiation strategy may help to remain profitable even with: rivalry, new entrants, suppliers' power, substitute products, and buyers' power.

1. **Rivalry** - Brand loyalty acts as a safeguard against competitors. It means that customers will be less sensitive to price increases, as long as the firm can satisfy the needs of its customers.
2. **Buyers** – They do not negotiate for price as they get special features and also they have fewer options in the market.
3. **Suppliers** – Because differentiators charge a premium price, they can afford to absorb higher costs of supplies and customers are willing to pay extra too.
4. **Entrants** – Innovative features are an expensive offer. So, new entrants generally avoid these features because it is tough for them to provide the same product with special features at a comparable price.
5. **Substitutes** – Substitute products can't replace differentiated products which have high brand value and enjoy customer loyalty.

Question 26

Write a short note on SWOT analysis. (RTP May'21, Nov'18, PP May '18,MTP 5 Marks Sep '23)

Answer 26

SWOT analysis is a tool used by organizations for evolving strategic options for the future. The term SWOT refers to the analysis of strengths, weaknesses, opportunities and threats facing a company. Strengths and weaknesses are identified in the internal environment, whereas opportunities and threats are located in the external environment.

(a) **Strength**: Strength is an inherent capability of the organization which it can use

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to gain strategic advantage over its competitor.

(b) **Weakness:** A weakness is an inherent limitation or constraint of the organization which creates a strategic disadvantage to it.

(c) **Opportunity:** An opportunity is a favorable condition in the external environment which enables it to strengthen its position.

(d) **Threat**: An unfavorable condition in the external environment which causes a risk for, or damage to the organization's position.

The major purpose of SWOT analysis is to enable the management to create a firm - specific business model that will best align, fit or match an organizational resources and capabilities to the demands for environment in which it operates.

Question 27

Rohitha Patel is having a small chemist shop in the central part of Ahmedabad. What kind of competencies Rohitha can build to gain competitive advantage over online medic in sellers? (RTP May'19)

Answer 27

Capabilities that are valuable, rare, costly to imitate, and non-substitutable are core competencies. A small chemist shop has a local presence and functions within a limited geographical area. Still it can build its own competencies to gain competitive advantage. Rohitha Patel can build competencies in the areas of:

(i) Developing personal and cordial relations with the customers.

(ii) Providing home delivery with no additional cost.

(iii) Developing a system of speedy delivery that can be difficult to match by online sellers. Being in central part of city, he can create a network to supply at wider locations in the city.

(iv) Having extended working hours for convenience of buyers.

(v) Providing easy credit or a system of monthly payments to the patients consuming regular medicines.

Question 28

ABC Ltd. is a beverage manufacturing company. It chiefly manufactures soft drinks. The products are priced on the lower side which has made the company a leader in the business. Currently it is holding 35 percent market share. The R & D of company developed a formula for manufacturing sugar free beverages. On successful trial and approval by the competent authorities, company was granted to manufacture sugar free beverages. This company is the pioneer to launch sugar free beverages which are sold at a relatively higher price. This new product has been accepted widely by a class of customers. These products have proved profitable for the company. Identify the strategy employed by the company ABC Ltd. and mention what measures could be adopted by the company to achieve the employed strategy.

(PYP 5 Marks, Nov'20)

Answer 28

According to Porter, strategies allow organizations to gain competitive advantage from

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three different bases: cost leadership, differentiation, and focus. Porter called these base generic strategies.

ABC Ltd. has opted Differentiation Strategy. The company has invested huge amount in R & D and developed a formula for manufacturing sugar free beverages to give the customer value and quality. They are pioneer and serve specific customer needs that are not met by other companies in the industry. The new product has been accepted by a class of customers. Differentiated and unique sugar free beverages enable ABC Ltd. to charge relatively higher for its products hence making higher profits and maintain its competitive position in the market.

Sugar free beverage of ABC Ltd. is being accepted widely by a class of customers. Differentiation strategy is aimed at broad mass market and involves the creation of a product or service that is perceived by the customers as unique. The uniqueness can be associated with product design, brand image, features, technology, and dealer network or customer service.

Achieving Differentiation Strategy

To achieve differentiation, following strategies are generally adopted by an organization:

1. Offer utility to the customers and match products with their tastes and preferences.
2. Elevate/Improve performance of the product.
3. Offer the high-quality product/service for buyer satisfaction.
4. Rapid product innovation to keep up with dynamic environment.
5. Taking steps for enhancing brand image and brand value.
6. Fixing product prices based on the unique features of product and buying capacity of the customer.

Question 29

What is an opportunity? (RTP May'18)

Answer 29

An opportunity is a favorable condition in the organization's environment which enables it to consolidate and strengthen its position. An example of opportunity is growing demand for the products or services that are offered by company.

Question 30

Spacetek Pvt. Ltd. is an IT company. Although there is cut throat competition in the IT sector, Spacetek deals with distinctive niche clients and is generating high efficiencies for serving such niche market. Other rival firms are not attempting to specialize in the same target market. Identify the strategy adopted by Spacetek Pvt. Ltd. and also explain the advantages and disadvantages of that strategy. (MTP 5 Marks Oct 21, PYP 5 Marks Jan'21)

Answer 30

Spacetek Pvt. Ltd. company has adopted Focus strategy which is one of the Michael Porter's Generic strategies. Focus strategies are most effective when consumers have distinctive preferences or requirements and when rival firms are not attempting to specialize in the same target segment. An organization using a focus strategy may concentrate on a particular group of customers, geographic markets, or on particular

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product-line segments in order to serve a well- defined but narrow market better than competitors who serve a broader market.

Advantages of Focus Strategy

1. Premium prices can be charged by the organizations for their focused product/services.
2. Due to the tremendous expertise about the goods and services that organizations following focus strategy offer, rivals and new entrants may find it difficult to compete.

Disadvantages of Focus Strategy

1. The firms lacking in distinctive competencies may not be able to pursue focus strategy.
2. Due to the limited demand of product/services, costs are high which can cause problems.
3. In the long run, the niche could disappear or be taken over by larger competitors by acquiring the same distinctive competencies.

Question 31

STU's association with India goes back to 1967, when it played a key role in constructing a very long highway in India spreading over multiple states. Since then, it is contributing in many ways to the country's growth story. Now it is looking at playing an active role in the key projects taken up by the central government. Suggest few Opportunities and Threats that the company should consider. (PYP 5 Marks Dec '21)

Answer 31

Faced with a constantly changing environment, each business unit needs to develop a marketing information system to track trends and developments, which can be categorized as an opportunity or a threat. The company has to review its strength and weakness in the background of environment's opportunities and threat, i.e., an organization's SWOT analysis.
STU is looking at playing an active role in the key projects taken up by the central government. Following are the potential opportunities and threats to STU:

Potential STU's Opportunities:

- Alliances or joint ventures with central government that expand the STU's market coverage or boost its competitive capability.
- Possibilities of working on the future projects of central government.
- Serving additional customer groups or expanding into new geographic markets.
- Utilizing existing company skills or technological know-how to enter new projects.
- Openings to take market share away from rivals.
- Openings to exploit emerging new technologies.

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- Integrating forward or backward.

Potential STU's Threats:

- Due to COVID-19 pandemic, companies can have face the lockdown situation.
- Economic factors such as recession etc.
- Likely entry of potent new competitors.
- Technological changes/innovations in construction equipment.
- Costly new regulatory requirements.
- Growing bargaining power of suppliers.
- Vulnerability to industry driving forces.

Question 32

Write short note on Advantages of cost leadership strategy. [MTP Aug '18, 5 Marks, RTP May '18)

Answer 32

Advantages of Cost leadership strategy

Earlier we have discussed Porter's Five Forces Model in detail. A cost leadership strategy may help to remain profitable even with: rivalry, new entrants, suppliers' power, substitute products, and buyers' power.

1. **Rivalry** – Competitors are likely to avoid a price war, since the low cost firm will continue to earn profits after competitors compete away their profits.
2. **Buyers** – Powerful buyers/customers would not be able to exploit the cost leader firm and will continue to buy its product.
3. **Suppliers** – Cost leaders are able to absorb greater price increases before it must raise price to customers.
4. **Entrants** – Low cost leaders create barriers to market entry through its continuous focus on efficiency and reducing costs.
5. **Substitutes** – Low cost leaders are more likely to lower costs to induce customers to stay with their product, invest to develop substitutes, purchase patents.

Question 33

Core competencies provide edge to a business over its competitors. (RTP Nov'21, PYP 5 Marks, Jan '21)

Answer 33

A core competence is a unique strength of an organization which may not be shared by others. Core competencies are those capabilities that are critical to a business achieving competitive advantage. In order to qualify as a core competence, the competency should differentiate the business from any other similar businesses. An organization's combination of technological and managerial know-how, wisdom and experience are a complex set of capabilities and resources that can lead to a competitive advantage compared to a competitor.

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According to C.K. Prahalad and Gary Hamel, major core competencies are identified in following three areas:

1. **Competitor differentiation**: The Company can consider having a core competence if the competence is unique and it is difficult for competitors to imitate. This can provide a company an edge compared to competitors. It allows the company to provide better products and services to market with no fear that competitors can copy it.

2. **Customer value:** When purchasing a product or service it has to deliver a fundamental benefit for the end customer in order to be a core competence. It will include all the skills needed to provide fundamental benefits. The service or the product has to have real impact on the customer as the reason to choose to purchase them. If customer has chosen the company without this impact, then competence is not a core competence and it will not affect the company's market position.

3. **Application of competencies to other markets**: Core competence must be applicable to the whole organization; it cannot be only one particular skill or specified area of expertise. Therefore, although some special capability would be essential or crucial for the success of business activity, it will not be considered as core competence if it is not fundamental from the whole organization's point of view.

Thus, a core competence is a unique set of skills and expertise, which will be used throughout the organization to open up potential markets to be exploited.

Question 34

A private Moneyload Ltd. Bank that targets high worth individuals. They offer a premium service with many additional and personal services not normally available through other banks. They charge a significant annual fee for these services. The company makes full use of information technology throughout its operations in order to minimize costs. Identify and explain the generic strategy adopted by Moneyload Ltd. Bank? (MTP 5 Marks Mar '22)

Answer 34

According to Porter, strategies allow organizations to gain competitive advantage from three different bases: cost leadership, differentiation, and focus. Porter called these base generic strategies. Moneyland Ltd. Bank targets a narrow segment of the market, offering unique and desirable products. The bank will want to keep its costs under control, but it will not reduce costs at the expenses of reducing the quality levels of the customer service it offers. By maintaining high quality levels, it will still be able to charge a premium for its services. Thus, the strategy adopted by Moneyland Ltd. Bank is Focused Differentiation. A focused differentiation strategy requires offering unique features that fulfil the demands of a narrow market. Some firms using a focused differentiation strategy concentrate their efforts on a particular sales channel, such as selling over the internet only. Others target particular demographic groups. Firms that compete based on uniqueness and target a narrow market are following a focused differentiations strategy.

Question 35

A century-old footwear company "Mota Shoes" had an image of being the

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footwear choice for formal occasions. In an attempt to reinvent its brand, it tied up with a foreign footwear giant "Buffering" to manufacture and sell its Hide seek brand in the country. Putting its best foot forward, it launched extra soft, casual and relaxed footwear for young. Aiming at a brand and image makeover the "Mota Shoes" decided to price the Hide Seek products at premium. What kind of Michael Porter business level strategy is being used by "Mota Shoe company"? State its advantages. (RTP Nov'19)

Answer 35

Mota shoes is trying to use differentiation. This strategy is aimed at broad mass market and involves the creation of a product or service that is perceived by the customers as unique. The uniqueness can be associated with product design, brand image, features, technology, dealer network or customer service. Because of differentiation, the business can charge a premium for its product.

A differentiation strategy has definite advantages as it may help to remain profitable even with rivalry, new entrants, suppliers' power, substitute products, and buyers' power.

i. **Rivalry:** Brand loyalty acts as a safeguard against competitors. It means that customers will be less sensitive to price increases, as long as the firm can satisfy the needs of its customers.
ii. **Buyers:** They do not negotiate for price as they get special features and also, they have fewer options in the market.
iii. **Suppliers:** Because differentiators charge a premium price, they can afford to absorb higher costs of supplies and customers are willing to pay extra too.
iv. **New entrants:** Innovative features are expensive to copy. So, new entrants generally avoid these features because it is tough for them to provide the same product with special features at a comparable price.
v. **Substitutes:** Substitute products can't replace differentiated products which have high brand value and enjoy customer loyalty.

Question 36

X-Olympus is a gaming software company specializing in developing games for ZBox and GameStation-
The company is facing stiff competition due to saturation of market and price wars, which has excessively favor and highlight their dependence on gaming console manufacturers. Thereby, the company desires to establish a competitive advantage over industry rivals by enhancing the gaming experience by expanding into Edge-Cloud Gaming Service on a monthly subscription basis. This service offering does not require dedicated gaming consoles yet provide customers game streaming in 4K resolution with an ample range of games to select from. This move is expected to insulate X-Olympus from price wars and provide a competitive advantage. Identify and explain the generic strategies adopted by X-Olympus? (MTP 5 Marks March '21)

Answer 36

According to Porter, strategies allow organizations to gain competitive advantage from three different bases: cost leadership, differentiation, and focus. Porter called these base generic strategies.

X-Olympus is facing cutthroat competition due to saturation of market and price wars as there is no clear leader out of the numerous competitors. For this, the

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strategy adopted by X-Olympus is Product Differentiation by introducing a unique product to cater the customer needs at a lesser cost which would insulate it from the fierce competition and never-ending price wars.

Question 37

'Speed' is a leading retail chain, on account of its ability to operate its business at low costs. The retail chain aims to further strengthen its top position in the retail industry. The Chief executive of the retail chain is of the view that to achieve the goals they should focus on lowering the costs of procurement of products. Highlight and explain the core competence of the retail chain. [RTP Nov'18 & Nov '20)

Answer 37

A core competence is a unique strength of an organization which may not be shared by others. Core competencies are those capabilities that are critical to a business achieving competitive advantage. In order to qualify as a core competence, the competency should differentiate the business from any other similar businesses. A core competency for a firm is whatever it does is highly beneficial to the organisation. 'Speed' is the leader on account of its ability to keep costs low. The cost advantage that 'Value for Money' has created for itself has allowed the retailer to price goods lower than competitors. The core competency in this case is derived from the company's ability to generate large sales volume, allowing the company to remain profitable with low profit margin.

Question 38

BHAVNAV is a business which makes and sells laptop computers in France. In recent years it has been struggling to compete with its rivals and has seen a significant fall in its market share. BHAVNAV's managers identify that majority of its products launched by BHAVNAV's rivals were high specification, with good quality materials and many innovative design features. Products with inferior quality, such as those sold by BHAVNAV have not sold well in France. This information led BHAVNAV's management team to decide to select a new business strategy based on Porter's Generic Strategic Model. Identify and suggest the best business strategy BHAVNAV's management has to opt for? (MTP 5 Marks Nov 21)

Answer 38

According to Porter, the three different business strategies are: cost leadership, differentiation, and focus. Porter called these base generic strategies.

The information about competitor activities indicates that the market is uninterested in low-cost items, so a cost leadership approach is unlikely to be successful for BHAVNAV. It is suggested to adopt a differentiation strategy and find some way of enabling its laptops to stand out from its rivals. Differentiation strategy is aimed at broad mass market and involves the creation of a product or service that is perceived by the customers as unique. The uniqueness can be associated with product design, brand image, features, technology, dealer network or customer service.

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Question 39

What are the various alternative strategies which the managers need to identify that will create and sustain a competitive advantage in the business? Discuss. (MTP 5 Marks Oct'22)

Answer 39

According to Porter, strategies allow organizations to gain competitive advantage from three different bases: cost leadership, differentiation, and focus. These bases form different generic strategies as follows:

- **Cost leadership** emphasizes producing standardized products at a very low per-unit cost for consumers who are price-sensitive. It frequently results from productivity increases and aggressive pursuit of cost reduction throughout the development, production, marketing, and distribution processes. It allows a firm to earn higher profits than its competitors.
- D**ifferentiation** is a strategy aimed at producing products and services considered unique industry wide and directed at consumers who are relatively price-insensitive. It concerns with distinguishing a product/service from that of its competitors through unique design features, technological leadership, unique uses of products and attributes like quality, environmental impact and customer service.
- **Focus** means producing products and services that fulfill the specific needs of small groups of consumers. It involves selecting or focusing a market or customer segment in which to operate.

Question 40

Explain competitive advantage. [MTP Oct'18, 3 Marks, MTP March '18, 2 Marks,May'20 5 Marks PP May '18)

Answer 40

Competitive advantage is the position of a firm to maintain and sustain a favorable market position when compared to the competitors. Competitive advantage is ability to offer buyers something different and thereby providing more value for the money. It is the result of a successful strategy. This position gets translated into higher market share, higher profits when compared to those that are obtained by competitors operating in the same industry. Competitive advantage may also be in the form of low cost relationship in the industry or being unique in the industry along dimensions that are widely valued by the customers in particular and the society at large.

Question 41

Capabilities that are valuable, rare, costly to imitate, and non-substitutable are core competencies. Explain these four specific criteria of sustainable competitive advantage that firms can use to determine those capabilities that are core competencies. (RTP May'20, PYP May '22)

Answer 41

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Four specific criteria of sustainable competitive advantage that firms can use to determine those capabilities that are core competencies. Capabilities that are valuable, rare, costly to imitate, and non-substitutable are core competencies.

i. **Valuable:** Valuable capabilities are the ones that allow the firm to exploit opportunities or avert the threats in its external environment. A firm created value for customers by effectively using capabilities to exploit opportunities. Finance companies build a valuable competence in financial services. In addition, to make such competencies as financial services highly successful require placing the right people in the right jobs. Human capital is important in creating value for customers.
ii. **Rare:** Core competencies are very rare capabilities and very few of the competitors possess this. Capabilities possessed by many rivals are unlikely to be sources of competitive advantage for any one of them. Competitive advantage results only when firms develop and exploit valuable capabilities that differ from those shared with competitors.
iii. **Costly to imitate:** Costly to imitate means such capabilities that competing firms are unable to develop easily. *For example*: Intel has enjoyed a first-mover advantage more than once because of its rare fast R&D cycle time capability that brought SRAM and DRAM integrated circuit technology, and brought microprocessors to market well ahead of the competitor. The product could be imitated in due course of time, but it was much more difficult to imitate the R&D cycle time capability.
iv. **Non-substitutable:** Capabilities that do not have strategic equivalents are called non- substitutable capabilities. This final criterion for a capability to be a source of competitive advantage is that there must be no strategically equivalent valuable resources that are themselves either not rare or imitable.

Question 42

Inspite of high commodity inflation, shortage of components and the threat of third wave of COVID-19 pandemic in India, manufacturers of packaged goods, home appliances and consumer electronics are expecting the business to grow by 12 to 25 percent in the coming months. After one-and-a-half years of disruption, manufacturers are now confident about managing their inventories better, keeping their supply channels well-stocked and preparing themselves to minimalize the impact of any COVID related restrictions even as they gear up for the festive season, which usually accounts for 25 to 35 percent of their yearly sales.

The home appliances sector could be an example. After a dismal April-June quarter in the year 221; producers of air conditioners, refrigerators and washing machines are expecting their business to grow by 15-20 percent in the months to come. All the companies operating in the sector have geared up to grab the opportunities available in the market.

A leading company in the home appliances domain, XXP India, is planning to launch various innovative product designs and offer loyalty programmes to lure consumers.

With reference to Michael Porter's generic strategies, identify which strategy XXP India has planner for? Explain how this strategy will be advantageous to the company to remain profitable? (PYP 5 Marks Dec '21)

Answer 42

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According to Michael Porter, strategies allow organizations to gain competitive advantage from three different bases: cost leadership, differentiation, and focus. Porter called these base generic strategies. XXP India Ltd. has planned for Differentiation Strategy. The company is planning to launch various innovative product designs and offer loyalty programmes to lure customers. Differentiation strategy should be pursued only after a careful study of buyers' needs and preferences to determine the feasibility of incorporating one or more differentiating features into a unique product that features the desired attributes. A successful differentiation strategy allows a firm to charge a higher price for its product and to gain customer loyalty, because consumers may become strongly attached to the differentiated features.

Advantages of Differentiation Strategy

A differentiation strategy may help an organisation to remain profitable even with rivalry, new entrants, suppliers' power, substitute products, and buyers' power.

1. Rivalry - Brand loyalty acts as a safeguard against competitors. It means that customers will be less sensitive to price increases, as long as the firm can satisfy the needs of its customers.
2. Buyers – They do not negotiate for price as they get special features, and they have fewer options in the market.
3. Suppliers – Because differentiators charge a premium price, they can afford to absorb higher costs of supplies as the customers are willing to pay extra too.
4. Entrants – Innovative features are an expensive offer. So, new entrants generally avoid these features because it is tough for them to provide the same product with special features at a comparable price.
5. Substitutes – Substitute products can't replace differentiated products which have high brand value and enjoy customer loyalty.

Question 43

What is a strategic group? Discuss the procedure for constructing a strategic group map. (MTP 5 Marks April 21 & May 18)

Answer 43

A strategic group consists of those rival firms which have similar competitive approaches and positions in the market. Companies in the same strategic group can resemble one another in any of the several ways – have comparable product-line breadth, same price/quality range, same distribution channels, same product attributes, identical technological approaches, offer similar services and technical assistance and so on.

The procedure for constructing a strategic group map and deciding which firms belong in which strategic group is as follows:

- Identify the competitive characteristics that differentiate firms in the industry typical variables are price/quality range (high, medium, low); geographic coverage (local, regiona l, national, global); degree of vertical integration (none, partial, full); product -line breadth (wide, narrow); use of distribution channels (one, some, all); and degree of service offered (no-frills, limited, full).
- Plot the firms on a two-variable map using pairs of these differentiating characteristics.

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- Assign firms that fall in about the same strategy space to the same strategic group.
- Draw circles around each strategic group making the circles proportional to the size of the group's respective share of total industry sales revenues.

Question 44

What do you mean by differentiation strategy? How is it achieved? (PYP 5 Marks May'19)

Answer 44

Differentiation strategy is aimed at broad mass market and involves the creation of a product or service that is perceived by the customers as unique. The uniqueness can be associated with product design, brand image, features, technology, dealer network or customer service. Because of differentiation, the business can charge a premium for its product.

Differentiation strategy should be pursued only after a careful study of buyers' needs and preferences to determine the feasibility of incorporating one or more differentiating features into a unique product that features the desired attributes.

To achieve differentiation, following measures can be adopted by an organization:

7. Offer utility for the customers and match the products with their tastes and preferences.
8. Elevate the performance of the product.
9. Offer the promise of high quality product/service for buyer satisfaction.
10. Rapid product innovation.
11. Taking steps for enhancing image and its brand value.
12. Fixing product prices based on the unique features of the product and buying capacity of the customer.

Question 45

Domolo is a premium cycles and cycling equipments brand which targets high spending customer with a liking for quality and brand name. Their cycles range from rupees fifteen thousand to rupees one lac. The recent trend of fitness through cycling has created humongous demand for cycles and peripherals like helmets, lights, braking systems, fitness applications, etc. The customer base has grown 150% in the last three months. Mr. Vijay, who is an investor wants to tap in this industry and bring about cheaper options to people who cannot spend so much. Which business level strategy would best suit for Mr. Vijay's idea and what are the major sub- strategies that can be implemented to capture maximum market? (MTP 5 Marks April 21)

Answer 45

The Best Cost Provider strategy would ensure a better reach to the not so affluent customers and provide them with good quality cycles and equipments, thus tapping in on the increasing trend of cycling.

Two sub-strategies that can be implemented are:

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1. Offering lower prices than rivals for the same quality of products
2. Charging same prices for better quality of products

The idea of Mr. Vijay is to provide almost same quality of products in terms of functionality if not so in terms of branding, to customer who do not have huge sums of money to pay. Thus, sub- strategy number one, offering lower prices for almost same quality should be implemented to become the best cost provider of cycles and related equipments in the market.

Question 46

Write a short note on the concept of cost leadership strategy and how to achieve it? (PYP 5 Marks,Nov '19)

Answer 46

Cost leadership strategy requires vigorous pursuit of cost reduction in the areas of procurement, production, storage and distribution of product or service and also economies in overhead costs. Accordingly, the cost leader is able to charge a lower price for its products than its competitors and still make satisfactory profits. The low cost leadership should be such that no competitors are able to imitate so that it can result in sustainable competitive advantage to the cost leader firm.

To achieve cost leadership, following are the actions that could be taken:

1. Forecast the demand of a product or service promptly.
2. Optimum utilization of the resources to get cost advantages.
3. Achieving economies of scale leads to lower per unit cost of product/service.
4. Standardization of products for mass production to yield lower cost per unit.
5. Invest in cost saving technologies and try using advance technology for smart working.
6. Resistance to differentiation till it becomes essential.

Question 47

'Speed' is a leading retail chain, on account of its ability to operate its business at low costs. The retail chain aims to further strengthen its top position in the retail industry. The Chief executive of the retail chain is of the view that to achieve the goals they should focus on lowering the costs of procurement of products. Highlight and explain the core competence of the retail chain. [MTP April '19, 5 Marks)

Answer 47

A core competence is a unique strength of an organization which may not be shared by others. Core competencies are those capabilities that are critical to a business achieving competitive advantage. In order to qualify as a core competence, the competency should differentiate the business from any other similar businesses. A core competency for a firm is whatever it does is highly beneficial to the organisation. 'Speed' is the leader on account of its ability to keep costs low. The cost advantage that 'Value for Money' has created for itself has allowed the retailer to price goods lower than competitors. The core competency in this case is derived from the company's ability to generate large sales volume, allowing the company to remain

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profitable with low profit margin.

Question 48

Major core competencies are identified in three areas - competitor differentiation, customer value and application to other markets. Discuss. (RTP Nov’19)

Answer 48

A core competence is a unique strength of an organization which may not be shared by others. Core competencies are those capabilities that are critical to a business achieving competitive advantage. In order to qualify as a core competence, the competency should differentiate the business from any other similar businesses. An organization’s combination of technological and managerial know-how, wisdom and experience are a complex set of capabilities and resources that can lead to a competitive advantage compared to a competitor.

According to C.K. Prahalad and Gary Hamel, major core competencies are identified in following three areas:

4. **Competitor differentiation**: The Company can consider having a core competence if the competence is unique and it is difficult for competitors to imitate. This can provide a company an edge compared to competitors. It allows the company to provide better products and services to market with no fear that competitors can copy it.
5. **Customer value:** When purchasing a product or service it has to deliver a fundamental benefit for the end customer in order to be a core competence. It will include all the skills needed to provide fundamental benefits. The service or the product has to have real impact on the customer as the reason to choose to purchase them. If customer has chosen the company without this impact, then competence is not a core competence and it will not affect the company’s market position.
6. **Application of competencies to other markets**: Core competence must be applicable to the whole organization; it cannot be only one particular skill or specified area of expertise. Therefore, although some special capability would be essential or crucial for the success of business activity, it will not be considered as core competence if it is not fundamental from the whole organization’s point of view.

Thus, a core competence is a unique set of skills and expertise, which will be used throughout the organization to open up potential markets to be exploited.

Section B

1. **The goal of SWOT analysis is to____________the organization's opportunities and strengths while______________its threats and_____its weaknesses.**

   (a) avoid; neutralizing; correcting

   (b) exploit; neutralizing; correcting

   (c) avoid; capitalizing; neutralizing

   (d) exploit; avoiding; ignoring

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Ans: (b)

2. **SWOT analysis is an evaluation of the organization's weaknesses and its opportunities and threats.**

   (a) external; internal

   (b) internal; internal

   (c) external; external

   (d) internal; external

Ans: (d)

3. **External opportunities and threats are usually:**

   (a) the minor cause of organizational demise or success

   (b) least important for CEOs and the board of directors

   (c) not as important as internal strengths and weaknesses

   (d) largely uncontrollable activities outside the organization

Ans: (d)

4. **The sustainability of competitive advantage and a firm's ability to earn profits from its competitive advantage depends upon:**

   (a) Durability, reliability, transferability, approximately

   (b) Appropriability, durability, transferability, imitability

   (c) Transferability, imitability, reliability, approximately

   (d) Imitability, durability, reliability, appropriability

Ans: (b)

5. **Internal are activities in an organization that are performed especially well.**

   (a) Opportunities

   (b) Competencies

   (c) Strengths

   (d) Management

Ans: (c)

6. **'Strategic group mapping' helps in-**

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(a) Identifying the strongest rival companies

(b) Identifying weakest rival companies

(c) Identifying weakest and strongest rival companies

(d) None of the above

Ans: (c)

7. In Michael Porter's generic strategy emphasizes producing standardized products at a very low per unit-cost for consumers who are price sensitive.

(a) Cheap leadership

(b) Inferior product leadership

(c) Cost leadership

(d) Cost benefit

Ans: (c)

8. Differentiation Strategy can be achieved by following measures:

1. Match products with tastes and preferences of customers.

2. Elevate the performance of the product.

3. Rapid product innovation

Which of the above is true:

(a) (1) and (2)

(b) (1) and (3)

(c) (2) and (3)

(d) (1), (2) and (3)

Ans: (d)

9. What are the three different bases given by Michael Porter's Generic Strategies to gain competitive advantage?

(a) differentiation, integration and compensation

(b) integration, focus and differentiation

(c) compensation, integration and focus

(d) cost leadership, differentiation and focus

Ans: (d)

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10.A firm successfully implementing a differentiation strategy would expect:

(a) Customers to be sensitive to price increases.

(b) To charge premium prices.

(c) Customers to perceive the product as standard.

(d) To automatically have high levels of power over suppliers.

Ans: (b)

Scenario based questions

Question 1

Rohit Sodhi runs a charitable organisation for promotion of sports in the country. His organisation conducts regular free training camps for youths interested in playing cricket, football, hockey, badminton and so on. Many ofhis trainees have reached national level contests. Rohit noticed that with success of IPL (Cricket) tournament there is an increasing trend to extend similar format in other sports as well. He wishes to know how the development is going help sports and to which industries it will offer opportunities and threats.

Answer 1

With the success of IPL, league matches are taking place in other sports aswell. These are held in a grandeur manner between several teams. **For example**, league matches in magnificent manner now take place in Football, Kabaddi and Hockey in India. These events are profit and entertainment driven. These are going to help sports in India by generating interest in sports, makingthem more popular, increasing quality of competition and bringing moneyinto sports.

A number of entities and processes are involved in these events from various industries offering opportunities and threats to them. An opportunity is afavourable condition in the organisation's environment which enables it to strengthen its position. On the other hand, a threat is an unfavourable condition in the organisation's environment which causes a risk for, or damage to, the organisation's position. An opportunity is also a threat in case internal weaknesses do not allow organization to take their advantage in a manner rival can. It will offer opportunity and threats to the following:

Opportunities

- Stadia.
- Manufacturers of sports goods.

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- Media Industry – Sports channels / television, advertisers.
- Hotel Industry linking events with their offerings.

Threats

- Entertainment industry engaged in TV serials, cinema theatres, Entertainment theme parks as competitors will be fighting for the same viewers/target customers.
- Event Management organisation engaged in non-sports events.

Question 2

Mr. Banerjee is head of marketing department of a manufacturing company. His company is in direct competition with thirteen companies at national level. He wishes to study the market positions of rival companies by grouping them into like positions.

Name the tool that may be used by Mr. Banerjee? Explain the procedure that may be used to implement the technique.

Answer 2

A tool to study the market positions of rival companies by grouping them into like positions is strategic group mapping. Grouping competitors is useful when there are many competitors such that it is not practical to examine each one in-depth. In the given scenario there are thirteen competitors. A strategicgroup consists of those rival firms which have similar competitive approaches and positions in the market.

The procedure for constructing a strategic group map and deciding whichfirms belong in which strategic group is as follows:

- Identify the competitive characteristics that differentiate firms in the industry typical variables that are price/quality range (high, medium, low); geographic coverage (local, regional, national, global); degree of vertical integration (none, partial, full); product-line breadth (wide, narrow); use of distribution channels (one, some, all); and degree of service offered (no-frills, limited, full).
- Plot the firms on a two-variable map using pairs of these differentiating characteristics.
- Assign firms that fall in about the same strategy space to the same strategic group.
- Draw circles around each strategic group making the circles proportional to the size of the group's respective share of total industry sales revenues.

Question 3

Mohan has joined as the new CEO of XYZ Corporation and aims to make it a dominant technology company in the next five years. He aims to develop

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competencies for managers for achieving better performance and a competitive advantage for XYZ Corporation. Mohan is well aware of the importance of resources and capabilities in generating competitive advantage.

Discuss the four major characteristics of resources and capabilities required by XYZ Corporation to sustain the competitive advantage and its ability to earn profits from it.

Answer 3

XYZ Corporation is aiming to transform into a dominant technology company under the leadership of Mohan, the new CEO. He aims to developcompetencies for managers for achieving better performance and a competitive advantage for the corporation. Mohan is also well aware of the importance of resources and capabilities in generating and sustaining the competitive advantage. Therefore, he must focus on characteristics of resources and capabilities of the corporation.

The sustainability of competitive advantage and a firm's ability to earn profits from it depends, to a great extent, upon four major characteristics of resources and capabilities which are as follows:

- **Durability:** The period over which a competitive advantage is sustained depends in part on the rate at which a firm's resources and capabilities deteriorate. In industries where the rate of product innovation is fast, product patents are quite likely to become obsolete. Similarly, capabilities which are the result of the management expertise of theCEO are also vulnerable to his or her retirement or departure. On the other hand, many consumer brand names have a highly durable appeal.
- **Transferability:** Even if the resources and capabilities on which a competitive advantage is based are durable, it is likely to be eroded by competition from rivals. The ability of rivals to attack position of competitive advantage relies on their gaining access to the necessary resources and capabilities. The easier it is to transfer resources and capabilities between companies, the less sustainable will be thecompetitive advantage which is based on them.
- **Imitability:** If resources and capabilities cannot be purchased by a would-be imitator, then they must be built from scratch. How easily and quickly can the competitors build the resources and capabilities on which a firm's competitive advantage is based? This is the true test of imitability. Where capabilities require networks of organizational routines, whose effectiveness depends on the corporate culture, imitation is difficult.
- **Appropriability:** Appropriability refers to the ability of the firm's owners to appropriate the returns on its resource base. Even whereresources and capabilities are capable of offering sustainable advantage, there is an issue as to who receives the returns on these resources.

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Question 4

Airlines industry in India is highly competitive with several players. Businesses face severe competition and aggressively market themselves with each other. Luxury Jet is a private Delhi based company with a fleet size of 9 small aircrafts with seating capacity ranging between 6 seats to 9 seats. There aircrafts are chartered by big business houses and high net worth individuals for their personalised use. With customised tourism packages their aircrafts are also often hired by foreigners. Identify and explain the Michael Porter's Generic Strategy followed by Luxury Jet.

Answer 4

The Airlines industry faces stiff competition. However, Luxury Jet has attempted to create a niche market by adopting focused differentiation strategy. A focused differentiation strategy requires offering unique features that fulfil the demands of a narrow market.

Luxury Jet compete in the market based on uniqueness and target a narrow market which provides business houses, high net worth individuals to maintain strict schedules. The option of charter flights provided several advantages including, flexibility, privacy, luxury and many a times cost saving. Apart from conveniences, the facility will provide time flexibility. Travelling by private jet is the most comfortable, safe and secure way of flying your company's senior business personnel.

Chartered services in airlines can have both business and private use. Personalized tourism packages can be provided to those who can afford it.

Question 5

Gennex is a company that designs, manufactures and sells computer hardware and software. Gennex is well known for its innovative products that has helped the company to have advantage over its competitors. It also spends on research and development and concerned with innovative softwares. Often the unique features of their product, that are not available with their competitors helps them to gain competitive advantage. Gennex using the strategy is consistently gaining its position in the industry over its competitors.

Identify and explain the Porter's generic strategy which Gennex has opted to gain the competitive advantage.

Answer 5

According to Porter, strategies allow organizations to gain competitive advantage from three different bases: cost leadership, differentiation, and focus. Porter called these base generic strategies.

Gennex has opted differentiation strategy. Its products are designed and produced to give the customer value and quality. They are unique and serve specific customer

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needs that are not met by other companies in the industry. Highly differentiated and unique hardware and software enables Gennex to charge premium prices for its products hence making higher profits and maintain its competitive position in the market.

Differentiation strategy is aimed at broad mass market and involves the creation of a product or service that is perceived by the customers as unique. The uniqueness can be associated with product design, brand image, features, technology, dealer network or customer service.

Question 6

Sohan and Ramesh are two friends who are partners in their business of making biscuits. Sohan believe in making profits through selling more volume of products. Hence, he believes in charging lesser price to the customers. Ramesh, however, of the opinion that higher price should be charged to create an image of exclusivity and for this, he proposes that the product to undergo some change.

Analyse the nature of generic strategy used by Sohan and Ramesh.

Answer 6

Considering the generic strategies of Porter there are three different bases: cost leadership, differentiation and focus. Sohan and Ramesh are contemplating pricing for their product.

Sohan is trying to have a low price and high volume is thereby trying for cost leadership. Cost leadership emphasizes producing standardised products ata very low per unit cost for consumers who are price sensitive.

Ramesh desires to create perceived value for the product and charge higher prices. He is trying to adopt differentiation. Differentiation is aimed at producing products and services considered unique industry wide and directed at consumers who are relatively price insensitive.

Question 7

Infant care is a successful store chain that caters products for expectant mothers and new moms. They offer everything from nursing classes to strollers, toys, infant clothes, diapers and baby furniture. Due to a one-stop shop for infants, they are charging a premium for its products.

Identify and explain how the strategy adopted by infant care.

Answer 7

Infant care is opting for differentiation strategy. A one-stop shop is a benefitfor this type of customers, seeking convenience in a time. Infant care is catering the products

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only related to an infant that is perceived by the customers as unique. Because of differentiation, the Infant care is charging a premium for its product.

Question 8

A century-old footwear company "Mota Shoes" had an image of being the footwear choice for formal occasions. In an attempt to reinvent its brand, it tied up with a foreign footwear giant "Buffrine" to manufacture and sell its Hideseek brand in the country. Putting its best foot forward, it launched extra soft, casual and relaxed footwear for young. Aiming at a brand and image makeover the "Mota Shoes" decided to price the Hide Seek products at premium.

What kind of Michael Porter business level strategy is being used by "Mota Shoe company"? State its advantages

Answer 8

Mota shoes is trying to use differentiation. This strategy is aimed at broad mass market and involves the creation of a product or service that is perceived by the customers as unique. The uniqueness can be associated with product design, brand image, features, technology, dealer network or customer service. Because of differentiation, the business can charge a premium for its product.

A differentiation strategy has definite advantages as it may help to remain profitable even with rivalry, new entrants, suppliers' power, substitute products, and buyers' power.

i. **Rivalry:** Brand loyalty acts as a safeguard against competitors. It means that customers will be less sensitive to price increases, as long as the firm can satisfy the needs of its customers.

ii. **Buyers:** They do not negotiate for price as they get special features and also, they have fewer options in the market.

iii. **Suppliers:** Because differentiators charge a premium price, they can afford to absorb higher costs of supplies and customers are willing to pay extra too.

iv. **New entrants:** Innovative features are expensive to copy. So, new entrants generally avoid these features because it is tough for them to provide the same product with special features at a comparable price.

v. **Substitutes:** Substitute products can't replace differentiated products which have high brand value and enjoy customer loyalty.

Question 9

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Rohit Patel is having a small chemist shop in the central part of Ahmedabad. What kind of competencies Rohit can build to gain competitive advantage over online medicine sellers?

Answer 9

Capabilities that are valuable, rare, costly to imitate, and non-substitutable are core competencies. A small chemist shop has a local presence and functions within a limited geographical area. Still, it can build its own competencies to gain competitive advantage. Rohit Patel can build competencies in the areas of:

(i) Developing personal and cordial relations with the customers.

(ii) Providing home delivery with no additional cost.

(iii) Developing a system of speedy delivery that can be difficult to match by online sellers. Being in central part of city, he can create a network to supply at wider locations in the city.

(iv) Having extended working hours for convenience of buyers.

(v) Providing easy credit or a system of monthly payments to the patients consuming regular medicines.

Question 10

'Value for Money' is a leading retail chain, on account of its ability to operate its business at low costs. The retail chain aims to further strengthen its top position in the retail industry. Marshal, the CEO of the retail chain is of the view that to achieve the goals they should focus on lowering the costs of procurement of products.

Highlight and explain the core competence of the 'Value for Money' retail chain.

Answer 10

A core competence is a unique strength of an organization which may not be shared by others. Core competencies are those capabilities that are critical toa business achieving competitive advantage. In order to qualify as a core competence, the competency should differentiate the business from any other similar businesses. A core competency for a firm is whatever it does is highly beneficial to the organization.

'Value for Money' is the leader on account of its ability to keep costs low. The cost advantage that 'Value for Money' has created for itself has allowed the retailer to price goods lower than competitors. The core competency in this case is derived from the company's ability to generate large sales volume, allowing the company to remain profitable with low profit margin.

Question 11

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What is the purpose of SWOT analysis? Why is it necessary to do a SWOT analysis before selecting a particular strategy for a business organization?

Answer 11

An important component of strategic thinking requires the generation of a series of strategic alternatives, or choices of future strategies to pursue, given the company's internal strengths and weaknesses and its external opportunities and threats. The comparison of strengths, weaknesses, opportunities, and threats is normally referred to as SWOT analysis.

- **Strength:** Strength is an inherent capability of the organization whichit can use to gain strategic advantage over its competitors.
- **Weakness:** A weakness is an inherent limitation or constraint of the organization which creates strategic disadvantage to it.
- **Opportunity:** An opportunity is a favourable condition in the organisation's environment which enables it to strengthen its position.
- **Threat:** A threat is an unfavourable condition in the organisation's environment which causes a risk for, or damage to, the organisation's position.

SWOT analysis helps managers to craft a business model (or models) that will allow a company to gain a competitive advantage in its industry (or industries). Competitive advantage leads to increased profitability, and this maximizes a company's chances of surviving in the fast-changing, competitive environment. Key reasons for SWOT analysis are:

- It provides a logical framework.
- It presents a comparative account.
- It guides the strategist in strategy identification.

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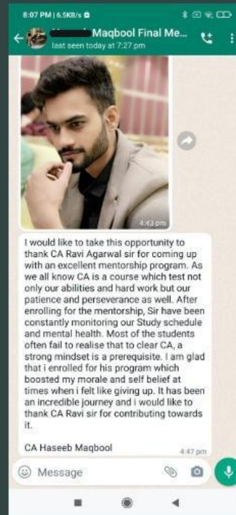

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Chapter 4

Strategic choice

Attempt wise Distribution

Attempts	May' 18	Nov' 18	May' 19	Nov' 19	May' 20	Nov' 20	Jan' 21	Jul' 21	Dec' 21	May' 22	Nov' 22	May' 23	Nov' 23
MCQ													
MTP			Q11, Q13, Q21, Q25, Q32	Q36		Q12, Q34		Q28, Q30, Q33	Q27, Q29, Q35		Q20, Q31	Q15, Q26	Q7, Q16
RTP			Q5, Q8, Q10, Q14	Q1, Q18		Q3, Q17, Q19, Q23		Q24	Q37	Q2,Q4	Q6	Q9, Q22	
Q & A													
MTP		Q20, Q35	Q50, Q65	Q33		Q52, Q63		Q64	Q23, Q61	Q18	Q56, Q57	Q11	Q44, Q58
PYP	Q4,Q9,Q45	Q19, Q42, Q47	Q22	Q27			Q40	Q62	Q16, Q60, Q2	Q12,Q24	Q48	Q6	
RTP	Q25, Q26, Q39, Q49, Q59	Q1, Q5, Q53	Q28, Q51	Q8, Q54		Q17,Q30, Q31, Q36		Q37, Q38	Q21, Q43	Q7,Q14,Q29, Q32	Q41, Q46, Q55	Q10, Q15, Q34	Q3, Q13

Section A

1. **In the questions given below select the best answer out of options (A), (B), (C), or (D):**
Arrange divestment, liquidation, stability and turnaround strategies in order of preference for adoption by a typical organization.

    (a) Turnaround, stability, liquidation and divestment.

    (b) Divestment, liquidation, stability and turnaround.

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(c) Stability, turnaround, liquidation and divestment.

(d) Stability, turnaround, divestment and liquidation. **(RTP Nov'19)**

Ans: (d)

2. Nom-Nom is a fast-food brand and has been facing a lot of competition from American brands and has decided to NOT go very aggressive but to just preserve market share? Which of the strategy Nom-Nom is following?

(a) Build

(b) Hold

(c) Harvest

(d) Divest **(RTP May '22)**

Ans: (b)

3. The Niche strategy is the best way to enter a:

(a) New market

(b) Growing market

(c) Matured market

(d) None of the above **(RTP Nov'20)**

Ans: (c)

4. A tea farm owners plan to open tea cafes in tourist spots and to sell their own premium tea to build a brand. Which of the following can this be termed as?

(a) Backward Integration

(b) Forward Integration

(c) Diversification

(d) Horizontal Integration **(RTP May '22)**

Ans: (b)

5. An organization acquires its supplier is an example of:

(a) Horizontal integrated diversification.

(b) Forward integrated diversification.

(c) Backward integrated diversification.

(d) Conglomerate diversification. **(RTP May'19)**

Ans: (c)

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6. Hupo a honey brand decided to start a new brand for making honey ginger candies to meet the rising demand. Identify their growth strategy?

(a) Conglomerate Diversification

(b) Concentric Diversification

(c) Vertical Integration

(d) Horizontal Integration **(RTP Nov'22)**

Ans: (a)

7. You have been appointed as a strategic manager at ABC Company, which is currently facing a situation where one of its products has entered the maturity stage of its Product Life Cycle (PLC). The company has made a deliberate decision to maintain its existing business operations and is content with achieving incremental growth for this product aligns with which of the following strategies?

(a) Expansion strategy

(b) Stability strategy

(c) Retrenchment strategy

(d) Combination strategy (**MTP 2 Marks Sep '23**)

Ans: (b)

8. Which of the following is not a type of diversification strategy?

(a) Vertical diversification.

(b) Concentric diversification.

(c) Conglomerate diversification.

(d) Co-generic diversification. **(RTP May'19)**

Ans :(d)

9. Sanjay guided the team of young entrepreneurs to hold to the current position in the market till they get a big opportunity. What could be their business termed as basis Sanjay's advice?

(a) Question Mark

(b) Cash Cow

(c) Star

(d) Dog **(Chapter Dynamics of Competitive Strategy) (RTP May 23)**

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Ans: (a)

10. Stability strategy is a ________ strategy.

(a) SBU level

(b) Corporate level

(c) Business level

(d) Functional level (**MTP March '19, 1 Mark, RTP May'19, New SM)**

Ans: (b)

11. Conglomerate diversification can also be explained as:

(a) Merger

(b) Combination strategy

(c) Related diversification

(d) Unrelated diversification **(MTP April '19, 1 Mark)**

Ans: (d)

12. When two organizations combine to increase their strength and financial gains along with reducing competition is called --.

(a) Hostile takeover

(b) Liquidation

(c) Merger

(d) Acquisition **(MTP 1 Mark Oct '20)**

Ans: (c)

13. Acquision of a company producing readymade garments by a company manufacturing yarn is .

(a) Horizontal integration

(b) Horizontal Diversification

(c) Forward integration

(d) Backward integration **(MTP 1 Mark April '19)**

Ans : (c)

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14. **A company that produces and sells athletic shoes may acquire or merge with another athletic shoe manufacturer in order to increase their market share and reduce competition is an example of -**

    (a) Horizontal integration

    (b) Backward integration

    (c) Market penetration

    (d) Forward integration **(MTP 2 Marks April '23)**

Ans: (a)

15. **XYZ Corporation is a multinational conglomerate operating in various industries. They have a diverse portfolio of businesses, including a leading consumer electronics division, a growing e - commerce platform, a mature industrial machinery division, and a newly established software development unit. Which division of XYZ Corporation would most likely be classified as a "Star" in the BCG Growth-Share Matrix?**

    (a) Consumer Electronics Division

    (b) E-commerce Platform

    (c) Industrial Machinery Division

    (d) Software Development Unit (**MTP 2 Marks Oct '23)**

Ans: (b)

16. **In the questions given below select the best answer out of options (a), (b), (c), or (d):**
    Retrenchment strategy in the organization can be explained as

    (a) Reducing trenches (gaps) created between individuals.

    (b) Divesting a major product line or market.

    (c) Removal of employees from job through the process of reorganization.

    (d) Removal of employees from job in one business to relocate them in other business. **(RTP May'20)**

Ans:(b)

17. **In the questions given below select the best answer out of options (A), (B), (C), or (D):**
    Acquisition of another organization that was using your product in their manufacturing is:

    (a) Horizontal integrated diversification

    (b) Forward integrated diversification

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(c) Backward integrated diversification

(d) conglomerate diversification **(RTP Nov'19)**

Ans: (b)

18. Vertical integration may be beneficial when

(a) Lower transaction costs and improved coordination are vital and achievable through vertica l integration.

(b) Flexibility is reduced, providing a more stationary position in the competitive environment.

(c) Various segregated specializations will be combined.

(d) The minimum efficient scales of two corporations are different. **(MTP March '19, 1 Mark, RTP May'20)**

Ans: (a)

19. The business news anchor said that "chillflix's dead business is worth more than alive". What did she hint at?

(a) Restructuring Business

(b) Liquidation

(c) Business Process Re-engineering

(d) Divestment **(MTP 1 Mark Sep'22)**

Ans:(b)

20. What does Dogs symbolize in BCG matrix?

(a) Invest

(b) Harvest

(c) Build

(d) Divest **(MTP March '19, 1 Mark)**

Ans: (d)

21. Sumedha has a home-grown brand which makes traditional lehengas. She thought of expanding her business and added linen jackets and cotton trousers to her product line. Which strategy is she working on?

(a) Backward integration

(b) Intensification

(c) Diversification

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(d) Horizontal Diversification **(Chapter Corporate Level Strategies) (RTP May '23)**

Ans: (b)

22. Velvet Limited is a full-service airline. The company is making the following decisions:

(i) **Should a 'no-frills', 'low-fare' subsidiary be set-up?**

(ii) **If it is set-up, how should the cabin staff be recruited?**

Which of the above decisions will be taken by corporate level managers?

(a) Only (I)

(b) Only (ii)

(c) Both (I) & (ii)

(d) Neither (I) nor (ii) **(RTP Nov'20)**

Ans: (a)

23. If suppliers are unreliable or too costly, which of these strategies may be appropriate?

(a) Horizontal integration

(b) Backward integration

(c) Market penetration

(d) Forward integration **(MTP Oct '19, 1 Mark, RTP May'21)**

Ans: (b)

24. Which of the following can be used in retrenchment strategy?

(a) Reducing assets.

(b) Operational improvement.

(c) Cutting cost.

(d) All of the above. (**MTP April '19, 1 Mark)**

Ans: (d)

25. Merger of two organisations that are operating in the same industry but at different stages of production and distribution system is called: -

(a) Horizontal Merger

(b) Vertical Merger

(c) Co-generic Merger

(d) Conglomerate Merger **(MTP 1 Mark March '23)**

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Ans: (b)

26. Mixfix was having a tough time with its operations and wanting to restructure itself from scratch. For this, they consult a veteran in business strategy, Mrs. Sunita K, who post analysis of their business said, "your dead business is worth more than alive". What did Mrs. Sunita hint at?

(a) Restructuring Business

(b) Liquidation

(c) Business Process Re-engineering

(d) Divestment **(MTP 2 Marks Oct 21)**

Ans: (b)

27. Beta Company, a car manufacturer is buying up a supplier so that it gets a dedicated supplier with both guaranteed quality and price. The material could be manufactured when required by Beta Company leading to lower inventory levels. Which strategy has Beta Company adopted?

(a) Backward integration

(b) Forward integration

(c) Conglomerate diversification

(d) Horizontal integrated diversification **(MTP 2 Marks March '21)**

Ans: (a)

28. A rubber manufacturer starts making shoe soles and gum can be termed as?

(a) Conglomerate Diversification

(b) Concentric Diversification

(c) Horizontal Integration

(d) Vertical Integration **(MTP 1 Mark Nov 21)**

Ans: (b)

29. A beverage company has more than 500 soft drink brands, but none of them is anywhere close to its premium brand One Sip in awareness, revenue and profits. As per BCG's Matrix, One Sip brand for the beverage company is?

(a) Star

(b) Dog

(c) Cash cow

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(d) Question mark **(2 Marks April 21)**

Ans: (c)

30. Dogs in BCG Matrix can be minimized through?

(a) Converting to Cash Cows

(b) Liquidating or Divesting

(c) Foreign Direct Investment Opportunity

(d) Bad Debt Writing off **(MTP 1 Mark Sep'22)**

Ans: (b)

31. Conglomerate diversification is another name for which of the following?

(a) Related diversification

(b) Unrelated diversification

(c) Portfolio diversification

(d) Acquisition diversification **(MTP March '19, 1 Mark,MTP 1 Mark Oct'22)**

Ans: (d)

32. The Specialist Clothing Company (SCC) is a manufacturer of a wide range of clothing. Fashion is one of the five divisions of SCC. Fashion is operating in a market with high growth and is a market leader. By the next year, it is predicted to have 10% of the market share in a growing market. Fashion should be classified as which of the following according to the BCG matrix.

(a) Star

(b) Dog

(c) Cash cow

(d) Question mark **(2 Marks March '21)**

Ans: (a)

33. Dee Limited is an international clothing retailer. The company is making the following decisions:

i. Should another range of shops be established?

ii. Should the company float more share capital?

iii. How will the premises be fitted out for the new range of shops? Which of the above decisions will be taken by corporate level managers?

(a) Only (i)

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(b) Only (ii)

(c) (i) & (ii)

(d) (ii) & (iii) **(MTP 1 Mark Oct '20)**

Ans: (c)

34. Baba Pvt Ltd has seventeen factories, nine of which they recently gave to other producers on lease. This has increased their cash inflows to a great extent, and they are enjoying this surplus by investing the same in financial assets. Such a strategy can be termed as which of the following?

(a) Divest

(b) Harvest

(c) Hold

(d) Build **(MTP 2 Marks Oct '21)**

Ans: (b)

35. Which strategy is implemented after the failure of turnaround strategy?

(a) Expansion strategy

(b) Diversification strategy

(c) Divestment strategy

(d) Growth strategy **(MTP Oct '19, Apr'21, 1 Mark)**

Ans: (c)

36. In context to BCG matrix, which of the following statements is not correct?

(a) The BCG assumes that all products will grow and mature.

(b) The BCG can be used to examine a company's current product portfolio.

(c) A company with only cash cows and dogs has limited long-term prospects.

(d) All of the above **(1 Mark Nov '21)**

Ans: (a)

Question & Answer

Question 1

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Forward integration and backward integration. (RTP Nov'18)

Answer 1

Forward and backward integration form part of vertically integrated diversification. In vertically integrated diversification, firms opt to engage in businesses that are vertically related to the existing business of the firm. The firm remains vertically within the same process. While diversifying, firms opt to engage in businesses that are linked forward or backward in the chain and enters specific product/process steps with the intention of making them into new businesses for the firm. Backward integration is a step towards creation of effective supply by entering business of input providers. Strategy employed to expand profits and gain greater control over production of a product whereby a company will purchase or build a business that will increase its own supply capability or lower its cost of production. On the other hand, forward integration is moving forward in the value chain and entering business lines that use existing products. Forward integration will also take place where organizations enter into businesses of distribution channels.

Question 2

Ajanta & Sons Limited are manufacturers of domestic household security alarms for high income group homeowners in India. The company is currently reviewing two strategic options.

Option 1: Selling the same alarms although with different coverings to smaller and low- income group households at a lower price.

Option 2: Development of new, more sophisticated alarms and a wide range of security services (guards and surveillance) for sale to industrial clients for higher prices.

The senior management team of Ajanta & Sons Limited are keen to analyze the two options using Ansoff's matrix. (RTP Nov'21)

Answer 2

Selling the same alarms with different coverings to smaller and low income group households at a lower price represents Market Development as the same products are being sold into a new market. Market development refers to a growth strategy where the business seeks to sell its existing products into new markets. It is a strategy for company growth by identifying and developing new markets for the existing products of the company.
While the development of new and more sophisticated alarms and a wide range of security services (guards and surveillance) for sale to industrial clients for higher prices is classified as Diversification, because it involves a new product, being sold in a new market. Diversification refers to a growth strategy where a business markets new products in new markets. It is a strategy by starting up or acquiring businesses outside the company's current products and markets.

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Question 3

Jynklo Ltd. is an established online children gaming company in Japan. They are performing good in the gaming industry. The management of Jynklo Ltd. has decided to expand its business. They decided to start a premium sports drink named JynX for athletes. Identify and explain the growth strategy adopted by Jynklo Ltd.? (RTP Nov '23)

Answer 3

Currently Jynklo Ltd. is performing in the children gaming industry. But now its management has decided to expand their business by starting a premium sports drink named JynX for athletes. As there are no linkages in both products with respect to customer groups, customer functions, or the technologies being used, so Jynklo Ltd. have opted Conglomerate diversification.

Jynklo Ltd. diversify in a business that is not related to their existing line of product and can be termed as conglomerate diversification. In conglomerate diversification, the new businesses/ products are disjointed from the existing businesses/products in every way; it is a unrelated diversification. In process/ technology/ function, there is no connection between the new products and the existing ones. Conglomerate diversification has no common thread at all with the firm's present position.

Question 4

XYZ Ltd. is a multi-product company, suffering from continuous losses since last few years and has accumulated heavy losses which have eroded its net worth.
What strategic option is available to the management of this sick company? Advise with reasons. (PYP 5 Marks, May'18)

Answer 4

XYZ Ltd. is a sick company with accumulated losses that have eroded its net worth. The multi-product company may analyses its various products to take decisions on the viability of each. **The company may consider retrenchment strategy.**
Retrenchment becomes necessary for coping with hostile and adverse situations in the environment and when any other strategy is likely to be suicidal.
Retrenchment strategy is adopted because of continuous losses and unviability and stability can be ensured by reallocation of resources from unprofitable to profitable businesses.
Retrenchment strategy is followed when an organization substantially reduces the scope of its activity. This is done through an attempt to find out the problem areas and diagnose the causes of the problems. Next, steps are taken to solve the problems.

These steps result in different kinds of retrenchment strategies as follows:

Turnaround strategy: If the organization chooses to transform itself into a leaner structure and focuses on ways and means to reverse the process of decline, it adopts a turnaround strategy. It may try to reduce costs, eliminate unprofitable outputs,

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generate revenue, improve coordination, better control, and so on.

Divestment Strategy: Divestment strategy involves the sale or liquidation of a portion of business, or a major division, profit center or SBU. Divestment is usually a part of rehabilitation or restructuring plan and is adopted when a turnaround has been attempted but has proved to be unsuccessful.

Liquidation Strategy: In the retrenchment strategy, the most extreme and unattractive is liquidation strategy. It involves closing down a firm and selling its assets. It is considered as the last resort because it leads to serious consequences such as loss of employment for workers and other employees, termination of opportunities where a firm could pursue any future activities, and the stigma of failure.

The management of multiproduct sick company manufacturing various items need to understand pros and cons of each strategic option. The decision will depend upon the specific circumstances of each product and management goals of the company.

Question 5

Vastralok Ltd., was started as a textile company to manufacture cloth. Currently, they are in the manufacturing of silk cloth. The top management desires to expand the business in the cloth manufacturing. To expand they decided to purchase more machines to manufacture cotton cloth. Identify and explain the strategy opted by the top management of Vastralok Ltd. (RTP Nov'18)

Answer 5

Vastralok Ltd. is currently manufacturing silk cloth and its top management has decided to expand its business by manufacturing cotton cloth. Both the products are similar in nature within the same inductry. The strategic diversification that the top management of Vastralok Ltd. has opted is concentric in nature. They were in business of manufacturing silk and now they will manufacture cotton as well. They will be able to use existing infrastructure and distribution channel. Concentric diversification amounts to related diversification.

In concentric diversification, the new business is linked to the existing businesses through process, technology or marketing. The new product is a spin-off from the existing facilities and products/processes. This means that in concentric diversification too, there are benefits of synergy with the current operations

Question 6

Health Pharma Pvt. Ltd. (HPPL) a one person company with limited liability is manufacturing generic and medicinal drugs in India.

Hygiene Laboratories Plc. (HLP) a multinational company with its strong financial position is one of the major players in pharmaceutical sector.

Individually, each company has its own core competencies. However, additional focus by the state on generic medicine with renewed regulatory requirements are posing challenges in fierce competitive environment.

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Considering benefits of synergies, both the companies are considering to join hands for better growth opportunities. Earlier, they tried to go for joint venture or strategic alliance but the arrangement could not materialize.

In view of the facts given above:

(i) **If HPPL and HLP join hands and make new entity named Health N Hygiene Pharma Ltd., what type of growth strategy will this strategic development be?**

(ii) **In case, HLP is sold out to HPPL and HLP ceased to exist, what type of growth strategy will this strategic deal be?**

(iii) **What are the differences between the above two identified growth strategies? (PYP 5 Marks May '23)**

Answer 6

i) If HPPL and HLP join hands and form a new entity named Health N Hygiene Pharma Ltd., this strategic development would be considered a Merger growth strategy. A merger is a combination of two or more companies to form a new entity with shared ownership and control.

ii) If HLP is sold out to HPPL and HLP ceases to exist, this strategic deal would be categorized as an Acquisition growth strategy. An acquisition occurs when one company purchases another, resulting in the acquiring company gaining control over the acquired company's assets, operations, and intellectual property.

iii) Many organizations in order to achieve quick growth, expand or diversify with the use of mergers and acquisitions strategies. Merger and acquisition in simple words are defined as a process of combining two or more organizations together. There is a thin line of difference between the two terms, but the impact of combination is completely different in both the cases.

Merger is considered to be a process when two or more organizations join together to expand their business operations. In such a case the deal gets finalized on friendly terms. Owners of pre-merged entities have right over the profits of new entity. In a merger two organizations combine to increase their strength and financial gains.

While, when one organization takes over the other organization and controls all its business operations, it is known as acquisition. In the process of acquisition, one financially strong organization overpowers the weaker one. Acquisitions often happen during economic recession or during declining profit margins. In this process, one that is financially stronger and bigger establishes it power. The combined operations then run under the name of the powerful entity. A deal in case of an acquisition is often done in an unfriendly manner; it is more or less a forced association.

Question 7

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Diversification endeavours can be categorized into four broad classifications. State the basis for this classification and name the four categories. How is concentric diversification different from vertically diversification? Explain. (RTP May'22)

Answer 7

Diversification strategy involves expansion into new businesses that are outside the current business and markets of an organisation. Based on the nature and extent of their relationship to existing businesses, diversification can be classified into four broad categories:

(i) Vertically integrated diversification

(ii) Horizontally integrated diversification

(iii) Concentric diversification

(iv) Conglomerate diversification

Concentric diversification takes place when the products are related. The new product is a spin-off from the existing facilities and products/processes. This means that in concentric diversification too, there are benefits of synergy with the current operations. However, concentric diversification differs from vertically integrated diversification in the nature of the linkage the new product has with the existing ones.

In vertically integrated diversification, firms opt to engage in businesses that are related to the existing business of the firm. The firm remains vertically within the same process. Sequence moves forward or backward in the chain and enters specific product/process steps with the intention of making them into new businesses for the firm. The new product falls within the firm's current process-product chain. In concentric diversification, there is a departure from this vertical linkage, a new related product is added to the existing business. The new product is only connected in a loop-like manner at one or more points in the firm's existing process/technology/product chain.

Question 8

Pizza Galleria was India's first pizza delivery chain enjoying monopoly for several years. However, after entry of Molino and Uncle Jack it is struggling to compete. Both Molino and Uncle Jack have opened several eateries and priced the product aggressively. In last four years the chain has suffered significant losses. The chain wishes to know whether they should go for turnaround strategy. List out components of action plan for turnaround strategy. (RTP Nov'19)

Answer 8

Pizza Chain may choose to have turnaround strategy if there are:

- Persistent negative cash flow from business.
- Uncompetitive products or services.
- Declining market share.
- Deterioration in physical facilities.
- Over-staffing, high turnover of employees, and low morale.

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- Mismanagement.

For turnaround strategies to be successful, it is imperative to focus on the short and long- term financing needs as well as on strategic issues. The chain may attempt to leverage the potential Indian market by engaging a new logistics partner. It may bring innovation in food items, as well as quality and improvements in the overall dine-in and delivery experience. During the turnaround, the "product mix" may be changed, requiring the organization to do some repositioning.

A workable action plan for turnaround would involve:

Stage One – Assessment of current problems: The first step is to assess the current problems and get to the root causes and the extent of damage the problem has caused.

Stage Two – Analyze the situation and develop a strategic plan: Before making any major changes; determine the chances of the business's survival. Identify appropriate strategies and develop a preliminary action plan.

Stage Three – Implementing an emergency action plan: If the organization is in a critical stage, an appropriate action plan must be developed to stop the bleeding and enable the organization to survive. A positive operating cash flow must be established as quickly as possible and enough funds to implement the turnaround strategies must be raised.

Stage Four – Restructuring the business: The financial state of the organization's core business is particularly important. If the core business is irreparably damaged, then the outlook for the entire organization may be bleak. Efforts to be made to position the organization for rapid improvement.

Stage Five – Returning to normal: In the final stage of turnaround strategy process, the organization should begin to show signs of profitability, return on investments and enhancing economic value-added. Emphasis is placed on a number of strategic efforts such as carefully adding new products and improving customer service, creating alliances with other organizations, increasing the market share, etc.

Question 9

Explain the meaning of Directional Strategy. (PYP 2 Marks, May'18)

Answer 9

Directional strategies, also called **grand strategies**, provide basic directions for strategic actions towards achieving strategic goals. Such strategies are formulated at the corporate level so are also **known as corporate strategies**. The corporate strategies a firm can adopt have been **classified into four broad categories: stability, expansion, retrenchment, and combination.**

Question 10

Redefinition of business is involved in both "Expansion" and "Retrenchment" strategy, however, method involved in their execution is completely different. Explain. (RTP May '23)

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Answer 10

Expansion strategy is implemented by redefining the business by adding the scope of business substantially increasing the efforts of the current business. On the other hand, Retrenchment strategy involves redefinition of business by divesting a major product line or market.

Expansion is a promising and popular strategy that tends to be equated with dynamism, vigour, promise and success. Retrenchment or retreat becomes necessary or expedient for coping with particularly hostile and adverse situations in the environment and when any other strategy is likely to be suicidal.

Expansion may take the enterprise along relatively unknown and risky paths, full of promises and pitfalls. Retrenchment involves regrouping and recouping of the resources.

Question 11

Jeff Inc., a leading USA based Mobile company decides to make India a hub for the company's Android Mobile having largest storage memory to be manufactured in collaboration with the Desi Group, a leading Indian mobile manufacturer. The production is to be exported to the company's home market as well as to other European countries.

What is this growth strategy called? Point out the most important advantages both the companies expect from such strategy/collaboration. (MTP 5 Marks March '23)

Answer 11

Jeff Inc. of USA and Desi group of India opted for strategic alliance as their growth strategy. A strategic alliance is a relationship between two or more businesses that enables each to achieve certain strategic objectives which neither would be able to achieve on its own. Strategic alliances are often formed in the global marketplace between businesses that are based in different regions of the world.

A strategic alliance is a relationship between two or more businesses that enables each to achieve certain strategic objectives which neither would be able to achieve on its own. The strategic partners maintain their status as independent and separate entities, share the benefits and control over the partnership, and continue to make contributions to the alliance until it is terminated

Advantages of Strategic Alliance

Strategic alliance usually is only formed if they provide an advantage to all the parties in the alliance. These advantages can be broadly categorised as follows:

1. **Organizational:** Strategic alliance helps to learn necessary skills and obtain certain capabilities from strategic partners. Strategic partners may also help to enhance productive capacity, provide a distribution system, or extend supply

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chain. Having a strategic partner who is well -known and respected also helps add legitimacy and creditability to a new venture.

2. **Economic:** There can be reduction in costs and risks by distributing them across the members of the alliance. Greater economies of scale can be obtained in an alliance, as production volume can increase, causing the cost per unit to decline. Finally, partners can take advantage of co - specialization, creating additional value, such as when a leading computer manufacturer bundles its desktop with a leading monitor manufacturer's monitor.

3. **Strategic:** Rivals can join together to cooperate instead of competing with each other. Vertical integration can be created where partners are part of supply chain. Strategic alliances may also be useful to create a competitive advantage by the pooling of resources and skills. This may also help with future business opportunities and the development of new products and technologies. Strategic alliances may also be used to get access to new technologies or to pursue joint research and development.

4. **Political:** Sometimes strategic alliances are formed with a local foreign business to gain entry into a foreign market either because of local prejudices or legal barriers to entry. Forming strategic alliances with politically influential partners may also help improve your own influence and position.

Question 12

ABC Steel Industries finds out that its products have reached at maturity stage and already has overcapacity. Therefore, it concentrates on maintaining operational efficiency of its plants. Identity the strategy implemented by ABC Steel Industries along with reasons. (PYP 5 Marks May'22)

Answer 12

ABC Steel Industries has opted to implement Stability strategy. Stability strategies are intended to safeguard the existing interests and strengths of business. It involves organisations to pursue established and tested objectives, continue on the chosen path, maintain operational efficiency and so on. A stability strategy is pursued when a firm continues to serve in the same or similar markets and deals in same products and services. In stability strategy, few functional changes are made in the products or markets, however, it is not a 'do nothing' strategy. This strategy is typical for mature business organizations. Some small organizations also frequently use stabil ity as a strategic focus to maintain comfortable market or profit position.

Major reasons for Stability strategy are:

- A product has reached the maturity stage of the product life cycle.
- The staff feels comfortable with the status quo as it involves less changes and less risks.

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(a) It is opted when the environment in which an organisation is operating is relatively stable.

(b) Where it is not advisable to expand as it may be perceived as threatening.

(c) After rapid expansion, a firm might want to stabilize and consolidate itself.

Question 13

ABC Corporation is a conglomerate with a diverse portfolio of businesses. One of its businesses is a well-established division in a mature and stable market. The division has maintained a high market share over the years but is experiencing slow growth due to market saturation. The management team is contemplating the best course of action for this division. How should ABC Corporation approach this division according to the BCG growth-share matrix, and what would be the rationale behind it? (RTP Nov '23)

Answer 13

According to the BCG growth-share matrix, the division in a mature and stable market falls into the "Cash Cows" category. "Cash Cows" are low-growth, high market share businesses that generate cash with low costs. The recommended approach for ABC Corporation would be to adopt the "Hold" strategy. This means the company should preserve the market share of the division and continue generating cash with low costs. Since the market is mature and growth opportunities are limited, the division's focus should be on maintaining profitability and using the generated cash to support other high-potential businesses within the conglomerate. By holding onto the "Cash Cow" division, ABC can leverage its stability and cash flow to invest strategically in other areas of the business for future growth and innovation.

Question 14

Explain the strategic implications of each of the following types of business in a corporate portfolio:

(a) Stars
(b) Question Marks
(c) Cash Cows
(d) Dogs (RTP May '22)

Answer 14

In the BCG growth-share matrix portfolio of investments are represented in two-dimensional space. The vertical axis represents market growth rate, and the horizontal axis represents relative market share. The strategic implications for various business types under BCG in the corporate portfolio are:

Stars are products or businesses that are growing rapidly and are best opportunity for expansion. Stars may follow build strategy. They need heavy investments to maintain their position and finance their rapid growth potential.

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Cash Cows are low-growth, high market share businesses or products. They generate cash and have low costs. They are established, successful, and need less investment to maintain their market share. Strategic alternative advocated for cash cows is harvest.

Question Marks are low market share business in high-growth markets. Strategic option for them is hold for which they need heavy investments. Question marks if left unattended are capable of becoming cash traps.

Dogs are low-growth, low-share businesses and products. Relevant strategy is divest. Dogs may generate enough cash to maintain themselves, but do not have much future. Dogs should be minimized by means of divestment or liquidation.

Question 15

ABC Inc. a successful company in the healthcare industry, was facing a decline due to outdated technology and lack of innovation. The company was losing market share and struggling to retain customers. In an effort to reverse the trend, the management decided to implement a strategy. They hired new talent, invested in research and development, and streamlined their operations to increase efficiency. Through these efforts, ABC Inc. was able to introduce new products and services, reposition themselves in the market, and eventually regain their competitive edge. The company's revenue and profits increased, and they were once again on the path to success. Discuss the strategy which has been implemented by the management of ABC Inc. (RTP May 23)

Answer 15

The management of ABC Inc. implemented turnaround strategy which is a highly-targeted effort to return ABC Inc. to profitability and increase positive cash flows to a sufficient level. Organizations those have faced a significant crisis that has negatively affected operations require turnaround strategy. Once turnaround is successful the organization may turn to focus on growth.

Conditions for turnaround strategies

When firms are losing their grips over market, profits due to several internal and external factors, and if they have to survive under the competitive environment they have to identify danger signals as early as possible and undertake rectification steps immediately. These conditions may be, inter alia cash flow problems, lower profit margins, high employee turnover and decline in market share, capacity underutilization, low morale of employees, recessionary conditions, mismanagement, raw material supply problems and so on.

Action plan for turnaround strategy

- Stage One – Assessment of current problems
- Stage Two – Analyze the situation and develop a strategic plan
- Stage Three – Implementing an emergency action plan
- Stage Four – Restructuring the business

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- Stage Five – Returning to normal

Question 16

"There are certain conditions or indicators which point out that a turnaround is needed if the company has to survive". Discuss. (PYP 5 Marks Dec '21)

Answer 16

Rising competition, business cycles and economic volatility have created a climate where no business can take viability for granted. Turnaround strategy is a highly targeted effort to return an organization to profitability and increase positive cash flows to a sufficient level. Organizations that have faced a significant crisis that has negatively affected operations requires turnaround strategy. Turnaround strategy is used when both threats and weaknesses adversely affect the health of an organization so much that its basic survival is a question. When organization is facing both internal and external pressures making things difficult then it has to find something which is entirely new, innovative and different. Being organization's first objective is to survive and then grow in the market; turnaround strategy is used when organization's survival is under threat. Once turnaround is successful the organization may turn to focus on growth.

Conditions for turnaround strategies: When firms are losing their grips over market, profits due to several internal and external factors, and if they have to survive under the competitive environment, they have to identify danger signals as early as possible and undertake rectification steps immediately. These are certain conditions or indicators which point out that a turnaround is needed if the company has to survive. These danger signals are:

- Persistent negative cash flow from business.
- Uncompetitive products or services.
- Declining market share.
- Deterioration in physical facilities.
- Over-staffing, high turnover of employees, and low morale.
- Mismanagement.

Question 17

What is Divestment strategy? When is, it adopted? (RTP Nov'20, Nov'18)

Answer 17

Divestment strategy involves the sale or liquidation of a portion of business, or a major division, profit center or SBU. For a multiple product company, divestment could be a part of rehabilitating or restructuring plan called turnaround.

- A divestment strategy may be adopted due to various reasons:

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- When a turnaround has been attempted but has proved to be unsuccessful.
- A business that had been acquired proves to be a mismatch and cannot be integrated within the company.
- Persistent negative cash flows from a particular business create financial problems for the whole company.
- Severity of competition and the inability of a firm to cope with it.
- Technological upgradation is required if the business is to survive but where it is not possible for the firm to invest in it.
- A better alternative may be available for investment.

Question 18

There has been fierce demand for both Gecko and FlyBee for the last 3 years. Gecko makes mass consumption pens while FlyBee is a notebook and diary brand - both being complementary goods of each other. But to grow further, FlyBee decided to take up competition with Gecko in pens segment and thereby launched, FlyPens. Identify and explain the growth strategy opted by FlyBee? (MTP 5 Marks March '22)

Answer 18

FlyBee is a notebook and diary brand. But to grow further, FlyBee decided to take up competition with Gecko in pens segment and thereby launched, FlyPens. FlyBee that is hitherto not into producing pens starts producing them and other similar products is following concentric diversification which is basically related diversification.

In this form of diversification, the new business is linked to the existing businesses through existing systems such as processes, technology or marketing. The new product is a spin-off from the existing facilities and products/processes. There are benefits of synergy with the current operations. The most common reasons for pursuing a concentric diversification are that opportunities in existing line of business are available.

Question 19

List the advantages of Strategic Alliances. (PYP 2 Marks, Nov'18)

Answer 19

Advantages of strategic alliance are:

(i) **Organizational**: learn skills and obtain capabilities from strategic partners.
(ii) **Economic**: Sharing of costs and risks by members of alliance.
(iii) **Strategic**: Rivals can join together to cooperate rather than compete.
(iv) **Political:** Alliance with partners with political influence improve overall power position of the organization.

Question 20

Which of the following statements are 'correct' and which are 'incorrect'?

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Give reasons, in brief, for your answer:

(xi) "B" in BCG Matrix stands for balance. (MTP Aug 18 2 Marks)

Answer 20

(i) Incorrect: The acronym BCG stands for Boston Consulting Group, an organization that developed a matrix to portray an organizational corporate portfolio of investment. This matrix depicts growth of business and the business share enjoyed by an organization. The matrix is also known for its cow and dog metaphors and is popularly used for resource allocation in a diversified company.

Question 21

Explain the term Merger and Acquisition as a growth strategy. Differentiate between both of them. State the situations in which such strategies are considered by any organization. (RTP Nov'21)

Answer 21

Acquisition or merger with an existing concern is an instant means of achieving expansion. It is an attractive and tempting proposition in the sense that it circumvents the time, risks and skills involved in screening internal growth opportunities, seizing them and building up the necessary resource base required to materialize growth. Apart from the urge to grow, acquisitions and mergers are resorted to for purposes of achieving a measure of synergy between the parent and the acquired enterprises. Synergy may result from such bases as physical facilities, technical and managerial skills, distribution channels, general administration, research and development and so on.

Many organizations in order to achieve quick growth, expand or diversify with the use of mergers and acquisitions strategies. Merger and acquisition in simple words are defined as a process of combining two or more organizations together. There is a thin line of difference between the two terms but the impact of combination is completely different in both the cases.

Merger is considered to be a process when two or more organizations join together to expand their business operations. In such a case the deal gets finalized on friendly terms. Owners of pre-merged entities have right over the profits of new entity. In a merger two organizations combine to increase their strength and financial gains.

While, when one organization takes over the other organization and controls all its business operations, it is known as acquisition. In the process of acquisition, one financially strong organization overpowers the weaker one. Acquisitions often happen during economic recession or during declining profit margins. In this process, one that is financially stronger and bigger establishes it power. The combined operations then rounder the name of the powerful entity. A deal in case of an acquisition is often done in an unfriendly manner, it is more or less a forced association.

Question 22

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Gautama and Siddhartha two brothers are the owners of a cloth manufacturing unit located in Faridabad. They are doing well and have substantial surplus funds available within the business. They have different approaches regarding corporate strategies to be followed to be more competitive and profitable in future.

Gautama is interested in acquiring another industrial unit located in Faridabad manufacturing stationery items such as permanent markers, notebooks, pencils and pencil sharpeners, envelopes and other office supplies. On the other hand, Siddhartha desires to start another unit to produce readymade garments.

Discuss the nature of corporate strategies being suggested by two brothers and risks involved in it. (PYP 5 Marks May '19)

Answer 22

Gautama wishes to diversify in a business that is not related to their existing line of product and can be termed as conglomerate diversification. He is interested in acquiring another industrial unit located in Faridabad manufacturing stationery items such as permanent markers, notebooks, pencils and pencil sharpeners, envelopes and other office supplies, which is not related to their existing product. In conglomerate diversification, the new businesses/ products are disjointed from the existing businesses/products in every way; it is an unrelated diversification. In process/ technology/ function, there is no connection between the new products and the existing ones. Conglomerate diversification has no common thread at all with the firm's present position.

On the other hand, Siddhartha seeks to move forward in the chain of existing product by adopting vertically integrated diversification/ forward integration. The cloth being manufactured by the existing processes can be used as raw material of garments manufacturing business. In such diversification, firms opt to engage in businesses that are related to the existing business of the firm. The firm remains vertically within the same process and moves forward or backward in the chain. It enters specific product/process steps with the intention of making them into new businesses for the firm. The characteristic feature of vertically integrated diversification is that here; the firm does not jump outside the vertically linked product-process chain.

Both types of diversifications have their own risks. In conglomerate diversification, there are no linkages with customer group, customer marketing functions and technology used, which is a risk. In the case of vertical integrated diversification, there is a risk of lack of continued focus on the original business.

Question 23

Distinguish between the following:
Divestment and liquidation strategy. (MTP 5 Marks Nov 21, Oct '19, & April 21,PYP 5 Marks Nov '20)

Answer 23

Divestment Strategy	Liquidation Strategy
Divestment strategy involves the sale or liquidation of a portion of business, or a major division, profit center or SBU.	It involves closing down a firm and selling its assets.

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Divestment is usually a part of rehabilitation or restructuring plan and is adopted when a turnaround has been attempted but has proved to be unsuccessful. Option of a turnaround may even be ignored if it is obvious that divestment is the only answer.	Liquidation becomes only option in case of severe and critical conditions where either turnaround and divestment are not seen as solution or have been attempted but failed.
Efforts are made for the survival of organization.	Liquidation as a form of retrenchment strategy is considered as the most extreme and unattractive.
Survival of organization helps in retaining personnel, at least to some extent.	There is loss of employment with stigma of failure.

Question 24

What do you understand by diversification? Distinguish between concentric and conglomerate diversification. (PYP 5 Marks May'22)

Answer 24

Diversification is defined as entry into new products or product lines, new services or new markets, involving substantially different skills, technology and knowledge. Diversification endeavours can be related or unrelated to existing businesses of the firm.

Following are the differences between the concentric diversification and conglomerate diversifications:

Concentric Diversification	Conglomerate Diversification
Meaning: It occurs when a firm adds related products or markets.	Meaning: It occurs when a firm diversifies into areas that are unrelated to its current line of business.
Linkage: The new business is linked to the existing businesses through process, technology or marketing.	Linkage: Here no such linkages exist; the new business/product is disjointed from the existing businesses/products.
Reasons for pursuing: The most common reason for pursuing a concentric diversification is that opportunities in a firm's existing line of business are available.	Reasons for pursuing: The common reason for pursuing a conglomerate growth strategy is that opportunities in a firm's current line of business are limited or opportunities outside are highly lucrative.

Question 25

How Ansoff's Product Market Growth Matrix is a useful tool for business organizations? (RTP May'18)

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Answer 25

The Ansoff's product market growth matrix (proposed by Igor Ansoff) is a useful tool that helps businesses decide their product and market growth strategy. With the use of this matrix a business can get a fair idea about how its growth depends in new or existing products in both new and existing markets.

Companies should always be looking to the future. Businesses that use the Ansoff matrix can determine the best strategy. The matrix can help them to decide how to do this by demonstrating their options clearly, breaking them down into four strategies, viz., Market Penetration, Market Development, Product Development, Diversification. Determining which of these is best for their business will depend on a number of variables including available resources, infrastructure, market position, location and budget.

Question 26

State with reasons if the following statement is correct/incorrect: Turnaround should succeed liquidation strategy. (RTP May'18)

Answer 26

Incorrect: A retrenchment strategy considered the most extreme and unattractive is liquidation strategy, which involves closing down a firm and selling its assets. It is considered as the last resort because it leads to serious consequences such as loss of employment for workers and other employees, termination of opportunities where a firm could pursue any future activities, and the stigma of failure. In an ideal scenario, turnaround should be attempted first and should precede option of liquidation n.

Question 27

An XYZ Company is facing continuous losses. There is decline in sales and product market share. The products of the company became uncompetitive and there is persistent negative cash flow. The physical facilities are deteriorating and employees have low morale. At the board meeting, the board members decided that they should continue the organization and adopt such measures that the company functions properly. The board has decided to hire young executive Shyamalan for improving the functions of the organization. What corporate strategy should Shyamalan adopt for this company and what steps to be taken to implement the corporate strategy adopted by Shyamalan? (PYP 5 Marks, Nov'19)

Answer 27

XYZ Company is facing continuous losses, decline in sales and product market share, persistent negative cash flow, uncompetitive products, declining market share, deterioration in physical facilities, low morale of employees. In such a scenario, Shyamalan may choose turnaround strategy as this strategy attempts to reverse the process of decline and bring improvement in organizational health. This is also important as Board has decided to continue the company and adopt measures for its proper functioning.

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For success, Shyamalan needs to focus on the short and long-term financing needs as well as on strategic issues. During the turnaround, the "product mix" may be changed, requiring the organization to do some repositioning. A workable action plan for turnaround would involve:

Stage One – Assessment of current problems: In the first step, assess the current problems and get to the root causes and the extent of damage.

Stage Two – Analyze the situation and develop a strategic plan: Identify major problems and opportunities, develop a strategic plan with specific goals and detailed functional actions.

Stage Three – Implementing an emergency action plan: If the organization is in a critical stage, an appropriate action plan must be developed to stop the bleeding and enable the organization to survive.

Stage Four – Restructuring the business: If the core business is irreparably damaged, then the outlook for the entire organization may be bleak. Efforts to be made to position the organization for rapid improvement.

Stage Five – Returning to normal: In the final stage of turnaround strategy process, the organization should begin to show signs of profitability, return on investments and enhancing economic value-added.

Question 28

With the global economic recession Soft Cloth Ltd. incurred significant losses in all its previous five financial years. Currently, they are into manufacturing of cloth made of cotton, silk, polyester, rayon, lira and blends. Competition is also intense on account of cheap imports. The company is facing cash crunch and has not been able to pay the salaries to its employees in the current month.
Suggest a grand strategy that can be opted by Soft Cloth Ltd. (RTP May'19)

Answer 28

Soft Cloth Ltd. is facing internal as well as external challenges. The external environment is in economic recession and the organization is facing cash crunch. The company needs to work on retrenchment / turnaround strategy. The strategy is suitable in case of issues such as:

- Persistent negative cash flow.
- Uncompetitive products or services
- Declining market share
- Deterioration in physical facilities
- Overstaffing, high turnover of employees, and low morale
- Mismanagement

The company may consider to substantially reduce the scope of its activity. This is done through an attempt to find out the problem areas and diagnose the causes of the problems. Next, steps are taken to solve the problems.
These steps result in different kinds of retrenchment strategies. If the organization chooses to focus on ways and means to reverse the process of decline, it adopts at

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turnaround strategy. If it cuts off the loss-making units, divisions, or SBUs, curtails its product line, or reduces the functions performed, it adopts a divestment strategy. If none of these actions work, then it may choose to abandon the activities totally, resulting in a liquidation strategy.

Question 29

Racers Ltd. manufactures bicycles. Until recently it has adopted a differentiation strategy, offering high quality bicycles which Racers Ltd. sells at a high profit margin.

In recent years, Racers Ltd. has entered a period of decline due to the market becoming flooded with cheaper, high quality bicycles from abroad, where labour costs are lower.

Racers Ltd. has therefore decided to adjust its strategy and adopt a focus approach, targeting its bicycles towards professional athletes. This will allow Racers Ltd. to continue earning high margins, though the size of its potential market will likely fall.

Identify and explain the need of adopting this strategy by Racers Ltd. to manage decline?(RTP May '22)

Answer 29

Racers Ltd. has adopted Turnaround strategy. This involves Racers Ltd. repositioning itself in the market in an attempt to once again gain competitive advantage.

Turnaround is needed when an enterprise's performance deteriorates to a point that it needs a radical change of direction in strategy, and possibly in structure and culture as well. It is a highly targeted effort to return an organization to profitability and increase positive cash flows to a sufficient level. It is used when both threats and weaknesses adversely affect the health of an organization so much that its basic survival is difficult.

The overall goal of turnaround strategy is to return an underperforming or distressed company to normalcy in terms of acceptable levels of profitability, solvency, liquidity and cash flow. To achieve its objectives, turnaround strategy must reverse causes of distress, resolve the financial crisis, achieve a rapid improvement in financial performance, regain stakeholder support, and overcome internal constraints and unfavourable industry characteristics.

Question 30

Write short note on expansion through acquisitions and mergers. (RTP May '20)

Answer 30

Acquisitions and mergers are basically combination strategies. Some organizations prefer to grow through mergers. Merger is considered to be a process when two or more companies come together to expand their business operations. In such a case the deal gets finalized on friendly terms and both the organizations share profits in the newly created entity. In a merger, two organizations combine to increase their strength and financial gains along with breaking the trade barriers.

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When one organization takes over the other organization and controls all its business operations, it is known as acquisition. In this process of acquisition, one financially strong organization overpowers the weaker one. Acquisitions often happen during recession in economy or during declining profit margins. In this process, one that is financially stronger and bigger establishes its power. The combined operations then run under the name of the powerful entity. A deal in case of an acquisition is often done in an unfriendly manner, it is more or less a forced association where the powerful organization either consumes the operation or a company in loss is forced to sell its entity.

Question 31

Oregano is a large supermarket chain. It is considering the purchase of a number of farms that provides Oregano with a significant amount of its fresh produce. Oregano feels that by purchasing the farms, it will have greater control over its supply chain. Identify and explain the type of diversification opted by Oregano? (RTP May'20)

Answer 31

Oregano is a large supermarket chain. By opting backward integration and purchase a number of farms, it will have greater control over its supply chain. Backward integration is a step towards, creation of effective supply by entering business of input providers. Strategy employed to expand profits and gain greater control over production of a product whereby a company will purchase or build a business that will increase its own supply capability or lessen its cost of production.

Question 32

Explain the role of ADL Matrix in assessing competitive position of a firm. (RTP May '22, Nov'20)

Answer 32

The ADL matrix has derived its name from Arthur D. Little which is a portfolio analysis method based on product life cycle. The approach forms a two-dimensional matrix based on stage of industry maturity and the firm's competitive position, environmental assessment and business strength assessment. The role of ADL matrix is to assess t he competitive position of a firm based on an assessment of the following criteria:

- **Dominant:** This is a comparatively rare position and in many cases is attributable either to a monopoly or a strong h
- **Strong**: By virtue of this position, the firm has a considerable degree of freedom over its choice of strategies and is often able to act without its market position being unduly threatened by its competitors.
- **Favorable**: This position, which generally comes about when the industry is fragmented and no one competitor stand out clearly, results in the market leaders a reasonable degree of freedom.
- **Tenable:** Although the firms within this category are able to perform satisfactorily

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and can justify staying in the industry, they are generally vulnerable in the face o f increased competition from stronger and more proactive companies in the market.

- **Weak**: The performance of firms in this category is generally unsatisfactory although opportunities for improvement do exist.

Question 33

Write a short note on need for turn around strategy. (MTP-Oct '19, Oct'18 5 marks)

Answer 33

Turnaround is needed when an enterprise's performance deteriorates to a point that it needs a radical change of direction in strategy, and possibly in structure and culture as well. It is a highly targeted effort to return an organization to profitability and increase positive cash flows to a sufficient level. Itis used when both threats and weaknesses adversely affect the health of an organization so much thatits basic survival is difficult. The overall goal of turnaround strategy is to return an under performing or distressed company to normalcy in terms of acceptable levels of profitability, solvency, liquidity and cash flow. To achieve its objectives, turnaround strategy must reverse causes of distress, resolve the financial crisis, achieve a rapid improvement in financial performance, regain stakeholder support, and overcome internal constraints and unfavourable industry characteristics.

Question 34

Sky chemical industry intends to grow its business. Advise the company on the available options using Ansoff's product market growth matrix. (MTP 5 Marks March '22, MTP 5 Marks Oct'22, RTP May 23)

Answer 34

The Ansoff's product market growth matrix (proposed by Igor Ansoff) is a useful tool that helps businesses decide their product and market growth strategy. With the use of this matrix, a business can get a fair idea about how its growth depends upon its markets in new or existing products in both new and existing markets.

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The Ansoff's product market growth matrix is as follows:

	Existing Products	New Products
Existing Markets	**Market Penetration**	**Product Development**
New Markets	**Market Development**	**Diversification**

Ansoff's Product Market Growth Matrix

Sky chemical industry can adopt market penetration, product development, market development or diversification simultaneously for its different products.

Market penetration refers to a growth strategy where the business focuses on selling existing products into existing markets. It is achieved by making more sales to present customers without changing products in any major way.

Market development refers to a growth strategy where the business seeks to sell its existing products into new markets. It is a strategy for company growth by identifying and developing new markets for the existing products of the company.

Product development refers to a growth strategy where business aims to introduce new products into existing markets. It is a strategy for company growth by offering modified or new products to current markets.

Diversification refers to a growth strategy where a business markets new products in new markets. It is a strategy by starting up or acquiring businesses outside the company's current products and markets.

As market conditions change overtime, a company may shift product-market growth strategies. For example, when its present market is fully saturated a company may have no choice other than to pursue new market.

Question 35

Which of the following statements are 'correct' and which are 'incorrect'? Give reasons, in brief, for your answer: Divesting a major product line or market is termed as retrenchment strategy. (MTP Oct '18, 2 Marks)

Answer 35

Correct: An organization can redefine its business by divesting a major product line or market. The divesting can be termed as retrenchment strategy. The enterprise may withdraw from marginal markets, withdraw some brands or sizes of products. It may

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also withdraw some of slow moving products. In an extreme manner, it may seek retirement either from the production or the marketing activity.

Question 36

General public is discerning from buying air conditioning units based on the Health Ministry guidelines regarding emergence of a contagious viral pandemic. Consequently, Nebula Pvt. Ltd, a manufacturer of evaporation coils used in air conditioning units has faced significant loss in working capital due to sharp fall in demand. The company conducted financial assessment and developed a workable action plan based on short and long term financial needs. But for immediate needs, an emergency plan has been implemented. It includes selling scrap, asset liquidation and overheads cost reduction. Further, to avoid any such untoward event in future, they plan to diversify into newer business areas along with its core business. Identify and explain the strategy opted by M/s. Nebula Pvt. Ltd.? (RTP Nov'20)

Answer 36

M/s. Nebula Put Ltd has opted Turnaround Strategy as the company while facing serious working capital crunch persistently conducted an assessment of current problem and developed a workable action plan based on short and long term financial needs and strategic issues. A workable action plan for turnaround would involve:
Stage One – Assessment of current problems: In the first step, assess the current problems and get to the root causes and the extent of damage.

Stage Two – Analyze the situation and develop a strategic plan: Identify major problems and opportunities, develop a strategic plan with specific goals and detailed functional actions.

Stage Three – Implementing an emergency action plan: If the organization is in a critical stage, an appropriate action plan must be developed to stop the bleeding and enable the organization to survive.

Stage Four – Restructuring the business: If the core business is irreparably damaged, then the outlook for the entire organization may be bleak. Efforts to be made to position the organization for rapid improvement.
Stage Five – Returning to normal: In the final stage of turnaround strategy process, the organization should begin to show signs of profitability, return on investments and enhancing economic value-added.

Question 37

Mini theatre Ltd. was a startup venture of three young IIM graduates. They developed an application to watch web-based content like web series, TV Shows, theatre shows, etc. after purchasing their exclusive rights. They were successful in getting many consumers enrolled with them. After a certain span of time, the company realized that some regional content like 'Bangla movies', 'Gujarati shows' etc. we're having high cost and less viewership. The leadership team of Mini Theatre Ltd. decided to sell the rights and curtail any further content development in these areas. Identify and explain the corporate strategy adopted

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by the leadership team of Mini Theatre Ltd. (RTP May'21)

Answer 37

The leadership team of Mini Theatre Ltd. decided to cuts off the loss-making units, reduces the functions performed that some of regional content like 'Bangla movies', 'Gujarati shows' etc. we're having high cost and less viewership, it adopts a divestment strategy. The leadership team of Mini Theatre Ltd. decided to sell the rights and curtail any further content development in these areas.

Divestment strategy involves the sale or liquidation of a portion of business, or a major division, profit center or SBU. Divestment is usually a part of rehabilitation or restructuring plan and is adopted when a turnaround has been attempted but has proved to be unsuccessful. The option of a turnaround may even be ignored if it is obvious that divestment is the only answer.

Question 38

Justify the statement "Stability strategy is opposite of Expansion strategy". (RTP May'21)

Answer 38

Stability strategies, as name suggests, are intended to safeguard the existing interests and strengths of business. It involves organizations to pursue established and tested objectives, continue on the chosen path, maintain operational efficiency and so on. A stability strategy is pursued when a firm continues to serve in the same or similar markets and deals in same products and services. In stability strategy, few functional changes are made in the products or markets, however, it is not a 'do nothing' strategy. This strategy is typical for mature business organizations. Some small organizations also frequently use stability as a strategic focus to maintain comfortable market or profit position. On the other hand, expansion strategy is aggressive strategy as it involves redefining the business by adding the scope of business substantially, increasing efforts of the current business. In this sense, it becomes opposite to stability strategy. Expansion is a promising and popular strategy that tends to be equated with dynamism, vigor, promise and success. Expansion also includes diversifying, acquiring and merging businesses. This strategy may take the enterprise along relatively unknown and risky paths, full of promises and pitfalls.

Question 39

Explain the meaning of the Combination strategies (RTP May'18 & Nov '18)

Answer 39

Combination Strategies refer to a mix of different strategies like stability; expansion, diversification or retrenchment to suit particular situations that an enterprise is facing. For instance, a strategy of diversification/acquisition may call for retrenchment in some obsolete product lines.

Question 40

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X Pvt. Ltd. had recently ventured into the business of co-working spaces when the global pandemic struck. This has resulted in the business line becoming unprofitable and unviable, and a failure of the existing strategy. However, the other businesses of X Pvt. Ltd. are relatively less affected by the pandemic as compared to the recent co-working spaces. Suggest a strategy for X Pvt. Ltd. with reasons to justify your answer. (MTP 5 Marks April 22, PYP 5 Marks Jan '21)

Answer 40

It is advisable that divestment strategy should be adopted by X Pvt. Ltd.
In the given situation where the business of co-working spaces became unprofitable and unviable due to Global pandemic, the best option for the company is to divest the loss-making business.
Retrenchment may be done either internally or externally. Turnaround strategy is adopted in case of internal retrenchment where emphasis is laid on improving internal efficiency of the organization, while divestment strategy is adopted when a business turns unprofitable and unviable due to some external factors. In view of the above, the company should go for divestment strategy.

Further, divestment helps address issues like:

1. Persistent cash flows from loss making segment could affect other profit-making segments, which is the case in the given scenario.
2. Inability to cope from the losses, which again is uncertain due to pandemic.
3. Better investment opportunity, which could be the case if X Pvt. Ltd. can invest the money it generates from divestment.

Question 41

Distinguish between the following:
Market Development and Product Development under Ansoff's Product Market Growth Matrix.(MTP 5 Marks March '21 & April '23, RTP Nov '22)

Answer 41

Following are the differences between the market development and product development:

Market Development	Product Development
• Meaning It refers to a growth strategy where the business seeks to sell its existing products into new markets. It is a strategy for company growth by identifying and developing new markets for current company products. • Strategy Application It may be achieved through new geographical markets, new product dimensions or packaging, new distribution channels or different pricing	• Meaning It refers to a growth strategy where business aims to introduce new products into existing markets. It is a strategy for company growth by offering modified or new products to current markets. • Strategy Application It is for company's growth and requires the development of new competencies and the business to develop modified products which can appeal to existing markets.

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policies to attract different customers or create new market segments.	

Question 42

Which of the following statements are correct and which are incorrect? Give reasons in brief for your answer.

There is no such thing as backward integration. (PYP 2 Marks, Nov'18)

Answer 42

Incorrect: Organizations may diversify into new businesses that are vertically integrated with their existing business. Backward integration firms create effective supply by entering business of input providers. This strategy is employed to expand profits and gain greater control over production.

Question 43

Leatherite Ltd., was started as a leather company to manufacture footwear. Currently, they are in the manufacturing of footwears for males and females. The top management desires to expand the business in the leather manufacturing goods. To expand they decided to purchase more machines to manufacture leather bags for males and females. Identify and explain the strategy opted by the top management of Leatherite Ltd. (RTP Nov'21)

Answer 43

Leatherite Ltd. is currently manufacturing footwears for males and females and its top management has decided to expand its business by manufacturing leather bags for males and females. Both the products are similar in nature within the same industry. The strategic diversification that the top management of Leatherite Ltd. has opted is concentric in nature. They were in business of manufacturing leather footwears and now they will manufacture leather bags as well. They will be able to use existing infrastructure and distribution channel. Concentric diversification amounts to related diversification.

In concentric diversification, the new business is linked to the existing businesses through process, technology or marketing. The new product is a spin-off from the existing facilities and products/ processes. This means that in concentric diversification too, there are benefits of synergy with the current operations.

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Question 44

"XYZ Ltd., a multi-product company, has been experiencing consistent losses in recent years, leading to a significant erosion of its net worth. What strategic options should the management consider addressing the company's current situation? Provide recommendations along with supporting reasons." (MTP 5 Marks Oct '23)

Answer 44

XYZ Ltd. is a sick company with accumulated losses that have eroded its net worth. The multi -product company may analyse its various products to take decisions on the viability of each. The company may consider a retrenchment strategy. Retrenchment becomes necessary for coping with hostile and adverse situations in the environment and when any other strategy is likely to be suicidal.

Retrenchment strategy is adopted because of continuous losses and unviability and stability can be ensured by reallocation of resources from unprofitable to profitable businesses.

Retrenchment strategy is followed when an organization substantially reduces the scope of its activity. This is done through an attempt to find out the problem areas and diagnose the causes of the problems. Next, steps are taken to solve the problems. These steps result in different kinds of retrenchment strategies as follows:

Turnaround strategy: If the organization chooses to transform itself into a leaner structure and focuses on ways and means to reverse the process of decline, it adopts a turnaround strategy. It may try to reduce costs, eliminate unprofitable outputs, generate revenue, improve coordination, better control, and so on.

Divestment Strategy: Divestment strategy involves the sale or liquidation of a portion of business, or a major division, profit centre or SBU. Divestment is usually a part of a rehabilitation or restructuring plan and is adopted when a turnaround has been attempted but has proved to be unsuccessful.

Liquidation Strategy: In the retrenchment strategy, the most extreme and unattractive is liquidation strategy. It involves closing down a firm and selling its assets. It is considered as the last resort because it leads to serious consequences such as loss of employment for workers and other employees, termination of opportunities where a firm could pursue any future activities, and the stigma of failure.

The management of multiproduct sick company manufacturing various items need to understand pros and cons of each strategic option. The decision will depend upon the specific circumstances of each product and the management goals of the company.

Question 45

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What do you understand by co-generic merger? (MTP March '18, 2 Marks, PYP 2 Marks May'18)

Answer 45

In co-generic merger two or more merging organizations are associated in some way or the other related to the production processes, business markets, or basic required technologies. Such merger includes the extension of the product line or acquiring components that are required in the daily operations. It offers great opportunities to business to diversify around a common set of resources and strategic requirements.

Question 46

Woodworld Ltd. is a company manufactures a variety of household furniture items. They offered traditional designs, low cost furniture items to low income group customers. During the last couple of years, the company has been observing a fall in the market share. This is due to the change in the taste and preferences, designing, better quality, increase in purchasing power of buyers towards the household furniture. The customers are switching away traditional designs and material that have been the backbone of Woodworld Ltd.

As a CEO of Woodworld Ltd., what can be the strategic options available with you. (RTP Nov'22,MTP 5 Marks Oct '23)

Answer 46

Woodworld is having a product portfolio that is evidently in the decline stage. The product is being replaced with the latest designs with better quality of the product. Strategically, the company should minimize their dependence on the existing products and identi fy other avenues for the survival and growth. As a CEO of Woodworld Ltd., following can be the strategic options available with the CEO:

- Invest in new product development and switchover to the latest designs. Woodworld Ltd. also need time to invest in hiring interior designers.
- They can acquire or takeover a competitor, provided they have or are able to generate enough financial resources.
- They may also consider unrelated growth and identify other areas for expansion. This will enable Woodworld Ltd. to spread their risks.
- In longer run, they should divest the existing products. However, they may continue with the existing products in a limited manner for such time there is demand for the product.

Question 47

Which of the following statements are correct and which are incorrect? Give reasons in brief for your answer.

Acquiring of ambulance services by a hospital is an example of forward

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integration strategy. (PYP 2 Marks, Nov'18)

Answer 47

Incorrect: Acquiring of ambulance services bay hospital is an example of backward integration strategy. Backward integration is a step towards creation of effective supply by entering business of input providers. Forward integration is moving forward in the value chain.

Question 48

A company started its operation in 2015 with Product Alpha. In early 2021, with intent to have its better presence in the market, the company diversifies by acquiring a company with product Beta. After sometime, it was observed that product Beta is not faring well. Aggressive competition was therein market for the product. It was also revealed that though customers are not price sensitive, but product was not keeping pace with the fast changing unique features as expected by its customers.

Company has tried one of the retrenchment strategies by putting efforts to improve its internal efficiency, but could not get desired results. In the situation, company is of a considered view to remain and grow in product alpha and to decouple with product Beta from its portfolio.

As a strategist, suggest the retrenchment strategy to be adopted by the company. Also delineate reasons why a company should adopt such strategy? (PYP 5 Marks Nov 22)

Answer 48

As per the facts of the case, company had tried to improve its internal efficiency. In other words, had tried turnaround strategy but could not get the desired results.

Company does not want to go for complete close down of business. Rather it wants to continue and grow in its original business i.e. product Alpha.

As a strategist, it is advisable that the company should adopt divestment strategy. In the given situation where the business of product Beta is not faring well and became unprofitable and unviable due to aggressive competition in the market, the best option for the company is to divest the product Beta which is loss-making business.

Retrenchment may be done either internally or externally. Turnaround strategy is adopted in case of internal retrenchment where emphasis is laid on improving internal efficiency of the organization, while divestment strategy is adopted when a business turns unprofitable and unviable due to some external factors. In view of the above, the company should go for divestment strategy.

A divestment strategy may be adopted due to various reasons:

1. A business that had been acquired proves to be a mismatch and cannot be

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integrated within the company.

2. Persistent negative cash flows from a particular business create financial problems for the whole company, creating the need for divestment of that business.
3. Severity of competition and the inability of a firm to cope with it may cause it to divest.
4. It is not possible for the business to do Technological up-gradation that is required for the business to survive, a preferable option would be to divest.
5. A better alternative may be available for investment, causing a firm to divest a part of its unprofitable business.

Question 49

Swift Insurance is a company engaged in the business of providing medical insurance maintaining a market share of 25 to 30 per cent in last five years. Recently, the company decided to enter into the business of auto insurance by having foreign collaboration. Identify the strategy being followed by the Swift Insurance with its advantages. (RTP May'18)

Answer 49

Overall Swift Insurance is following growth or expansion strategy as it is redefining the business and enlarging its scope. The step will also substantially increase investment in the business.

The new business is related and at the same time caters to a different segment and accordingly can be termed as related diversification. The new business falls within the scope of general insurance and horizontally related to the existing business.

In the process of expansion, the company will be able to exploit:

- Its brand name.
- The marketing skills available.
- The existing sales and distribution infrastructure.
- Research and development.
- Economies of scale

Question 50

A company manufactures computers that are of low in production cost, competitive price, and quality to their competitor's product. Profits and market share are declining day by day. Shree, a senior executive realizes that drastic strategies have to be created for the survival of a company. After SWOT analysis by assessing the strengths and weaknesses, they come up with the conclusion that they cannot compete in the computers with the competitors. The management directs Shree to act quick and develop a suitable strategic plan. Discuss the strategy which can be opted by Shree. (MTP April '19, Mar'18 5 Marks)

Answer 50

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Shree can opt for turnaround strategy which is a highly-targeted effort to return the company to profitability and increase positive cash flows to a sufficient level. Organizations those have faced a significant crisis that has negatively affected operations require turnaround strategy. Once turnaround is successful the organization may turn to focus on growth.

Conditions for turnaround strategies

When firms are losing their grips over market, profits due to several internal and external factors, and if they have to survive under the competitive environment they have to identify danger signals as early as possible and undertake rectification steps immediately. These conditions may be, inter alia cash flow problems, lower profit margins, high employee turnover and decline in market share, capacity underutilization, low morale of employees, recessionary conditions, mismanagement, raw material supply problems and so on.

Action plan for turnaround strategy

- Stage One – Assessment of current problems
- Stage Two – Analyze the situation and develop a strategic plan
- Stage Three – Implementing an emergency action plan
- Stage Four – Restructuring the business
- Stage Five – Returning to normal

Question 51

Distinguish between the following:
Mergers and acquisitions. (RTP May'19 & May '18)

Answer 51

Merger and acquisition in simple words are defined as a process of combining two or more organizations together.

Some organizations prefer to grow through mergers. Merger is considered to be a process when two or more companies come together to expand their business operations. In such a case the deal gets finalized on friendly terms and both the organizations share profits in the newly created entity. In a merger two organizations combine to increase their strength and financial gains along with breaking the trade barriers.

When one organization takes over the other organization and controls all its business operations, it is known as acquisitions. In this process of acquisition, one financially strong organization overpowers the weaker one. Acquisitions often happen during recession in economy or during declining profit margins. In this process, one that is financially stronger and bigger establishes it power. The combined operations then run under the name of the powerful entity. A deal in case of an acquisition is often done in an unfriendly manner, it is more or less a forced association.

Question 52

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Explain in brief the reasons to adopt turnaround strategy. (MTP 5 Marks May '20)

Answer 52

Reasons to adopt Turnaround Strategy:

1. Turnaround is needed when an enterprise's performance deteriorates to a point that it needs a radical change of direction in strategy, and possibly in structure and culture as well.
2. It is a highly targeted effort to return an organization to profitability and increase positive cash flows to a sufficient level.
3. It is used when both threats and weaknesses adversely affect the health of an organization so much that its basic survival is difficult.
4. The overall goal of turnaround strategy is to return an underperforming or distressed company to normalcy in terms of acceptable levels of profitability, solvency, liquidity and cash flow.
5. To achieve its objectives, turnaround strategy must reverse causes of distress, resolve the financial crisis, achieve a rapid improvement in financial performance, regain stakeholder support, and overcome internal constraints and unfavourable industry characteristics.

Question 53

State with reasons which of the following statements are correct/incorrect: Stability strategy is not a 'do-nothing' strategy. (RTP Nov'18)

Answer 53

Correct: Porter's five forces model considers new entrants as major source of competition. The new capacity and product range that the new entrants bring in throw up new competitive pressure. The bigger the new entrant, the more severe the competitive effect. New entrants also place a limit on prices and affect the profitability of existing players.

Question 54

What is a stability strategy? What are the reasons to pursue stability strategy? (RTP Nov'19 & Nov '23)

Answer 54

One of the important goals of a business enterprise is stability - to safeguard its existing interests and strengths, to pursue well established and tested objectives, to continue in the chosen business path, to maintain operational efficiency on a sustained basis, to consolidate the commanding position already reached, and to optimize returns on the resources committed in the business. A stability strategy is pursued by a firm when:

- It continues to serve in the same or similar markets and deals in same or similar products and services.

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- The strategic decisions focus on incremental improvement of functional performance.

Major reasons for stability strategy are as follows:

- A product has reached the maturity stage of the product life cycle.
- It is less risky as it involves less changes and the staff feels comfortable with things as they are.
- The environment faced is relatively stable.
- Expansion may be perceived as being threatening.
- Consolidation is sought through stabilizing after a period of rapid expansion.

Question 55

Write a short note on Merger and Acquisition Strategy. (RTP Nov'22)

Answer 55

Merger and acquisition in simple words are defined as a process of combining two or more organizations together. There is a thin line of difference between the two terms but the impact of combination is completely different in both the cases.

Merger is considered to be a process when two or more companies come together to expand their business operations. In such a case the deal gets finalized on friendly terms and both the organizations share profits in the newly created entity. In a merger two organizations combine to increase their strength and financial gains along with breaking the trade barriers.

When one organization takes over the other organization and controls all its business operations, it is known as acquisitions. In this process of acquisition, one financially strong organization overpowers the weaker one. Acquisitions often happen during recession in economy or during declining profit margins. In this process, one that is financially stronger and bigger establishes it power. The combined operations then run under the name of the powerful entity. A deal in case of an acquisition is often done in an unfriendly manner, it is more or less a forced association where the powerful organization either consumes the operation or a company in loss is forced to sell its entity.

Question 56

Jynklo Ltd. is an established online children gaming company in Japan. They are performing good in the gaming industry. The management of Jynklo Ltd. has decided to expand its business. They decided to start a premium sports drink named JynX for athletes. Identify and explain the growth strategy adopted by Jynklo Ltd.? (MTP 5 Marks Sep'22)

Answer 56

Currently Jynklo Ltd. is performing in the children gaming industry. But now its management has decided to expand their business by starting a premium sports drink named JynX for athletes. As there are no linkages in both products with respect to

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customer groups, customer functions, or the technologies being used, so Jynklo Ltd. have opted Conglomerate diversification.

Jynklo Ltd. diversify in a business that is not related to their existing line of product and can be termed as conglomerate diversification. In conglomerate diversification, the new businesses/ products are disjointed from the existing businesses/products in every way; it is a unrelated diversification. In process/ technology/ function, there is no connection between the new products and the existing ones. Conglomerate diversification has no common thread at all with the firm's present position.

Question 57

Diversification endeavours can be categorized into four broad classifications. State the basis for this classification and name the four categories. How is concentric diversification different from vertically diversification? Explain. (MTP 5 Marks Oct'22)

Answer 57

Diversification strategy involves expansion into new businesses that are outside the current business and markets of an organisation. Based on the nature and extent of their relationship to existing businesses, diversification can be classified into four broad categories:

(i) Vertically integrated diversification

(ii) Horizontally integrated diversification

(iii) Concentric diversification

(iv) Conglomerate diversification

Concentric diversification takes place when the products are related. The new product is a spin-off from the existing facilities and products/processes. This means that in concentric diversification too, there are benefits of synergy with the current operations. However, concentric diversification differs from vertically integrated diversification in the nature of the linkage the new product has with the existing ones.

In vertically integrated diversification, firms opt to engage in businesses that are related to the existing business of the firm. The firm remains vertically within the same process. Sequence moves forward or backward in the chain and enters specific product/process steps with the intention of making them into new businesses for the firm. The new product falls within the firm's current process-product chain. In concentric diversification, there is a departure from this vertical linkage, a new related product is added to the existing business. The new product is only connected in a loop-like manner at one or more points in the firm's existing process/technology/product chain.

Question 58

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Redefinition of business is involved in both "Expansion" and "Retrenchment" strategy, however, method involved in their execution is completely different. Explain. (MTP 5 Marks Sep '23)

Answer 58

Expansion strategy is implemented by redefining the business by adding the scope of business substantially increasing the efforts of the current business. On the other hand, Retrenchment strategy involves redefinition of business by divesting a major product line or market.

Expansion is a promising and popular strategy that tends to be equated with dynamism, vigour, promise and success. Retrenchment or retreat becomes necessary or expedient for coping with particularly hostile and adverse situations in the environment and when any other strategy is likely to be suicidal.

Expansion may take the enterprise along relatively unknown and risky paths, full of promises and pitfalls. Retrenchment involves regrouping and recouping of the resources.

Question 59

What are the advantages of a strategic alliance? (MTP 5 Marks Nov'21)

OR

Strategic alliances are formed if they provide an advantage to all the parties in the alliance. Do you agree? Explain in brief the advantages of a strategic alliance. (RTP May'18, May'19)

Answer 59

Jeff Inc. of USA and Desi group of India opted for strategic alliance as their growth strategy. A strategic alliance is a relationship between two or more businesses that enables each to achieve certain strategic objectives which neither would be able to achieve on its own. Strategic alliances are often formed in the global marketplace between businesses that are based in different regions of the world.

A strategic alliance is a relationship between two or more businesses that enables each to achieve certain strategic objectives which neither would be able to achieve on its own. The strategic partners maintain their status as independent and separate entities, share the benefits and control over the partnership, and continue to make contributions to the alliance until it is terminated

Advantages of Strategic Alliance

Strategic alliance usually is only formed if they provide an advantage to all the parties in the alliance. These advantages can be broadly categorised as follows:

5. **Organizational:** Strategic alliance helps to learn necessary skills and obtain certain capabilities from strategic partners. Strategic partners may also help to enhance productive capacity, provide a distribution system, or extend supply

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chain. Having a strategic partner who is well -known and respected also helps add legitimacy and creditability to a new venture.

6. **Economic:** There can be reduction in costs and risks by distributing them across the members of the alliance. Greater economies of scale can be obtained in an alliance, as production volume can increase, causing the cost per unit to decline. Finally, partners can take advantage of co - specialization, creating additional value, such as when a leading computer manufacturer bundles its desktop with a leading monitor manufacturer's monitor.

7. **Strategic:** Rivals can join together to cooperate instead of competing with each other. Vertical integration can be created where partners are part of supply chain. Strategic alliances may also be useful to create a competitive advantage by the pooling of resources and skills. This may also help with future business opportunities and the development of new products and technologies. Strategic alliances may also be used to get access to new technologies or to pursue joint research and development.

8. **Political:** Sometimes strategic alliances are formed with a local foreign business to gain entry into a foreign market either because of local prejudices or legal barriers to entry. Forming strategic alliances with politically influential partners may also help improve your own influence and position.

Question 60

Jeff Inc., a leading USA based Mobile company decides to make India a hub for the company's Android Mobile having largest storage memory to be manufactured in collaboration with the Desi Group, a leading Indian mobile manufacturer. The production is to be exported to the company's home market as well as to other European countries.

What is this growth strategy called? Point out the most important advantages both the companies expect from such strategy/collaboration. (PYP Dec '21 & Nov '19)

Answer 60

Jeff Inc. of USA and Desi group of India opted for strategic alliance as their growth strategy. A strategic alliance is a relationship between two or more businesses that enables each to achieve certain strategic objectives which neither would be able to achieve on its own. Strategic alliances are often formed in the global marketplace between businesses that are based in different regions of the world.

A strategic alliance is a relationship between two or more businesses that enables each to achieve certain strategic objectives which neither would be able to achieve on its own. The strategic partners maintain their status as independent and separate

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entities, share the benefits and control over the partnership, and continue to make contributions to the alliance until it is terminated

Advantages of Strategic Alliance

Strategic alliance usually is only formed if they provide an advantage to all the parties in the alliance. These advantages can be broadly categorised as follows:

9. **Organizational:** Strategic alliance helps to learn necessary skills and obtain certain capabilities from strategic partners. Strategic partners may also help to enhance productive capacity, provide a distribution system, or extend supply chain. Having a strategic partner who is well -known and respected also helps add legitimacy and creditability to a new venture.
10. **Economic:** There can be reduction in costs and risks by distributing them across the members of the alliance. Greater economies of scale can be obtained in an alliance, as production volume can increase, causing the cost per unit to decline. Finally, partners can take advantage of co - specialization, creating additional value, such as when a leading computer manufacturer bundles its desktop with a leading monitor manufacturer's monitor.
11. **Strategic:** Rivals can join together to cooperate instead of competing with each other. Vertical integration can be created where partners are part of supply chain. Strategic alliances may also be useful to create a competitive advantage by the pooling of resources and skills. This may also help with future business opportunities and the development of new products and technologies. Strategic alliances may also be used to get access to new technologies or to pursue joint research and development.
12. **Political:** Sometimes strategic alliances are formed with a local foreign business to gain entry into a foreign market either because of local prejudices or legal barriers to entry. Forming strategic alliances with politically influential partners may also help improve your own influence and position.

Question 61

How Ansoff's Product Market Growth Matrix is a useful tool for business organizations? (MTP 5 Marks Oct 21 & April '19)

Answer 61

The Ansoff's product market growth matrix (proposed by Igor Ansoff) is a useful tool that helps businesses decide their product and market growth strategy. With the use of this matrix a business can get a fair idea about how its growth depends in new or existing products in both new and existing markets.

Companies should always be looking to the future. Businesses that use the Ansoff matrix can determine the best strategy. The matrix can help them to decide how to do this by demonstrating their options clearly, breaking them down into four strategies, viz., Market Penetration, Market Development, Product Development, Diversification.

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Determining which of these is best for their business will depend on a number of variables including available resources, infrastructure, market position, location and budget.

Question 62

The CEO of a textile mill is convinced that his loss making company can be turned around. Suggest an action plan for a turnaround to the CEO. (PYP 5 Marks, July'21)

Answer 62

XYZ Company is facing continuous losses, decline in sales and product market share, persistent negative cash flow, uncompetitive products, declining market share, deterioration in physical facilities, low morale of employees. In such a scenario, Shyamalan may choose turnaround strategy as this strategy attempts to reverse the process of decline and bring improvement in organizational health. This is also important as Board has decided to continue the company and adopt measures for its proper functioning.
For success, Shyamalan needs to focus on the short and long-term financing needs as well as on strategic issues. During the turnaround, the "product mix" may be changed, requiring the organization to do some repositioning. A workable action plan for turnaround would involve:

Stage One – Assessment of current problems: In the first step, assess the current problems and get to the root causes and the extent of damage.

Stage Two – Analyze the situation and develop a strategic plan: Identify major problems and opportunities, develop a strategic plan with specific goals and detailed functional actions.

Stage Three – Implementing an emergency action plan: If the organization is in a critical stage, an appropriate action plan must be developed to stop the bleeding and enable the organization to survive.

Stage Four – Restructuring the business: If the core business is irreparably damaged, then the outlook for the entire organization may be bleak. Efforts to be made to position the organization for rapid improvement.

Stage Five – Returning to normal: In the final stage of turnaround strategy process, the organization should begin to show signs of profitability, return on investments and enhancing economic value-added.

Question 63

Write short note on expansion through acquisitions and mergers. (MTP 5 Marks Oct 20,)

Answer 63

Acquisitions and mergers are basically combination strategies. Some organizations

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prefer to grow through mergers. Merger is considered to be a process when two or more companies come together to expand their business operations. In such a case the deal gets finalized on friendly terms and both the organizations share profits in the newly created entity. In a merger, two organizations combine to increase their strength and financial gains along with breaking the trade barriers.

When one organization takes over the other organization and controls all its business operations, it is known as acquisition. In this process of acquisition, one financially strong organization overpowers the weaker one. Acquisitions often happen during recession in economy or during declining profit margins. In this process, one that is financially stronger and bigger establishes its power. The combined operations then run under the name of the powerful entity. A deal in case of an acquisition is often done in an unfriendly manner, it is more or less a forced association where the powerful organization either consumes the operation or a company in loss is forced to sell its entity.

Question 64

Justify the statement "Stability strategy is opposite of Expansion strategy". (MTP 5 Marks March '21)

Answer 64

Stability strategies, as name suggests, are intended to safeguard the existing interests and strengths of business. It involves organizations to pursue established and tested objectives, continue on the chosen path, maintain operational efficiency and so on. A stability strategy is pursued when a firm continues to serve in the same or similar markets and deals in same products and services. In stability strategy, few functional changes are made in the products or markets, however, it is not a 'do nothing' strategy. This strategy is typical for mature business organizations. Some small organizations also frequently use stability as a strategic focus to maintain comfortable market or profit position. On the other hand, expansion strategy is aggressive strategy as it involves redefining the business by adding the scope of business substantially, increasing efforts of the current business. In this sense, it becomes opposite to stability strategy. Expansion is a promising and popular strategy that tends to be equated with dynamism, vigor, promise and success. Expansion also includes diversifying, acquiring and merging businesses. This strategy may take the enterprise along relatively unknown and risky paths, full of promises and pitfalls.

Question 65

Leatherite Ltd., was started as a leather company to manufacture footwear. Currently, they are in the manufacturing of footwears for males and females. The top management desires to expand the business in the leather manufacturing goods. To expand they decided to purchase more machines to manufacture leather bags for males and females. Identify and explain the strategy opted by the top management of Leatherite Ltd. (MTP March '19, 5 Marks)

Answer 65

Leatherite Ltd. is currently manufacturing footwears for males and females and its top management has decided to expand its business by manufacturing leather bags

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for males and females. Both the products are similar in nature within the same industry. The strategic diversification that the top management of Leatherite Ltd. has opted is concentric in nature. They were in business of manufacturing leather footwears and now they will manufacture leather bags as well. They will be able to use existing infrastructure and distribution channel. Concentric diversification amounts to related diversification.

In concentric diversification, the new business is linked to the existing businesses through process, technology or marketing. The new product is a spin-off from the existing facilities and products/ processes. This means that in concentric diversification too, there are benefits of synergy with the current operations.

Section B

1. Which strategy is implemented after the failure of turnaround strategy?

(a) Expansion strategy

(b) Diversification strategy

(c) Divestment strategy

(d) Growth strategy

Ans: (c)

2. Retrenchment strategy in the organization can be explained as

(a) Reducing trenches (gaps) created between individuals.

(b) Divesting a major product line or market.

(c) Removal of employees from job through the process of reorganization.

(d) Removal of employees from job in one business to relocate them in other business.

Ans: (b)

3. An organization diversifies in backward sequence in the product chain and enters specific product/process to be used in existing products. It is:

(a) Forward diversification.

(b) Vertical diversification.

(c) Horizontal diversification.

(d) Reactive diversification.

Ans; (b)

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4. Corporate strategy includes:

(i) expansion and growth, diversification, takeovers and mergers

(ii) Vertical and horizontal integration, new investment and divestment areas

(iii) determination of the business lines

From the combinations given below select a correct alternative:

(a) (i), and (ii)

(b) (i) and (iii)

(c) (ii) and (iii)

(d) (i) (ii) and (iii)

Ans: (d)

5. Vertical integration may be beneficial when

(a) Lower transaction costs and improved coordination are vital and achievable through vertical integration.

(b) Flexibility is reduced, providing a more stationary position in the competitive environment.

(c) Various segregated specializations will be combined.

(d) The minimum efficient scales of two corporations are different.

Ans: (a)

6. Stability strategy is a strategy.

(a) SBU level

(b) Corporate level

(c) Business level

(d) Functional level

Ans: (b)

7. Conglomerate diversification is another name for which of the following?

(a) Related diversification

(b) Unrelated diversification

(c) Portfolio diversification

(d) Acquisition diversification

Ans: (b)

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8. **Diversification primarily helps to:**
   (a) Reduce competition
   (b) Reduce risk
   (c) Reduce taxes
   (d) Reduce costs

Ans: (b)

9. **If suppliers are unreliable or too costly, which of these strategies may be appropriate?**
   (a) Horizontal integration
   (b) Backward integration
   (c) Market penetration
   (d) Forward integration

Ans: (b)

Scenario Based Question

Question 1

Gautam and Siddhartha two brothers are the owners of a cloth manufacturing unit located in Faridabad. They are doing well and have substantial surplus funds available within the business. They have different approaches regarding corporate strategies to be followed to be more competitive and profitable in future. Gautam is interested in acquiring another industrial unit located in Faridabad manufacturing stationery items such as permanent markers, notebooks, pencils and pencil sharpeners, envelopes and other office supplies. On the other hand, Siddhartha desires to start another unit to produce readymade garments. Discuss the nature of corporate strategies being suggested by two brothers and risks involved in it.

Answer 1

Gautam wishes to diversify in a business that is not related to their existing line of product and can be termed as conglomerate diversification. He is interested in acquiring another industrial unit located in Faridabad manufacturing stationery items such as permanent markers, notebooks, pencils and pencil sharpeners, envelopes and other office supplies, which is not related to their existing product. In conglomerate diversification, the new businesses/ products are disjointed fromthe existing businesses/products in every way; it is an unrelated diversification. In process/ technology/ function, there is no connection between the new products and the existing ones. Conglomerate diversification has no common thread at all

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with the firm's present position. On the other hand, Siddhartha seeks to move forward in the chain of existingproduct by adopting vertically integrated diversification/ forward integration. The cloth being manufactured by the existing processes can be used as raw materialof garments manufacturing business. In such diversification, firms opt to engagein businesses that are related to the existing business of the firm. The firm remains vertically within the same process and moves forward or backward in the chain. It enters specific product/process steps with the intention of making them into new businesses for the firm. The characteristic feature of vertically integrated diversification is that here, the firm does not jump outside the vertically linked product-process chain. Both types of diversifications have their own risks. In conglomerate diversification, there are no linkages with customer group, customer marketing functions and technology used, which is a risk. In the case of vertical integrated diversification, there is a risk of lack of continued focus on the original business.

Question 2

XYZ Company is facing continuous losses. There is decline in sales and product market share. The products of the company became uncompetitive and there is persistent negative cash flow. The physical facilities are deteriorating and employees have low morale. At the board meeting, the board members decided that they should continue the organization and adopt such measures such that the company functions properly. The board has decided to hire young executive Shayamli for improving the functions of the organization. What corporate strategy should Shayamli adopt for this company and what steps need to be taken to implement the corporate strategy adopted by Shayamli?

Answer 2

XYZ Company is facing continuous losses, decline in sales and product market share, persistent negative cash flow, uncompetitive products, declining market share, deterioration in physical facilities, low morale of employees. In such a scenario, Shayamli may choose **turnaround strategy** as this strategy attempts to reverse the process of decline and bring improvement in organizational health.This is also important as Board has decided to continue the company and adopt measures for its proper functioning.

For success, Shayamli needs to focus on the short and long-term financing needs as well as on strategic issues. During the turnaround, the “product mix” may be changed, requiring the organization to do some repositioning. A workable action plan for turnaround would involve:

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Stage Two – Analyze the situation and develop a strategic plan: Identify major problems and opportunities, develop a strategic plan with specific goals and detailed functional actions.

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Stage Three – Implementing an emergency action plan: If the organization is in a critical stage, an appropriate action plan must be developed to stop the bleeding and enable the organization to survive.

Stage Four – Restructuring the business: If the core business is irreparably damaged, then the outlook for the entire organization may be bleak. Efforts to be made to position the organization for rapid improvement.
Stage Five – Returning to normal: In the final stage of turnaround strategy process, the organization should begin to show signs of profitability, return oninvestments and enhancing economic value-added.

Question 3

Organo is a large supermarket chain. It is considering the purchase of a number of farms that provides Organo with a significant amount of its fresh produce. Organo feels that by purchasing the farms, it will have greater control over its supply chain. Identify and explain the type of diversification opted by Organo?

Answer 3

Organo is a large supermarket chain. By opting backward integration and purchase a number of farms, it will have greater control over its supply chain. Backward integration is a step towards, creation of effective supply by entering business of input providers. Strategy employed to expand profits and gain greater control over production of a product whereby a company will purchase or build a business that will increase its own supply capability or lessen its cost of production.

Question 4

With the global economic recession Soft Cloth Ltd. incurred significant losses in all its previous five financial years. Currently, they are into manufacturing of cloth made of cotton, silk, polyester, rayon, lycra and blends. Competition is also intense on account of cheap imports. The company is facing cash crunch and has not been able to pay the salaries to its employees in the current month. Suggest a grand strategy that can be opted by Soft Cloth Ltd.

Answer 4

Soft Cloth Ltd. is facing internal as well as external challenges. The external environment is in economic recession and the organization is facing cash crunch. The company needs to work on retrenchment / turnaround strategy. The strategy is suitable in case of issues such as:

- Persistent negative cash flow.
- Uncompetitive products or services
- Declining market share
- Deterioration in physical facilities

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- Overstaffing, high turnover of employees, and low morale
- Mismanagement

The company may consider to substantially reduce the scope of its activity. This is done through an attempt to find out the problem areas and diagnose the causesof the problems. Next, steps are taken to solve the problems. These steps result in different kinds of retrenchment strategies. If the organization chooses to focus on ways and means to reverse the process of decline, it adopts at turnaround strategy. If it cuts off the loss-making units, divisions, or SBUs, curtails its product line, or reduces the functions performed, it adopts a divestment strategy. If none of these actions work, then it may choose to abandon the activities totally, resulting in a liquidation strategy.

Question 5

X Pvt. Ltd. had recently ventured into the business of co-working spaces when the global pandemic struck. This has resulted in the business line becoming unprofitable and unviable, and a failure of the existing strategy. However, the other businesses of X Pvt. Ltd. are relatively less affected by the pandemic as compared to the recent co- working spaces. Suggest a strategy for X Pvt. Ltd. with reasons to justify your Answer.

Answer 5

It is advisable that divestment strategy should be adopted by X Pvt. Ltd. In the given situation where the business of co-working spaces became unprofitable and unviable due to Global pandemic, the best option for the company is to divest the loss-making business. Retrenchment may be done either internally or externally. Turnaround strategy is adopted in case of internal retrenchment where emphasis is laid on improvinginternal efficiency of the organization, while divestment strategy is adopted when a business turns unprofitable and unviable due to some external factors. In view of the above, the company should go for divestment strategy. Further, divestment helps address issues like:

1. Persistent cash flows from loss making segment could affect other profit- making segments, which is the case in the given scenario.
2. Inability to cope from the losses, which again is uncertain due to pandemic.
3. Better investment opportunity, which could be the case if X Pvt. Ltd. caninvest the money it generates from divestment.

Question 6

Atrix Ltd. is a company engaged in the designing, manufacturing, and marketing of mechanical instruments like speed meters, oil pressure

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gauges, and so on. Their products are fitted into two and four wheelers. During the last couple of years, the company has been observing a fall in the market share. This is on account of shift to the new range of electronic instruments. The customers are switching away mechanical instruments that have been the backbone of Atrix Ltd.

As a CEO of Atrix Ltd., what can be the strategic options available with you.

Question 6

Atrix is having a product portfolio that is evidently in the decline stage. The product is being replaced with the technologically superior product. Strategically the company should minimize their dependence on the existing products and identify other avenues for the survival and growth. As a CEO of Atrix Ltd., following can be the strategic options available with the CEO:

- Invest in new product development and switchover to the new technology. Atrix Ltd. also need time to invest in emerging new technology.
- They can acquire or takeover a competitor provided they have or are able to generate enough financial resources.
- They may also consider unrelated growth and identify other areas for expansion. This will enable Atrix Ltd. to spread their risks.
- In longer run, they should divest the existing products. However, they may continue with the existing products in a limited manner for such time there is demand for the product.

Question 7

Describe the construction of BCG matrix and discuss its utility in strategic management.

Answer 7

Companies that are large enough to be organized into strategic business units face the challenge of allocating resources among those units. In the early 1970's the Boston Consulting Group developed a model for managing portfolio of different business units or major product lines. The BCG growth- share matrix facilitates portfolio analysis of a company having invested in diverse businesses with varying scope of profits and growth.

The BCG matrix can be used to determine what priorities should be given in the product portfolio of a business unit. Using the BCG approach, a company classifies its different businesses on a two-dimensional growth share matrix. Two dimensions are market share and market growth rate. In the matrix:

- The vertical axis represents market growth rate and provides a measure of market attractiveness.
- The horizontal axis represents relative market share and serves as a

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measure of company's strength in the market.

Thus, the BCG matrix depicts quadrants as shown in the following table:

Relative Market Share

Market Growth Rate	High	Low
High	**Stars**	**Question Marks**
Low	**Cash Cows**	**Dogs**

BCG Matrix

Different types of business represented by either products or SBUs can be classified for portfolio analyses through BCG matrix. They have been depicted by meaningful metaphors, namely:

(a) **Stars** are products or SBUs that are growing rapidly. They also need heavy investment to maintain their position and finance their rapid growth potential. They represent best opportunities for expansion.

(b) **Cash Cows** are low-growth, high market share businesses or products. They generate cash and have low costs. They are established, successful, and need less investment to maintain their market share. In long run when the growth rate slows down, stars become cash cows.

(c) **Question Marks,** sometimes called problem children or wildcats, are low market share business in high-growth markets. They require a lot of cash to hold their share. They need heavy investments with low potential to generate cash. Question marks if left unattended are capable of becoming cash traps. Since growth rate is high, increasing it should be relatively easier. It is for business organisations to turn them stars and then to cash cows when the growth rate reduces.

(d) **Dogs** are low-growth, low-share businesses and products. They may generate enough cash to maintain themselves, but do not have much future. Sometimes they may need cash to survive. Dogs should be minimised by means of divestment or liquidation.

The BCG matrix is useful for classification of products, SBUs, or businesses, and for selecting appropriate strategies for each type as follows.

(a) Build with the aim for long-term growth and strong future.

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(b) Hold or preserve the existing market share.

(c) Harvest or maximize short-term cash flows.

(d) Divest, sell or liquidate and ensure better utilization of resources elsewhere.

Thus, BCG matrix is a powerful tool for strategic planning analysis and choice.

Question 8

An industry comprises of only two firms-Soorya Ltd. and Chandra Ltd. From the following information relating to Soorya Ltd., prepare BCG Matrix:

Product	Revenues (in `)	Percent Revenues	Profits (in `)	Percent Profits	Percentage Market Share	Percentage Industry Growth rate
A	6 crore	48	120 lakh	48	80	+ 15
B	4 crore	32	50 lakh	20	40	+ 10
C	2 crore	16	75lakh	30	60	-20
D	50 lakh	4	5 lakh	2	5	-10
Total	12.5 crore	100	250 lakh	100		

Answer 8

Using the BCG approach, a company classifies its different businesses on a two dimensional growth-share matrix. In the matrix, the vertical axis represents market growth rate and provides a measure of market attractiveness. The horizontal axis represents relative market share and serves as a measure of company strength in the market. With the given data on market share and industry growth rate of Soorya Ltd, its four products are placed in the BCG matrix as follows:

Market Growth Rate	**High**	**Low**
Hig	*Product A [80% Market Share +15% Growth Rate]* **Stars**	*Product B [40% Market Share +10% Growth Rate]* **Question Marks**
Low	*Product C [60% Market Share -20% Growth Rate]*	*Product D [05% Market Share -10% Growth*

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Product A is in best position as it has a high relative market share and a high industry growth rate. On the other hand, product B has a low relative market share, yet competes in a high growth industry. Product C has a high relative market share but competes in an industry with negative growth rate. The company should take advantage of its present position that may be difficult to sustain in long run. Product D is in the worst position as it has a low relative market share and competes in an industry with negative growth rate.

Question 9

Aurobindo, the pharmaceutical company wants to grow its business. Draw Ansoff's Product Market Growth Matrix to advise them of the available options.

Answer 9

The Ansoff's product market growth matrix (proposed by Igor Ansoff) is a useful tool that helps businesses decide their product and market growth strategy. With the use of this matrix, a business can get a fair idea about how its growth depends upon its markets in new or existing products in both new and existing markets.

The Ansoff's product market growth matrix is as follows:

	Existing Products	**New Products**
Existing Markets	**Market Penetration**	**Product Development**
New Markets	**Market Development**	**Diversification**

Ansoff's Product Market Growth Matrix

Ansoff's Product Market Growth Matrix

Based on the matrix, Aurobindo may segregate its different products. Being in pharmaceuticals, development of new products is result of extensive research and involves huge costs. There are also social dimensions that may influence the decision of the company. It can adopt penetration, product development, market development

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or diversification simultaneously for its different products.

Market penetration refers to a growth strategy where the business focuses on selling existing products into existing markets. It is achieved by making more sales to present customers without changing products in any major way.

Market development refers to a growth strategy where the business seeks to sell its existing products into new markets. It is a strategy for company growth by identifying and developing new markets for the existing products of the company.

Product development refers to a growth strategy where business aims to introduce new products into existing markets. It is a strategy for company growth by offering modified or new products to current markets.

Diversification refers to a growth strategy where a business markets new products in new markets. It is a strategy by starting up or acquiring businesses outside the company's current products and markets.

As market conditions change overtime, a company may shift product-market growth strategies. **For example**, when its present market is fully saturated a company may have no choice other than to pursue new market.

Question 10

In the context of Ansoff's Product-Market Growth Matrix, identify with reasons, the type of growth strategies followed in the following cases:

- A leading producer of tooth paste, advises its customers to brush teeth twice a day to keep breath fresh.
- A business giant in hotel industry decides to enter into dairy business.
- One of India's premier utility vehicles manufacturing company ventures to foray into foreign markets.
- A renowned auto manufacturing company launches ungeared scooters in the market.

Answer 10

The Ansoff's product market growth matrix (proposed by Igor Ansoff) is a useful tool that helps businesses decide their product and market growth strategy. This matrix further helps to analyse different strategic directions. According to Ansoff there are four strategies that organisation might follow.

(i) **Market Penetration:** A leading producer of toothpaste, advises its customers to brush teeth twice a day to keep breath fresh. It refers to a growth strategy where the business focuses on selling existing products into existing markets.

(ii) **Diversification:** A business giant in hotel industry decides to enter into dairy business. It refers to a growth strategy where a business markets new products in

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new markets.

(iii) **Market Development:** One of India's premier utility vehicles manufacturing company ventures to foray into foreign markets. It refers to a growth strategy where the business seeks to sell its existing products into new markets.

(iv) **Product Development:** A renowned auto manufacturing company launches ungeared scooters in the market. It refers to a growth strategy where business aims to introduce new products into existing markets.

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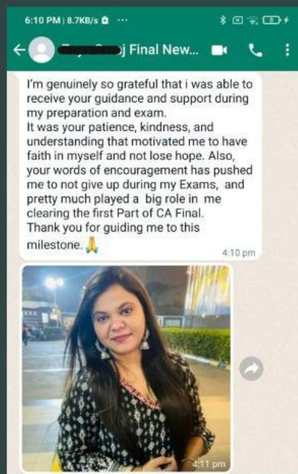

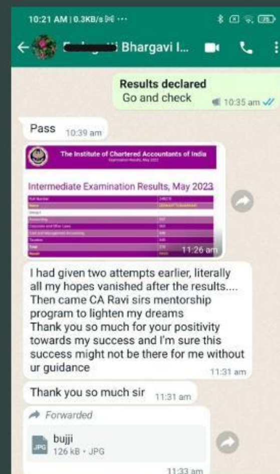

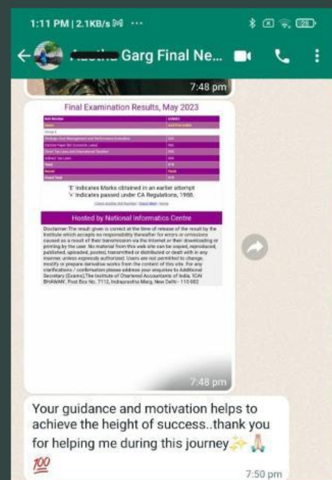

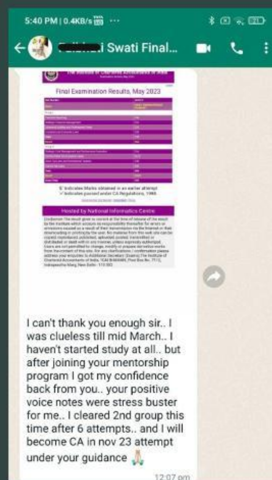

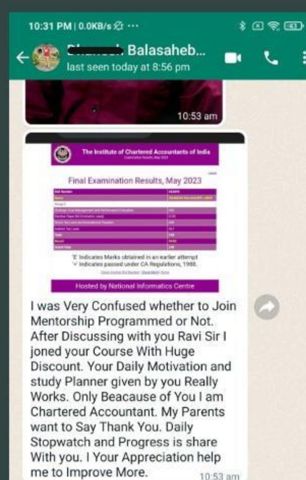

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Chapter 5

STRATEGY IMPLEMENTATION AND EVALUATION

Attempt wise Distribution

MCQ												
Attempts	May' 18	Nov' 18	May' 19	Nov' 19	May' 20	Nov' 20	Jan' 21	Jul' 21	Dec' 21	May' 22	Nov' 22	May' 23	Nov' 23
MTP			Q2, Q16, Q22, Q28, Q36, Q44	Q19, Q26, Q48		Q15, Q27, Q49		Q3, Q11, Q12, Q18, Q30, Q40	Q34, Q39	Q31, Q32, Q45, Q46	Q7,Q23, Q24, Q29	Q42, Q43, Q47	Q8, Q17
RTP			Q4,Q13,Q37,Q38	Q1, Q9		Q14, Q20, Q25, Q33, Q35, Q41, Q50				Q5	Q10		Q6, Q21
Q & A													
MTP		Q70, Q80	Q11, Q48, Q81	Q69		Q61, Q74			Q28, Q60, Q73, Q82	Q32, Q52, Q83	Q64, Q71	Q36	Q77
PYP	Q38, Q78	Q1, Q2, Q13, Q27	Q16, Q22			Q5, Q12	Q8, Q23, Q72		Q3, Q56	Q9, Q15, Q31	Q24, Q76	Q6, Q19, Q79	
RTP	Q40, Q20, Q25, Q34, Q17, Q54, Q55, Q59, Q63	Q35, Q37, Q46, Q50, Q51, Q57	Q43, Q47, Q62	Q41, Q49, Q53		Q4, Q14, Q18, Q26		Q21, Q30, Q66	Q39,Q42,Q44	Q33, Q45, Q65, Q67	Q29, Q58	Q68, Q75	Q7, Q10

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Section A

MULTIPLE CHOICE QUESTIONS

1. **In the questions given below select the best answer out of options (A), (B), (C), or (D):**
Which of the following is not true for SBUs?
    (a) It is relevant for multi-product, multi-business enterprises.
    (b) It provides for more control at enterprise level with centralised strategic planning.
    (c) A SBU has its own set of competitors.
    (d) SBUs can be created for units at distant geographical locations. **(RTP Nov'19)**

Ans: (b)

2. **During what stage of strategic management are a firm's specific internal strengths and weaknesses determined?**
    (a) Formulation
    (b) Implementation
    (c) Evaluation
    (d) Feedback **(MTP 1 Mark March 19)**

Ans: (a)

3. **Davis and Lawrence have proposed three distinct phases for development of matrix structure. These phases are (1) Cross-functional task forces (2) Product/brand management and (3) ____ .**
    (a) Market/external management
    (b) Functional matrix
    (c) Mature matrix
    (d) Internal management **(MTP 2 Marks April 21)**

Ans: (c)

4. **Which of the following is not a phase in Kurt Lewin's Model of Change?**
    (a) Changing.
    (b) Deep freezing.
    (c) Refreezing.
    (d) Unfreezing. **(May'19)**

Ans: (b)

5. **Maadhyam, a hearing aid manufacturer recently introduced an AI based management tool that has the capabilities of managing teams across functions. What could be their new organisational structure post this implementation?**

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(a) Divisional Structure
(b) Matrix Structure
(c) Hourglass Structure
(d) Network Structure **(RTP May '22)**

Ans: (c)

6. **The tool for analyzing and comparing the best practices being used by established players in each segment, is known as:**
   (a) Benchmarking
   (b) Strategic Analysis
   (c) Strategic Decision making
   (d) BPR (**RTP Nov '23)**

Ans: (a)

7. **Swabhaav, a social media marketing firm introduced an AI based management tool that has the capabilities of managing teams across functions all while being creative. What is the most likely organisational structure post this implementation?**
   (a) Divisional
   (b) Matrix
   (c) Hourglass
   (d) Network **(MTP 2 Marks Sep'22)**

Ans: (c)

8. **TechNo Solutions, a dynamic tech company, is considering a shift in its organizational structure to enhance efficiency. The management team is evaluating various strategies and decided to virtually eliminate in-house business functions. Which of the following organizational structures is TechNo Solutions shifting towards?**
   (a) Network Structure
   (b) Matrix structure
   (c) Hourglass Structure
   (d) SBU Structure **(MTP 2 Marks Oct '23)**

Ans: (a)

9. **In the questions given below select the best answer out of options (A), (B), (C), or (D):**
   Strategy evaluation is difficult on account of following trends, except:
   (a) There is dramatic increase in the environment's complexity.
   (b) It is difficult to predict future.

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(c) Firms have unlimited resources.

(d) Obsolescence is rapid. **(RTP Nov'19)**

Ans: (c)

10. Which of the following is more radical organisation design and is also called as non-structure which virtually eliminates in house business functions and outsources many of them?

(a) Network Structure

(b) Strategic Business Unit

(c) Hourglass Structure

(d) Divisional Structure **(RTP Nov'22)**

Ans: (a)

11. What is the first step in the comprehensive strategic-management model?

(a) Developing vision and mission statements

(b) Performing external audits

(c) Measuring and evaluating performance

(d) Establishing long-term objectives **(MTP 1 Mark April 21)**

Ans: (a)

12. A corporation organized in network structure is often called

(a) Virtual organization

(b) Hierarchical organization

(c) Structured organization

(d) Simple organization **(MTP 1 Mark March '21)**

Ans: (a)

13. Which of the following situation will most likely suit a transformational leader?

(a) An organization that is in trouble.

(b) A growing organization.

(c) An organization in a stable environment.

(d) An organization at maturity stage of product life cycle. **(RTP May'19)**

Ans:(a)

14. GetWellSoon Limited is a health provider and has only large edge of town hospitals. It is considering setting-up additional small city centre clinics capable of treating less-serious day cases. Which of the following will fall under "Strategy Implementation"?

(1) **Acquiring and fitting out clinics**

(2) **Hiring and/or transferring staff**

(3) **Publicity, so that patients know where and when to go**

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(4) **Liaison with general practitioners and the main hospitals**

(a) Only (d)

(b) (b) & (d)

(c) (a), (b) & (d)

(d) (a), (b), (c) & (d) **(Nov'20)**

Ans: (d)

15. Gennex industries are analyzing the technological forces for the firm which may provide it opportunities and threats for which of the following stage/s of strategic management process?

(a) Strategy formulation

(b) Strategy implementation

(c) Strategy evaluation

(d) All of the above**(MTP 1 Mark May 20)**

Ans: (d)

16. Individual investors are reliant on upon the organization's managers to

(a) Maximize short-term returns in the form of dividends.

(b) Add value to their investments in a way that the stockholders could not accomplish on their own.

(c) Achieve risk reduction at a lower cost than stockholders could obtain on their own.

(d) Diversify the stockholder's investments in order to reduce risk. (**Mar '19, 1 Mark)**

Ans: (b)

17. Which is true for Hourglass Organization Structure?

(a) Wide at the bottom and widest at the top.

(b) Middle level managers are generalist and perform wide variety of tasks

(c) Decision making is slow

(d) Difficult to keep motivation level high among lower-level staff (**MTP 1 Mark Sep '23**)

Ans: (b)

18. Developing vision and mission, identifying an organization's external opportunities and threats, and determining internal strengths and weaknesses are:

(a) SBU planning

(b) Strategy formulation

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(c) Strategy implementation

(d) Business process reengineering **(MTP 2 Marks March '21)**

Ans: (b)

19. What is the first step in the comprehensive strategic-management model?

(a) Developing vision and mission statements

(b) Performing external audits

(c) Measuring and evaluating performance

(d) Establishing long-term objectives **(MTP Oct '19, 1 Mark)**

Ans: (a)

20. In which phase of strategic management are annual objectives especially important?

(a) Formulation

(b) Control

(c) Evaluation

(d) Implementation **(May'20)**

Ans:(d)

21. In which type of organization are Strategic Business Units (SBUs) commonly found?

(a) Sole proprietorships

(b) One-business organizations

(c) Non-profit organizations

(d) Multi-business organizations **(RTP Nov'23)**

Ans: (d)

22. In evaluating strategies, which one of Rumelt's criteria for evaluating strategies, refers to the need for strategists to examine sets of trends?

(a) Consistency

(b) Consonance

(c) Feasibility

(d) Advantage **(MTP March '19, 1 Mark)**

Ans: (b)

23. Maadhyam, a hearing aid manufacturer recently introduced an AI based management tool that has the capabilities of managing teams across functions. What could be their new organisational structure post this implementation?

(a) Divisional Structure

(b) Matrix Structure

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(c) Hourglass Structure

(d) Network Structure **(MTP 2 Mark Oct'22)**

Ans: (c)

24. After an earnest attempt to bring in a strategic change in your organization, you the operational head of XYZ ltd, succeeded but still your organization couldn't achieve the desired competitive position in the market. Out of the following what could be the reason?

(a) Strategy Formulation

(b) Strategy Model

(c) Strategy Implementation

(d) Strategy Decision (**2 Marks Oct'22 & March '23)**

Ans: (c)

25. In the questions given below select the best answer out of options (a), (b), (c), or (d): In strategic management, there are two main styles of leadership. These are transformational and:

(a) Transparent

(b) Transitional

(c) Translational

(d) Transactional **(RTP May'20)**

Ans: (d)

26. The purpose of strategy evaluation is to:

(a) increase the budget annually

(b) alert management to problems or potential problems

(c) make budget changes

(d) evaluate employees' performance **(MTP Oct '19,1 Mark)**

Ans: (b)

27. Which of the following would be chosen by the core strategist to implement operational control?

(a) Premise Control

(b) Special Alert Control

(c) Implementation Control

(d) Budgetary Control **(1 Mark Oct 20)**

Ans: (d)

28. The following are part of Richard Rumelt's criteria for strategy audit, except:
Adaptation

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(a) Consistency

(b) Consonance

(c) Feasibility (**MTP April '19, 1 Mark**)

Ans: (a)

29. Corporate culture refers to:

(a) Company's values and beliefs

(b) Company's business principles

(c) Internal work environment

(d) All the above **(MTP 1 Mark Oct'22)**

Ans: (d)

30. Which one is NOT a type of strategic control?

(a) Operational control

(b) Strategic surveillance

(c) Special alert control

(d) Premise control **(1 Mark April 21)**

Ans: (a)

31. Anshul joined a telecom company after his MBA and started working as market research analyst. His job included analyzing industry factors like competitors, suppliers and substitutes. Which of the strategic controls is he working on?

(a) Strategic Surveillance

(b) Special Alert Control

(c) Premise Control

(d) Benchmarking **(2 Marks April 22)**

Ans: (c)

32. When there is impact of strategy implementation on strategy formulation it can be referred as?

(a) Backward Linkages

(b) Forward Linkages

(c) Vertical Linkages

(d) Horizontal Linkages **(1 Mark April 22, Nov'21, Oct'22)**

33. In the questions given below select the best answer out of options (a), (b), (c), or (d): After an earnest attempt to bring in a strategic change in your organization, you the operational head of XYZ ltd, succeeded but still your organization couldn't achieve the desired competitive position in the market. Out of the following what could be the reason?

(a) Strategy Formulation

(b) Strategy Model

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(c) Strategy Implementation

(d) Strategy Decision **(May'20)**

Ans: (c)

34. Systematic and continuous monitoring of the business environment to verify the accuracy of assumptions on which strategy is built is achieved by?

(a) Premise Control

(b) Special Alert Control

(c) Implementation Control

(d) Strategic Surveillance **(2 Marks Oct 21)**

Ans: (a)

35. Training company operates a network of accounting training centers throughout Europe, the US and Australia. The business intends to enter developing markets in order to drive growth and has now decided to enter India which is 7,500 kilometers from the Training Co.'s UK headquarters. The Board has suggested that it will require externally focused management information to move into India. Which of the following is an external factor(s) that the Board should consider while implementing its strategy?

(a) Key local rivals and their strengths and weaknesses

(b) Courses are suitable for this market

(c) Timing of the courses (Public holidays, religious festivals, etc. to be avoided)

(d) All of the above**(Nov'20)**

Ans: (d)

36. Who is a transformational leader?

(a) Someone who is involved in organizational change.

(b) A leader, who provides new ways of carrying out management.

(c) A leader who inspires the workers to new levels by offering them a vision of a better future.

(d) A leader who tries to transform their staff by giving them rewards for what they do.

(MTP April '19, 1 Mark)

Ans: (c)

37. The strategic management process is:

(a) a solution that guarantees prevention of organizational failure.

(b) concerned with a resources, capabilities, and competencies, but not the conditions in its external environment.

(c) not to be used in the not-for-profit organizations.

(d) full set of commitments, decisions, and actions related to the firm. **(RTP May'19)**

Ans: (d)

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38. Which of the following does not form part of Richard Tumult's criteria for strategy audit?

(a) Adaptation.

(b) Consistency.

(c) Consonance.

(d) Feasibility. **(RTP May'19)**

Ans: (a)

39. Shreya, the owner of Kalakaari boutiques, wanted to reduce uncertainty of their business strategy for which she gathered a lot of information from peers, groups, industry reports and experts. But it did not give her comfort to take up new strategies. What tool can help her in this regard?

(a) Risk Analysis

(b) BCG Analysis

(c) ADL Matrix

(d) Scenario Analysis **(MTP 2 Marks Oct 21)**

Ans: (d)

40. As the head of an MNC, you have been asked to bring in radical changes in your organization through BPR. Which of these is the thrust area you would focus on reducing:

(a) Total cycle time

(b) Total order time

(c) Total inventory time

(d) None **(2 Marks March '21)**

Ans: (a)

41. You being the core strategist of your company, entrusted with bringing about strategic change in your company, how will you initiate "unfreezing of the situation"?

(a) Promoting new ideas throughout the organization

(b) Promoting compliance throughout the organization

(c) Promoting change in process throughout the organization

(d) None of the above **(MTP 2 Marks Oct'22, RTP May'20)**

Ans: (a)

42. As the head of an MNC, you have been asked to bring in radical changes in your organisation through BPR. Which of these is the thrust area you would focus on reducing:

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(a) Total cycle time
(b) Total order time
(c) Total inventory time
(d) None **(2 Marks April '23)**

Ans: (a)

43. Technique to cope up with sudden change in Government, natural calamities, terrorist attacks, industrial disasters etc. is called

(a) Special Alert Control
(b) Strategic Surveillance
(c) Premise Control
(d) Implementation Control **(1 Mark March '23)**

Ans: (a)

44. What type of organizational structure do most small businesses follow?

(a) Divisional structure
(b) Functional structure
(c) Hour Glass structure
(d) Matrix structure **(MTP March '19, 1 Mark)**

Ans: (d)

45. A strategic business unit is a grouping of businesses.

(a) unrelated
(b) differentiated
(c) related
(d) None of these. **(MTP 1 Mark April 22)**

Ans: (c)

46. J&P, a western wear brand has contracted Pee Kaw marketing firm from Singapore, product design team working as an outsource company from Mexico and Humans branding company taking care of its people's operations. What kind of structure is this?

(a) Hourglass Structure
(b) Outsourcing
(c) Network Structure
(d) Tree Branch Structure **(MTP 2 Marks March '22)**

Ans: (c)

47. Abhishek a freelancer writes promotional materials. He decided to collaborate without requiring physical presence of employee, and hired virtual assistants to

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transcribe voice mail, update his website, and design PowerPoint graphics. What kind of structure is he using for his business?

(a) Functional structure

(b) Divisional structure

(c) Network structure

(d) Multi-divisional structure **(MTP 2 Marks April '23)**

Ans: (c)

48. **_______ leadership style may be appropriate in turbulent environment.**

(a) Transactional

(b) Transformational

(c) Autocratic

(d) None of these **(MTP Oct '19, 1 Mark)**

Ans: (b)

49. **Which of the following is more radical organisation design and is also called as non-structure which virtually eliminates in-house business functions and outsources many of them?**

(a) Network structure

(b) Strategic business unit

(c) Hourglass structure

(d) Simple structure **(MTP 1 Mark May 20)**

Ans: (b)

50. **In which phase of strategic management are annual objectives especially important?**

(a) Formulation

(b) Control

(c) Evaluation

(d) Implementation **(May'20)**

Ans:(d)

Question & Answer

Question 1

How can a corporate culture be both strength and weakness of an organisation? (PYP 5 Marks Nov'18)

Answer 1

The most important phenomenon which often distinguishes one organisation with another is its corporate culture. Corporate culture refers to a company's values,

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beliefs, business principles, traditions, and ways of operating and internal work environment. Every corporation has a culture that exerts powerful influences on the behaviour of managers.

(i) **As a strength**: Culture can facilitate communication, decision making and control and instill cooperation and commitment. An organization's culture could be strong and cohesive when it conducts its business according to clear and explicit set of principles and values, which the management devotes considerable time to communicating to employees and which values are shared widely across the organisation.

(ii) **As a weakness**: Culture, as a weakness can obstruct the smooth implementation of strategy by creating resistance to change. An organization's culture could be characterised as weak when many sub-cultures exists, few values and behavioural norms are shared and traditions are rare. In such organizations, employees do not have a sense of commitment, loyalty and sense of identity.

Question 2

Write a short note on strategic change and explain the process of strategic change. (PYP 7 Marks, Nov'18)

Answer 2

The changes in the environmental forces often require businesses to make modifications in their existing strategies and bring out new strategies. Strategic change is a complex process that involves a corporate strategy focused on new markets, products, services and new ways of doing business.

Three steps for initiating strategic change are:

(i) **Recognize the need for change –** The first step is to diagnose the which facets of the present corporate culture are strategy supportive and which are not.

(ii) **Create a shared vision to manage change –** Objectives of both individuals and organization should coincide. There should be no conflict between them. This is possible only if the management and the organization members follow a shared vision.

(iii) **Institutionalize the change –** This is an action stage which requires the implementation of the changed strategy. Creating and sustaining a different attitude towards change is essential to ensure that the firm does not slip back into old ways of doing things.

Kurt Lewin proposed three stages of the change process for moving the organization from the present to the future.

(i) **Unfreezing the situation –** The process of unfreezing makes the individuals or organizations aware of the necessity for change and prepares them for it. The change should not come as a surprise to the members of the organization. Sudden and unannounced change would be socially destructive and morale lowering,

(ii) **Changing to new situation** – once unfreezing is complete and members of the organization recognize the need for change, then their behavior patterns need to be redefined as:

   i. **Compliance** – enforcing reward and punishment strategy for good or bad behavior

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ii. **Identification** – members are psychologically impressed to identify themselves with some given role models whose behavior they would like to adopt.

iii. **Internalization -** involves some internal changing of the individual's thought process. They are given the freedom to learn and adopt new behavior.

(iii) **Refreezing –** occurs when the new behavior becomes a normal way of life. The new behavior must replace the former behavior completely for successful and permanent change. This can be achieved by continuously reinforcing the newly acquired behavior.
Change process is not a one-time application but a continuous process due to dynamism and ever-changing environment.

Question 3

A Chennai based fast moving consumer goods (FMCG) major CDE Ltd. recently announced restructuring its business. The company indicated that the business would be split into mainly four different streams-FMCG, E-commerce, Retail, and Research & Development. The company management has decided that these four units will operate as separate businesses. The top corporate officer shall delegate responsibility for day-to-day operations and business unit strategy to the concerned managers.
Identify the organization structure that CDE Ltd. has planned to implement. Discuss any four attributes and the benefits the firm may derive by using this organization structure. (PYP 5 Marks Dec '21)

Answer 3

CDE Ltd. has planned to implement Strategic Business Unit (SBU) structure. Very large organisations, particularly those running into several products, or operating at distant geographical locations that are extremely diverse in terms of environmental factors, can be better managed by creating strategic business units. SBU structure becomes imperative in an organisation with increase in number, size and diversity.

The attributes of an SBU and the benefits a firm may derive by using the SBU Structure are as follows:

- A scientific method of grouping the businesses of a multi – business corporation which helps the firm in strategic planning.
- An improvement over the territorial grouping of businesses and strategic planning based on territorial units.
- Strategic planning for SBU is distinct from rest of businesses. Products/ businesses within an SBU receive same strategic planning treatment and priorities.
- Each SBU will have its own distinct set of competitors and its own distinct strategy.
- The CEO of SBU will be responsible for strategic planning for SBU and its profit performance.
- Products/businesses that are related from the stand point of function are assembled together as a distinct SBU.
- Unrelated products/ businesses in any group are separated into separate SBUs.
- Grouping the businesses on SBU lines helps in strategic planning by removing

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the vagueness and confusion.

- Each SBU is a separate business and will be distinct from one another on the basis of mission, objectives etc.

Question 4

Mathew & Sons Ltd. is a diversified business entity having business operations across the globe. Presently, Mr. Mathew is the CEO of Mathew & Sons Ltd. He is going to retire in next 4 months, so he has decided to change the company's leadership and hand over the pedals to his elder son Marshal. Marshal is a highly educated with an engineering degree from USA. However, being very young he is not clear about his role and responsibilities. In your view, what are the responsibilities of Marshal as CEO of Mathew & Sons Ltd. [MTP-Aug '18, 5 Marks, RTP May'20, RTP Nov'18)

Answer 4

Marshal, to be an effective strategic leader of Mathew & Sons Ltd. must be able to deal with the diverse and cognitively complex competitive situations that are characteristic of today's competitive landscape. He has several responsibilities, including the following:

- Making strategic decisions.
- Formulating policies and action plans to implement strategic decision.
- Ensuring effective communication in the organisation.
- Managing human capital (perhaps the most critical of the strategic leader's skills).
- Managing change in the organisation.
- Creating and sustaining strong corporate culture.
- Sustaining high performance over time.

Question 5

What is strategic control? Kindly explain the statement that "premise control is a tool for systematic and continuous monitoring of the environment". (PYP 5 Marks, Nov'20)

Answer 5

Strategic Control

Strategic control is the process of evaluating formulated and implemented strategy. It is directed towards identifying changes in the internal and external environments of the organization and making necessary adjustments accordingly.

Strategic Control focuses on the dual questions of whether: (1) the strategy is being implemented as planned; and (2) the results produced by the strategy are those intended.

Yes, Premise control is a tool for systematic and continuous monitoring of the environment to verify the validity and accuracy of the premises on which the strategy has been built. It primarily **involves monitoring two types of factors:**

(i) Environmental factors such as economic (inflation, liquidity, interest rates), technology, social and legal-regulatory.

(ii) Industry factors such as competitors, suppliers, substitutes.

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It is neither feasible nor desirable to control all types of premises in the same manner. Different premises may require different amount of control. Thus, managers are required to select those premises that are likely to change and would severely impact the functioning of the organization and its strategy.

Question 6

Ramesh and Suresh own software development firms ACS Ltd. and BDS Ltd. Ramesh and Suresh pitch their business in international markets and win international contracts. Ramesh has fifty software engineers in his team. Suresh, on the other hand, leads a team of forty software engineers. Every project has a specific and fixed timeline. Individual projects are assigned to project heads by Ramesh and Suresh. Ramesh adheres to strict rules and procedures. He met with the project heads to get an update but exchanged ideas occasionally. He set a weekly target of forty hours to complete the assigned goal or task. The group that met the deadline and completed the task received a 10% bonus. The group that was unable to meet the deadline was penalized. The group that did not meet the deadline was penalized with unpaid extra working hours to complete the task. Suresh, unlike Ramesh, did not priorities a structured approach to work. Suresh inspired the project managers by making them feel like leaders rather than just participants. Suresh's empowering attitude helped to align individual goals with group goals. Ramesh established routines to maximize his team efficiency. Suresh, on the other hand, used positive reinforcement to maximize his team efficiency.

(a) **Identify the leadership style employed by Ramesh and Suresh.**

(b) **What are the conditions/situations that make such leadership styles more appropriate?**

(c) **Discuss the characteristics of the leadership styles. (PYP 5 Marks May '23)**

Answer 6

(i) Ramesh adopted transactional leadership style, while Suresh adopted transformational leadership style.

(ii) Transactional leadership style can be appropriate in settled and static environment, in growing or mature industries and in organizations that are performing well.

Transformational leadership style may be appropriate in turbulent environment, in industries at the very start or end of their life cycles, in poorly performing organizations when there is a need to inspire a company to embrace major changes.

(iii) Transactional leadership style uses the authority of its office to exchange rewards such as pay, status symbols etc. Transactional leaders prefer a more formalized approach to motivation, setting clear goals with explicit rewards or penalties for achievement and non-achievement. Transactional leaders focus mainly to build on existing culture and enhance current practices.

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Transformational leadership style uses charisma and enthusiasm to inspire people to exert them for the good of organization. Transformational leaders inspire employees by offering excitement, vision, intellectual stimulation and personal satisfaction.

Question 7

ABC Ltd. is a shoe manufacturing company. The strategic manager of ABC ltd. is Ms. Suman. Ms. Suman hired the best designers she could find online for her ethnic shoe brand but later she found that the designers were better at leather designs. Identify and explain linkage in the given situation as she had to change her strategy basis the actual resources she had? (RTP Nov '23)

Answer 7

The strategy formulation and strategy implementation are intertwined and linked with each other. Two types of linkages exist between these two phases of strategic management. The forward linkages deal with the impact of strategy formulation on strategy implementation while the backward linkages are concerned with the impact in the opposite direction.

In the given situation Ms. Suman has to follow Backward Linkages as she had to change her strategy basis the actual resources she had. While dealing with strategic choice, remember that past strategic actions also determine the choice of strategy. Organizations tend to adopt those strategies which can be implemented with the help of the present structure of resources combined with some additional efforts. Such incremental changes, over a period of time, take the organization from where it is to where it wishes to be.

Question 8

Sonya Private Limited is an automobile company. For the past few years, it has been observed that the progress of the company has become stagnant. When scrutinized, it was found that the planning department was performing fairly well but the plans could not be implemented due to improper use of resources, undesirable tendencies of workers and non-conformance to norms and standards. You are hired as a Strategic Manager. Suggest the elements of process of control to overcome the problem. (PYP 5 Marks, Jan'21)

Answer 8

Sonya Private Limited deteriorating performance due to poor implementation of plans that is improper use of resources, undesirable tendencies of the workers, and non-conformance to norms and standards, all point towards weak controls in the organization. Implementation of plans cannot assure results unless strong and sufficient controls are put in place. The management of the company should focus diligently on developing controls especially in the identified problem areas.

The process of control has the following elements:

(a) Objectives of the business system which could be operationalized into measurable and controllable standards.

(b) A mechanism for monitoring and measuring the performance of the system.

(c) A mechanism (I) for comparing the actual results with reference to the standards (ii) for detecting deviations from standards and (iii) for learning new insights on

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standards themselves.

(d) A mechanism for feeding back corrective and adaptive information and instructions to the system, for effecting the desired changes to set right the system to keep it on course.

Above elements of control would ensure a proper check on improper use of resources, undesirable tendencies of the workers, and non-conformance to norms and standards and ensure a result oriented implementation of plans.

Question 9

Due to reoccurrence of various variants of Corona virus, LMN Ltd. is facing unstable environment and it has started unbundling and disintegrating its activities. It also started relying on outside vendors for performing these activities. Identify the organisation structure LMN Ltd. is shifting to. Under what circumstances this structure becomes useful? (PYP 5 Marks May'22)

Answer 9

LMN Ltd. is shifting into network structure. It is a newer and somewhat more radical organizational design. The network structure could be termed a "non-structure" as it virtually eliminates in-house business functions and outsource many of them. An organization organized in this manner is often called a virtual organization because it is composed of a series of project groups or collaborations linked by constantly changing non-hierarchical, cobweb-like networks.

The network structure becomes most useful when the environment of a firm is unstable and is expected to remain so. Under such conditions, there is usually a strong need for innovation and quick response. Instead of having salaried employees, it may contract with people for a specific project or length of time. Long-term contracts with suppliers and distributors replace services that the company could provide for itself through vertical integration. The network structure provides organization with increased flexibility and adaptability to cope with rapid technological change and shifting pattern of international trade and competition.

Question 10

Write a short note on Matrix structure. (RTP Nov '23)

Answer 10

In matrix structure, functional and product forms are combined simultaneously at the same level of the organization. Employees have two superiors, a product / project manager and a functional manager. The "home" department - that is, engineering, manufacturing, or marketing - is usually functional and is reasonably permanent. People from these functional units are often assigned temporarily to one or more product units or projects.

The product units / projects are usually temporary and act like divisions in that they are differentiated on a product-market basis. The matrix structure may be very appropriate when organizations conclude that neither functional nor divisional forms, even when combined with horizontal linking mechanisms like strategic business units, are right for the implementation of their strategies. Matrix structure was developed to combine the stability of the functional structure with flexibility of the product form. It is very useful when the external environment (especially its technological and market aspects) is very complex and changeable.

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A matrix structure is most complex of all designs because it depends upon both vertical and horizontal flows of authority and communication. It may result in higher overhead costs due to more management positions.

The matrix structure is often found in an organization when the following three conditions exist:

1. Ideas need to be cross-fertilized across projects or products;
2. Resources are scarce; and
3. Abilities to process information and to make decisions need to be improved.

Question 11

To convert strategic plans into actions and results, a manager must be able to direct organizational change, motivate people, build and strengthen company competencies and competitive capabilities, create a strategy-supportive work climate, and meet or beat performance targets. Explain the principal aspects of strategy-execution process. (MTP March '19,5 Marks)

Answer 11

In most situations, strategy-execution process includes the following principal aspects:

- Developing budgets that steer ample resources into those activities critical to strategic success.
- Staffing the organization with the needed skills and expertise, consciously building and strengthening strategy-supportive competencies and competitive capabilities, and organizing the work effort.
- Ensuring that policies and operating procedures facilitate rather than impede effective execution.
- Using the best-known practices to perform core business activities and pushing for continuous improvement.
- Installing information and operating systems that enable company personnel to better carry out their strategic roles day in and day out.
- Motivating people to pursue the target objectives energetically
- Creating a company culture and work climate conducive to successful strategy implementation and execution.
- Exerting the internal leadership needed to drive implementation forward and keep improving strategy execution. When the organization encounters stumbling blocks or weaknesses, management has to see that they are addressed and rectified quickly. Good strategy execution involves creating strong "fits" between strategy and organizational capabilities, between strategy and the reward structure, between strategy and internal operating systems, and between strategy and the organization's work climate and culture.

Question 12

Draw 'Divisional Structure' with the help of a diagram. Also, give advantages and

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disadvantages of this structure in brief. (PYP 5 Marks, Nov'20)

Answer 12

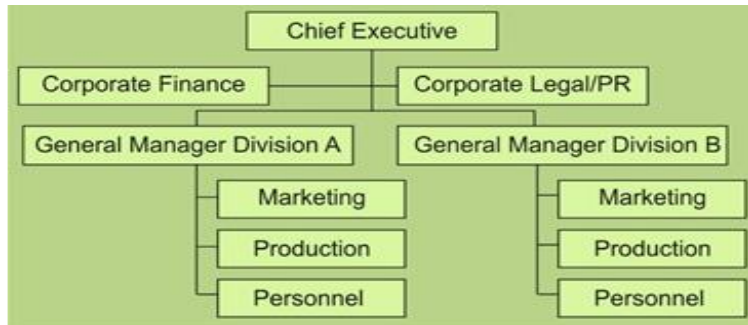

Figure: Divisional Structure

Advantages of divisional structure

- **Accountability is clear:** Divisional managers can be held responsible for sales and profit levels. Because a divisional structure is based on extensive delegation of authority, managers and employees can easily see the results of their good or bad performances and thus their morale is high.
- **Other advantages**: It creates career development opportunities for managers, allows local control of local situations, leads to a competitive climate within an organization, and allows new businesses and products to be added easily.

Disadvantages of divisional structure

- **Higher cost:** Owing to following reasons: (I). requires qualified functional specialist at different divisions and needed centrally (at headquarters); (ii). It requires an elaborate, headquarters –driven control system.
- **Conflicts between divisional managers**: Certain regions, products, or customers may sometimes receive special treatment, and it may be difficult to maintain consistent, company-wide practices.

Question 13

Which of the following statements are correct and which are incorrect? Give reasons in brief for your answer Structure has no impact on the strategy of the organization. (PYP 2 Marks, Nov'18)

Answer 13

Incorrect: Structures are designed to facilitate the strategic pursuit of a firm and, therefore, follows strategy. Without a strategy or reason for being, it will be difficult to design an effective structure. Strategic developments may require allocation of resources and there may be a need for adapting the organization's structure to handle new activities as well as training personnel and devising appropriate systems.

Question 14

What is a strategic business unit? What are its advantages? (RTP May'20)

Answer 14

A strategic business unit (SBU) is any part of a business organization which is treated separately for strategic management purposes. The concept of SBU is helpful in creating an SBU organizational structure. It is discrete element of the business

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serving product markets with readily identifiable competitors and for which strategic planning can be concluded. It is created by adding another level of management in a divisional structure after the divisions have been grouped under a divisional top management authority based on the common strategic interests.

Advantages of SBU are:

- Establishing coordination between divisions having common strategic interests.
- Facilitates strategic management and control on large and diverse organizations.
- Fixes accountabilities at the level of distinct business units.
- Allows strategic planning to be done at the most relevant level within the total enterprise.
- Makes the task of strategic review by top executives more objective and more effective.
- Helps allocate corporate resources to areas with greatest growth opportunities.

Question 15

"Strategy formulation and strategy implementation are intertwined and linked with each other." Elucidate this statement with suitable arguments. (PYP 5 Marks May'22)

Answer 15

The strategy formulation and strategy implementation are intertwined and linked with each other. Two types of linkages exist between these two phases of strategic management. The forward linkages deal with the impact of strategy formulation on strategy implementation while the backward linkages are concerned with the impact in the opposite direction.

Forward Linkages: The different elements in strategy formulation starting with objective setting through environmental and organizational appraisal, strategic alternatives and choice to the strategic plan determine the course that an organization adopts for itself. With the formulation of new strategies, or reformulation of existing strategies, many changes have to be affected within the organization. For instance, the organizational structure has to undergo a change in the light of the requirements of the modified or new strategy. The style of leadership has to be adapted to the needs of the modified or new strategies. In this way, the formulation of strategies has forward linkages with their implementation.

Backward Linkages: Just as implementation is determined by the formulation of strategies, the formulation process is also affected by factors related with implementation. While dealing with strategic choice, remember that past strategic actions also determine the choice of strategy. Organizations tend to adopt those strategies which can be implemented with the help of the present structure of resources combined with some additional efforts. Such incremental changes, over a period of time, take the organization from where it is to where it wishes to be.

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It is to be noted that while strategy formulation is primarily an entrepreneurial activity, based on strategic decision-making, the implementation of strategy is mainly an administrative task based on strategic as well as operational decision-making.

Question 16

Distinguish between Strategy Formulation and Strategy Implementation. (MTP 5 Marks March '21 & March '23, PYP 3 Marks May '19)

Answer 16

Although inextricably linked, strategy implementation is fundamentally different from strategy formulation in the following ways:

Strategy Formulation	Strategy Implementation
♦ Strategy formulation focuses on effectiveness.	♦ Strategyimplementation focuses on efficiency.
♦ Strategy formulation is primarily an intellectual process.	♦ Strategy implementation is primarily an operational process.
♦ Strategy formulation requires conceptual intuitive and analytical skills.	♦ Strategy implementation requires motivation and leadership skills.
♦ Strategy formulation requires coordination among the executives at the top level.	♦ Strategy implementation requires coordination among the executives at the middle and lower levels.

Question 17

Explain the concept of Network structure (RTP May'18)

Answer 17

Network structure is a newer and somewhat more radical organizational design. The network structure could be termed as 'non-structure' as it virtually eliminates in-house business functions and outsource many of them. A corporation organized in this manner is a virtual organization because it is composed of a series of project groups or collaborations linked by constantly changing non-hierarchical, cobweb-like networks.

Question 18

Delta Co. is an organization specializing in Information Technology enabled Services (ITeS) and Communications business. Last year, the organization had successfully integrated an Artificial Intelligence (AI) tool named 'Zeus' into the existing ERP system. The AI tool, using Deep Learning technique provided a digital leap transformation in various business processe s and operations. It has significantly diminished the role played by specialist managers of the middle management. This technological tool in addition to saving organizational costs by replacing many tasks of the middle management has also served as a link between top and bottom levels in the organization and assists in quick decision making. The skewed middle level managers now perform cross-functional duties. Which type of organizational structure is the company transitioning into? (MTP

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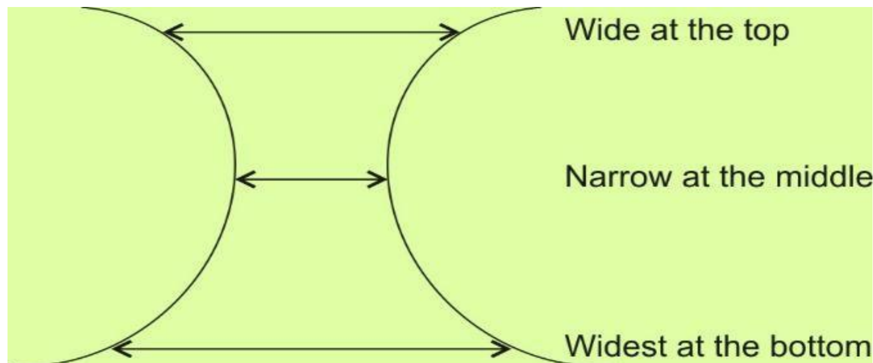
5 Marks Oct 20, RTP Nov'20)

Answer 18

The Delta company is transitioning into the hourglass organization structure because it has used technological tools to transform various business processes and operations and has significantly diminished the role played by specialist managers of the middle management. The technological tool in addition to saving organizational costs by replacing many tasks of the middle management has also served as a link between top and bottom levels in the organization and assists in faster decision making. The skewed middle level managers now perform cross-functional duties. All



these factors indicate towards hourglass organization structure.

Question 19

You have been appointed as head of the Strategic Business Unit (SBU) of a large multiproduct company. Explain the leadership roles, you have to play as a Manager in pushing for good strategy execution. (PYP 5 Marks May '23)

Answer 19

A head of the strategic business unit (SBU) has many different leadership roles to play: visionary, chief entrepreneur and strategist, chief administrator, culture builder, resource acquirer and allocator, capabilities builder, process integrator, crisis solver, spokesperson, negotiator, motivator, arbitrator, policy maker, policy enforcer, and head cheerleader. Managers have five leadership roles to play in pushing for good strategy execution:

1. Staying on top of what is happening, closely monitoring progress, working through issues and obstacles.
2. Promoting a culture that mobilizes and energizes organizational members to execute strategy and perform at a high level.
3. Keeping the organization responsive to changing conditions, alert for new opportunities and remain ahead of rivals in developing competitively valuable competencies and capabilities.
4. Ethical leadership and insisting that the organization conduct its affairs like a model corporate citizen.

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5. Pushing corrective actions to improve strategy execution and overall strategic performance.

Question 20

Transformational and transactional leadership (RTP May'18)

Answer 20

Transformational leadership style use charisma and enthusiasm to inspire people to exert them for the good of the organization. Transformational leadership style may be appropriate in turbulent environments, in industries at the very start or end of their life cycles, in poorly performing organizations when there is a need to inspire a company to embrace major changes. Transformational leaders offer excitement, vision, intellectual stimulation, and personal satisfaction. Such a leadership motivates followers to do more than originally affected to do by stretching their abilities and increasing their self-confidence, and also promote innovation throughout the organization.

On the other hand, transactional leadership style focus more on designing systems and controlling the organization's activities and are more likely to be associated with improving the current situation. Transactional leaders try to build on the existing culture and enhance current practices. Transactional leadership style uses the authority of its office to exchange rewards, such as pay and status. They prefer a more formalized approach to motivation, setting clear goals with explicit rewards or penalties for achievement or non-achievement. Transactional leadership style is more suitable in settled environment, in growing or mature industries, and in organizations that are performing well.

Question 21

How can management communicate that it is committed to creating a new culture assuming that the old culture was problematic and not aligned with the company strategy? (RTP May '21)

Answer 21

Corporate culture refers to company's values, beliefs, business principles, traditions, ways of operating and internal work environment. Changing problem cultures is very difficult because of deeply held values and habits. It takes concerted management action over a period of time to replace an unhealthy culture with a healthy culture or to root out certain unwanted cultural obstacles and instil ones that are more strategy-supportive.

- The first step is to diagnose which facets of the present culture are strategy supportive and which are not.
- Then, managers have to talk openly and forthrightly to all concerned about those aspects of the culture that have to be changed.
- The talk has to be followed swiftly by visible, aggressive actions to modify the culture -actions that everyone will understand are intended to establish a new culture more in tune with the strategy.

Management through communication has to create a shared vision to manage changes. The menu of culture-changing actions includes revising policies and

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procedures, altering incentive compensation, shifting budgetary allocations for substantial resources to new strategy projects, recruiting and hiring new managers and employees, replacing key executives, communication on need and benefit to employees and so on.

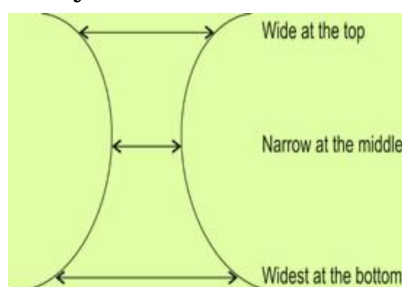
Question 22

What is an Hourglass structure? How is it beneficial for an organization? (PYP 3 Marks, May'19)

Answer 22

In the recent year's information technology and communications have significantly altered the functioning of organizations. The role played by middle management is diminishing as the tasks performed by them are increasingly being replaced by the technological tools. Hourglass organization structure consists of three layers in an organization structure with constricted middle layer. The structure has a short and narrow middle management level.

Information technology links the top and bottom levels in the organization taking away many tasks that are performed by the middle level managers. A shrunken middle layer coordinates diverse lower level activities.



Hourglass Organization Structure

Hourglass structure has obvious benefit of reduced costs. It also helps in enhancing responsiveness by simplifying decision making. Decision making authority is shifted close to the source of information so that it is faster. However, with the reduced size of middle management, the promotion opportunities for the lower levels diminish significantly.

Question 23

Moonlight Private Limited deals in multi-products and multi-businesses. It has its own set of competitors. It seems impractical for the company to provide separate strategic planning treatment to each one of its product or businesses. As a strategic manager, suggest the type of structure best suitable for Moonlight Private Limited and state its benefits. (PYP 5 Marks, Jan'21)

Answer 23

It is advisable for Moonlight Private Limited to follow the strategic business unit (SBU) structure.

Moonlight Private Limited has a multi-product and multi-business structure where, each of these businesses has its own set of competitors. In the given case, Strategic Business Unit (SBU) structure would best suit the interests of the company.

SBU is a part of a large business organization that is treated separately for strategic

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management purposes. It is separate part of large business serving product markets with readily identifiable competitors. It is created by adding another level of management in a divisional structure after the divisions have been grouped under a divisional top management authority based on the common strategic interests. Very large organizations, particularly those running into several products, or operating at distant geographical locations that are extremely diverse in terms of environmental factors, can be better managed by creating strategic business units, just as is the case for Moonlight Private Limited. SBU structure becomes imperative in an organization with increase in number, size and diversity.

Benefits of SBUs:

1. Establishing coordination between divisions having common strategic interest.
2. Facilitate strategic management and control.
3. Determine accountability at the level of distinct business units.
4. Allow strategic planning to be done at the most relevant level within the total enterprise.
5. Make the task of strategic review by top executives more objective and more effective.
6. Help to allocate resources to areas with better opportunities.

Thus, an SBU structure with its set of advantages would be most suitable for the company with the given diverse businesses having separate identifiable competitors, but a common organizational goal.

Question 24

Write short note on Strategic Business Unit (SBU). (PYP 5 Marks Nov 22)

Answer 24

SBU is a part of a large business organization that is treated separately for strategic management purposes. It is separate part of large business serving product markets wi th readily identifiable competitors. It is created by adding another level of management in a divisional structure after the divisions have been grouped under a divisional top management authority based on the common strategic interests.

Very large organizations, particularly those running into several products, or operating at distant geographical locations that are extremely diverse in terms of environmental factors, can be better managed by creating strategic business units. SBU structure becomes imperative in an organization with increase in number, size and diversity.

The three most important characteristics of a SBU are:

- It is a single business or a collection of related businesses which offer scope for independent planning and which might feasibly standalone from the rest of the organization.
- It has its own set of competitors.
- It has a manager who has responsibility for strategic planning and profit performance, and who has control of profit-influencing factors.

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Benefits of SBUs:

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Thus, an SBU structure with its set of advantages would be most suitable for the company with the given diverse businesses having separate identifiable competitors, but a common organizational goal.

Question 25

Suresh Sinha has been recently appointed as the head of a strategic business unit of a large multiproduct company. Advise Mr Sinha about the leadership role to be played by him in execution of strategy. (MTP 5 Marks April 21, RTP May '18)

Answer 25

A manager as a strategic leader has many different leadership roles to play: visionary, chief entrepreneur and strategist, chief administrator, culture builder, resource acquirer and allocator, capabilities builder, process integrator, crisis solver, spokesperson, negotiator, motivator, arbitrator, policy maker a so on. Managers have five leadership roles to play in pushing for good strategy execution:

(i) Staying on top of what is happening, closely monitoring progress, solving out issues, and learning what obstacles lie in the path of good execution.

(ii) Promoting a culture of esprit de corps that mobilizes and energizes organizational members to execute strategy in a competent fashion and perform at a high level.

(iii) Keeping the organization responsive to changing conditions, alert for new opportunities, bubbling with innovative ideas, and ahead of rivals in developing competitively valuable competencies and capabilities.

(iv) Exercising ethical leadership and insisting that the company conduct its affairs like a model corporate citizen.

(v) Pushing corrective actions to improve strategy execution and overall strategic performance.

Question 26

Discuss three methods for reassigning new patterns of behavior as proposed by H.C. Kellan. (RTP Nov'20)

Answer 26

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H.C. Kellman has proposed three methods for reassigning new patterns of behaviour. These are compliance, identification and internalisation.

- **Compliance:** It is achieved by strictly enforcing the reward and punishment strategy for good or bad behaviour. Fear of punishment, actual punishment or actual reward seems to change behaviour for the better.
- **Identification:** Identification occurs when members are psychologically impressed upon to identify themselves with some given role models whose behaviour they would like to adopt and try to become like them.
- **Internalization**: Internalization involves some internal changing of the individual's thought processes in order to adjust to a new environment. They have given freedom to learn and adopt new behaviour in order to succeed in the new set of circumstances.

i. **Formulate a redesign process plan**: Formulation of redesign plan is the real crux of the reengineering efforts. Customer focussed redesign concepts are identified and formulated. In this step alternative processes are considered and the best is selected.

ii. **Implement the redesigned process:** It is easier to formulate new process than to implement them. Implementation of the redesigned process and application of other knowledge gained from the previous steps is key to achieve dramatic improvements.

Question 27

Manoj started his telecom business in 2010. Over next five years, he gradually hired fifty people for various activities such as to keep his accounts, administration, sell his products in the market, create more customers, provide after sales service, coordinate with vendors. Draw the organization structure Manor should implement in his organization and name it. (PYP 5 Marks, Nov'18)

Answer 27

Manor has started a telecom business. Accounts, Administration, Marketing (customer creation, after sales service, vendor coordination) are the functional areas that are desired in the organisational structure. Further there is inherent need to have a department for the management of telecom services/ operations.

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Thus, the **functional structure in the telecom busin**ess of Manor can be as follows:

Chairman (Managing Director/ CEO)
- Telecom Operations
- Accounts and Finance
- Marketing
  - Sales (Customer Creation)
  - After Sales Service
  - Vendor Coordination
- Administration Human Resource, etc.

Question 28

Maadhyam, a hearing aid manufacturer recently introduced an AI based management tool in its organization which are having the qualities and capabilities of managing teams across functions. This technological tool in addition to saving organisational costs by replacing many tasks of the middle management has also served as a link between top and bottom levels in the organisation and assists in quick decision making. The skewed middle level managers now perform cross-functional duties. What could be their new organizational structure post implementation of AI based management tool? How can this structure benefit the organization? (MTP 5 Marks Oct 21)

Answer 28

In the recent years information technology and communications have significantly altered the functioning of organizations. The role played by middle management is diminishing as the tasks performed by them are increasingly being replaced by the technological tools. Hourglass organization structure consists of three layers in an organisation structure with constricted middle layer. The structure has a short and narrow middle management level.

Information technology links the top and bottom levels in the organization taking away many tasks that are performed by the middle level managers. A shrunken middle layer coordinates diverse lower level activities.

Wide at the top
Narrow at the middle
Widest at the bottom

Hourglass Organization Structure

Hourglass structure has obvious benefit of reduced costs. It also helps in enhancing responsiveness by simplifying decision making. Decision making authority is shifted close to the source of information so that it is faster. However, with the

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reduced size of middle management, the promotion opportunities for the lower levels diminish significantly.

Question 29

'A strategy-supportive culture promotes good strategy execution.' - Explain. (RTP Nov'22)

Answer 29

Strong cultures promote good strategy execution when there's fit and hurt execution when there's negligible fit. A culture grounded in values, practices, and behavioral norms that match what is needed for good strategy execution helps energize people throughout the organization to do their jobs in a strategy-supportive manner. A culture built around such business principles as listening to customers, encouraging employees to take pride in their work, and giving employees a high degree of decision-making responsibility. This is very conducive to successful execution of a strategy of delivering superior customer service.

A work environment where the culture matches the conditions for good strategy execution provides a system of informal rules and peer pressure regarding how to conduct business internally and how to go about doing one's job.

A strong strategy-supportive culture makes employees feel genuinely better about their jobs and work environment and the merits of what the company is trying to accomplish. Employees are stimulated to take on the challenge of realizing the organizational vision, do their jobs competently and with enthusiasm, and collaborate with others.

Question 30

Surah Prakash and Chandler Prakash are two brothers engaged in the business of spices. Both have different approaches to management. Surah Prakash prefers the conventional and formal approach in which authority is used for explicit rewards and punishment. While, on the other hand, Chandler Prakash believes in democratic participative management approach, involving employees to give their best. Analyze the leadership style followed by Surah Prakash and Chandler Prakash. (RTP May'21)

Answer 30

Surah Prakash is a follower of transactional leadership style that focuses on designing systems and controlling the organization's activities. Such a leader believes in using authority of its office to exchange rewards, such as pay and status. They prefer a more formalized approach to motivation, setting clear goals with explicit rewards or penalties for achievement or non-achievement. Transactional leaders try to build on the existing culture and enhance current practices. The style is better suited in persuading people to work efficiently and run operations smoothly.

On the other hand, Chandler Prakash is a follower of transformational leadership style. The style uses charisma and enthusiasm to inspire people to exert them for the good of the organization. Transformational leaders offer excitement, vision, intellect teal stimulation and personal satisfaction. They inspire involvement in a mission, giving followers a 'dream' or 'vision' of a higher calling so as to elicit more dramatic changes in organizational performance. Such a leadership motivates followers to do more than originally affected to do by stretching their abilities and increasing their self -confidence, and also promote innovation throughout the organization.

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Question 31

XYZ Ltd. is an automobile company that offers diversified products for all customer segments. Due to COVID-19, the changes took place in the economy forced the company to change its strategy. Being the CEO of the company, what stages will you follow for developing and executing the new strategy? (PYP 5 Marks May'22)

Answer 31

Today, India has become the outsourcing hub for many of the global automobile manufacturers. The auto industry comprises of four segments which are passenger vehicles, commercial vehicles, three wheelers and two wheelers. XYZ Ltd. is an automobile company that offers diversified products for all customer segments. The company has already in existence, so it has its own vision, mission and a strategy to execute for achieving its vision. While developing and executing the strategy, XYZ Ltd. might have followed the five-stage managerial process as given below:

1. Developing a strategic vision.
2. Environmental and organizational analysis.
3. Formulation of strategy.
4. Implementing and executing the strategy.
5. Strategic evaluation and control.

But due to COVID-19, the automobile industry has faced the lockdown situation. Changes in the economy forced the XYZ Ltd. to change its existing strategy and prepare the new strategy. The changes in the environmental forces due to COVID-19 requires XYZ Ltd. to make modifications in their existing strategies and bring out new strategies. For initiating strategic change, three steps can be followed by the CEO of the company which are as under:

(i) **Recognize the need for change**: This is the first step to diagnose facets of the corporate culture that are strategy supportive or not. This has already identified by the XYZ Ltd.

(ii) **Create a shared vision to manage change**: Objectives and vision of both individuals and organization should coincide. The CEO of XYZ Ltd. need to constantly and consistently communicate the vision not only to inform but also to overcome resistance.

(iii) **Institutionalize the change**: Creating and sustaining a different attitude towards change is essential to ensure that the XYZ Ltd. does not slip back into old ways of thinking or doing things. All these changes should be set up as a practice to be followed by the company and be able to transfer from one level to another as a well settled practice.

Question 32

What do you understand by functional structure? (MTP5 Marks March '22)

Answer 32

Functional structure is widely used because of its simplicity and low cost. A functional structure groups tasks and activities by business function.

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The functional structure consists of a chief executive officer or a managing director and limited corporate staff with functional line managers in dominant functions such as production, accounting, marketing, R&D, engineering, and human resources. Disadvantages of a functional structure are that it forces accountability to the top, minimizes career development opportunities, etc.

Question 33

Strategic Planning and Operational Planning. (MTP 5 Marks March '22 & Oct '23, RTP May'22)

Answer 33

Strategic planning	Operational planning
Strategic planning shapes the organisation and its resources.	Operational planning deals with current deployment of resources.
Strategic planning assesses the impact of environmental variables.	Operational planning develops tactics rather than strategy.
Strategic planning takes a holistic view of the organisation.	Operational planning projects current operations into the future.
Strategic planning develops overall objectives and strategies.	Operational planning makes modifications to the business functions but not fundamental changes.
Strategic planning is concerned with the long-term success of the organisation.	Operational planning is concerned with the short-term success of the organisation.
Strategic planning is a senior management responsibility.	Operational planning is the responsibility of functional managers.

Question 34

State with reasons of the following statement is correct/incorrect: Network Structures eliminate many in-house functions (RTP May'18).

Answer 34

Correct: The network structure can be termed a "non-structure" by its virtual elimination of in-house business functions. Many activities are outsourced. A corporation organized in this manner is often called a virtual organization because it is composed of a series of project groups or collaborations linked by constantly changing non-hierarchical, cobweb-like networks.

Question 35

State with reasons which of the following statements are correct/incorrect: Strategies may require changes in organizational structure. (RTP Nov'18)

Answer 35

Incorrect: Benchmarking relates to setting goals and measuring productivity based on best industry practices. The idea is to learn from the practices of competitors and others to improve the firm's performance. On the other hand, business process reengineering relates to analysis and redesign of workflows and processes both within

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and between the organizations.

Question 36

ABC Ltd. intends to grow its business. Its top management argues that its 'Corporate Strategy' will ensure the growth of the firm. Do you agree with the top management's argument? Give reasons. (MTP 5 Marks April '23)

Answer 36

Yes, agreeing with the top management's argument. Corporate strategy is basically the growth design of the firm; it spells out the growth objective- the direction, pace and timing of the firm's growth. It also spells out the strategy for achieving the growth. Corporate strategy ensures the growth of the firm because of the following arguments:

- It ensures the correct alignment of the firm with its environment. It also serves as the design for filling the strategic planning gap.
- It gives importance to combination, sequence, timing, direction and depth of various moves and action initiatives taken by managers to handle environmental uncertainties and complexities.
- It helps build the relevant competitive advantages for the firm. Masterminding and working out the right fit between the firm and its external environment.
- It is to harness the opportunities available in the environment, countering the threats embedded therein.

Question 37

Explain strategic business unit (SBUs). (RTP Nov'18)

Answer 37

A strategic business unit (SBU) is a unit of the company that has a separate mission and objectives which can be planned independently from other company businesses. SBU can be a company division, a product line within a division or even a single product/brand, specific group of customers or geographical location. The SBU is given the authority to make its own strategic decisions within corporate guidelines as long as it meets corporate objectives.

Question 38

Which of the following statements are 'correct' and which are 'incorrect'? Give reasons, in brief, for your answer:
Corporate culture is always identical in all business organisations (PYP 2 Marks, May'18)

Answer 38

Incorrect: Every company has its own organisational culture. Each has its own business philosophy and principles, its own ways of approaching to the problems and making decisions, its own work climate, work ethics, etc. Therefore, corporate culture is not identical in all organisations. Organisations over a period of time inherit and percolate down its own specific work ethos and approaches.

Question 39

Explain the steps for initiating strategic change. (MTP 5 Marks March '22, RTP Nov '21) (PYP 5 Marks May '23)

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Answer 39

The changes in the environmental forces often require businesses to make modifications in their existing strategies and bring out new strategies. Strategic change is a complex process that involves a corporate strategy focused on new markets, products, services and new ways of doing business.

Three steps for initiating strategic change are:

(i) **Recognise the need for change** – The first step is to diagnose the which facets of the present corporate culture are strategy supportive and which are not.

(ii) **Create a shared vision to manage change** – Objectives of both individuals and organisation should coincide. There should be no conflict between them. This is possible only if the management and the organisation members follow a shared vision.

(iii) **Institutionalise the change** – This is an action stage which requires the implementation of the changed strategy. Creating and sustaining a different attitude towards change is essential to ensure that the firm does not slip back into old ways of doing things.

Question 40

How can a company deal with strategic uncertainty? (MTP Aug. '18, 3 Marks, RTP May'18)

Answer 40

Strategic uncertainty denotes the uncertainty that has crucial implications for the organisation. A typical external analysis will emerge with dozens of strategic uncertainties. To be manageable, they need to be grouped into logical clusters or themes. It is then useful to assess the importance of each cluster in order to set priorities with respect to Information gathering and analysis.

Question 41

Jupiter Electronics Ltd. is known for its ability to come out with path-breaking products. Though the work environment at Jupiter's is relaxed and casual, yet, there is a very strong commitment to deadlines. The employees believe in "work hard play hard" ethic. The organization has moved away from formal and hierarchical set up to a more results-driven approach. Employees are committed to strategies and work towards achieving them. They guard innovations, maintain confidentiality and secrecy in their working. They are closely related to values, practices, and norms of organizations

What aspects of an organization that are being discussed Explain? (RTP Nov'19)

Answer 41

The scenario being referred to is culture in Jupiter Electronics. Strong culture promotes good strategy execution when there's fit and impels execution when there's negligible fit. A culture grounded in values, practices, and behavioral norms that match what is needed for good strategy execution helps energize people throughout the organization to do their jobs in a strategy-supportive manner. A culture built around such business principles as listening to customers, encouraging employees to take pride in their work, and giving employees a high degree of decision-making responsibility. This is very conducive to successful execution of a strategy of delivering

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superior customer service.

A strong strategy-supportive culture makes employees feel genuinely better about their jobs and work environment and the merits of what the company is trying to accomplish. Employees are stimulated to take on the challenge of realizing the organizational vision, do their jobs competently and with enthusiasm, and collaborate with others.

Question 42

Bunch Pvt Ltd. is dealing in multiproduct like electronics and FMCG and are having outlets in different cities and markets across India. Due to scale of operation, it is having technical difficulty in dealing with distinct product line and markets especially in coordination and control related problems. Identify and suggest an ideal organizational structure for Bunch Pvt Ltd in resolving the problem? (MTP 5 Marks March '23, Nov'21, RTP Nov '21)

Answer 42

To deal with the problems facing by the Bunch Pvt Ltd., we suggest Multi divisional structure for the organisation. Multidivisional (M-form) structure is composed of operating divisions where each division represents a separate business to which the top corporate officer delegates responsibility for day-to-day operations and business unit strategy to division managers. By such delegation, the corporate office is responsible for formulating and implementing overall corporate strategy and manages divisions through strategic and financial controls.

Multidivisional or M-form structure was developed in the 1920s, in response to coordination- and control-related problems in large firms. Functional departments often had difficulty dealing with distinct product lines and markets, especially in coordinating conflicting priorities among the products. Costs were not allocated to individual products, so it was not possible to assess an individual product's profit contribution. Loss of control meant that optimal allocation of firm resources between products was difficult (if not impossible). Top managers became over -involved in solving short-run problems (such as coordination, communications, conflict resolution) and neglected long-term strategic issues.

Question 43

Discuss the concept of Multi Divisional Structure. (RTP May'19)

Answer 43

Multidivisional (M-form) structure is composed of operating divisions where each division represents a separate business to which the top corporate officer delegates responsibility for day - today operations and business unit strategy to division managers. By such delegation, the corporate office is responsible for formulating and implementing overall corporate strategy and manages divisions through strategic and financial controls.

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individual product's profit contribution. Loss of control meant that optimal allocation of firm resources between products was difficult (if not impossible). Top managers became over -involved in solving short-run problems (such as coordination, communications, conflict resolution) and neglected long -term strategic issues. Multidivisional structure calls for:

- Creating separate divisions, each representing a distinct business
- Each division would house its functional hierarchy;
- Division managers would be given responsibility for managing day-to-day operations;
- A small corporate office that would determine the long-term strategic direction of the firm and exercise overall financial control over the semi-autonomous divisions.

Question 44

Distinguish between the following:
Transformational leadership and Transactional leadership. (RTP Nov'20, RTP Nov'21)

Answer 44

Following are the differences between transformational and transactional leadership:

1. Transformational leadership style uses charisma and enthusiasm to inspire people to exert them for the good of organization. Transactional leadership style uses the authority of its office to exchange rewards such as pay, status symbols etc.
2. Transformational leadership style may be appropriate in turbulent environment, in industries at the very start or end of their cycles, poorly performing organisations, when there is a needto inspire a company to embrace major changes. Transactional leadership style can be appropriate in static environment, in growing or mature industries and in organisations that are performing well.
3. Transformational leaders inspire employees by offering excitement, vision, intellectual stimulation and personal satisfaction. Transactional leaders prefer a more formalized approach to motivation, setting clear goals with explicit rewards or penalties for achievement and non-achievement. Transactional leaders focus mainly to build on existing culture and enhance current practices.

Question 45

Glassware Ltd. is about to go through a significant restructuring. The strategic change involves moving from a decentralized to a centralized structure. This will help Glassware avoid duplication of support activities and lower its costs. The management have held the first staff briefing in which they went to great lengths to explain that the change was necessary to equip the company to face future competitive challenges. Identify and explain the current stage of Glassware Ltd. from the Lewin's three-stage model of change? (RTP May '22)

Answer 45

Glassware Ltd. is currently in the 'unfreezing' stage, where management is

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attempting to explain the need for change in an attempt to maximize buy-in by employees and reduce the amount of resistance.

Unfreezing the situation: The process of unfreezing simply makes the individuals aware of the necessity for change and prepares them for such a change. Lewin proposes that the changes should not come as a surprise to the members of the organization. Sudden and unannounced change would be socially destructive and morale lowering. The management must pave the way for the change by first "unfreezing the situation", so that members would be willing and ready to accept the change.

Unfreezing is the process of breaking down the old attitudes and behaviours, customs and traditions so that they start with a clean slate. This can be achieved by making announcements, holding meetings and promoting the new ideas throughout the organization.

Question 46

Importance of corporate culture. (RTP Nov'18)

Answer 46

A culture where creativity, embracing change, and challenging the status quo are pervasive is very conducive to successful execution of a product innovation and technological leadership strategy. A culture built around such business principles as listening to customers, encouraging employees to take pride in their work, and giving employees a high degree of decision-making responsibility is very conducive to successful execution of a strategy of delivering superior customer service.

A strong strategy-supportive culture nurtures and motivates people to do their jobs in ways conducive to effective strategy execution; it provides structure, standards, and a value system in which to operate; and it promotes strong employee identification with the company's vision, performance targets, and strategy. All this makes employees feel genuinely better about their jobs and work environment and the merits of what the company is trying to accomplish. Employees are stimulated to take on the challenge of realizing the company's vision, do their jobs competently and with enthusiasm, and collaborate with others as needed to bring the strategy to success.

Question 47

Ramesh is owner of a popular brand of Breads. Yashpal, his son af ter completing Chartered Accountancy started assisting his father in running of business. The approaches followed by father and son in management were very different. While Ramesh preferred to use authority and having a formal system of defining goals and motivation with explicit rewards and punishments, Yashpal believed in involving employees and generating enthusiasm to inspire people to deliver in the organization. Discuss the difference in leadership style of father and son. (RTP May '19)

Answer 47

Ramesh is a follower of transactional leadership style that focuses on designing systems and controlling the organization's activities. Such a leader believes in using authority of its office to exchange rewards, such as pay and status. They prefer a more formalized approach to motivation, setting clear goals with explicit rewards or penalties for achievement or non-achievement. Transactional leaders

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try to build on the existing culture and enhance current practices. The style is better suited in persuading people to work efficiently and run operations smoothly.

On the other hand, Yashpal is follower of transformational leadership style. The style uses charisma and enthusiasm to inspire people to exert them for the good of the organization. Transformational leaders offer excitement, vision, intellectual stimulation and personal satisfaction. They inspire involvement in a mission, giving followers a 'dream' or 'vision' of a higher calling so as to elicit more dramatic changes in organizational performance. Such a leadership motivates followers to do more than originally affected to do by stretching their abilities and increasing their self-confidence, and also promote innovation throughout the organization.

Question 48

HQ is a service company? Two years back the company hired a reputed management consultant to formulate its strategy. The consultant recommended an aggressive expansion plan. Now in an internal review meeting the company finds that many of the suggestions are not even fully considered. Which part of strategic management process is missing in HQ? (MTP APRIL'19 5 Marks)

Answer 48

Strategy implementation is missing in HQ. It is concerned with the managerial exercise of putting a chosen strategy into action. It deals with the managerial exercise of supervising the ongoing pursuit of strategy, making it work, improving the competence with which it is executed and showing measurable progress in achieving the targeted results.

Strategic implementation is concerned with translating a strategic decision into action, which presupposes that the decision itself (i.e., the strategic choice) was made with some thought being given to feasibility and acceptability. The allocation of resources to new courses of action will need to be undertaken, and there may be a need for adapting the organization's structure to handle new activities as well as training personnel and devising appropriate systems.

It is crucial to realize the difference between the formulation and implementation because they both require very different skills. Also, a company will be successful only when the strategy formulation is sound and implementation is excellent.

Question 49

With the help of a model explain strategic management process. (RTP Nov'19)

OR

Present a diagrammatic representation of a Strategic Management model. (PYP 2 Marks, Nov'18)

Answer 49

The strategic management process can best be studied and applied using a model. Identifying an organization's vision, mission, goals and objectives, is the starting point for strategic management process. The strategic management process is dynamic and continuous. A change in any one of the major components in the model can necessitate a change in any or all of the other components. Therefore, strategy formulation, implementation, and evaluation activities should be performed on a continual basis, not just at the end of the year or semi-annually. Formulating, implementing, and evaluating strategies are the major components of the strategic

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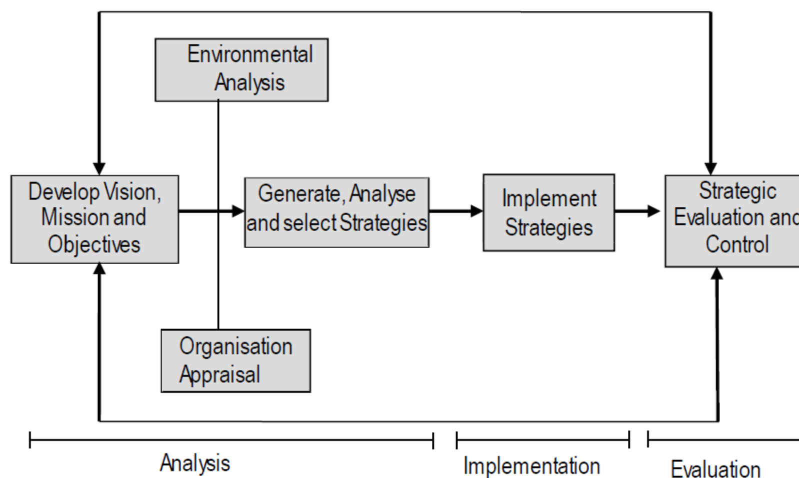
management that are represented in the following model:
The strategic management process is not as cleanly divided and neatly performed in practice. Strategists do not go through the process in lockstep fashion. Generally, there is give-and-take among hierarchical levels of an organization. Many organizations conduct formal meetings semi-annually to discuss and update the firm's vision/mission, opportunities/threats, strengths/weaknesses, strategies, objectives, policies, and performance. Creativity from participants is encouraged in meeting. Good communication and feedback are needed throughout the strategic management process.

Figure: Strategic Management Model



Question 50

Davis and Lawrence have proposed three distinct phases to develop matrix structure. Explain. (RTP Nov'18)

Answer 50

For development of matrix structure, Davis and Lawrence have proposed three distinct phases:

- **Cross-functional task forces**: Temporary cross-functional task forces are initially used when a new product line is being introduced. A project manager is in charge as the key horizontal link.
- **Product/brand management**: If the cross-functional task forces become more permanent, the project manager becomes a product or brand manager and a second phase begins. In this arrangement, function is still the primary organizational structure, but product or brand managers act as the integrators of semi-permanent products or brands.
- **Mature matrix:** The third and final phase of matrix development involves a true dual-authority structure. Both the functional and product structures are permanent. All employees are connected to both a vertical functional superior and a horizontal product manager.

Question 51

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Explain premise control. (RTP Nov'18)

Answer 51

A strategy is formed on the basis of certain assumptions or premises about the complex and turbulent organizational environment. Premise control is a tool for systematic and continuous monitoring of the environment to verify the validity and accuracy of the premises on which the strategy has been built. It primarily involves monitoring two types of factors:

(i) Environmental factors such as economic (inflation, liquidity, interest rates), technology, social and regulatory.

(ii) Industry factors such as competitors, suppliers, substitutes.

Question 52

Sanya Private Limited is an automobile company. For the past few years, it has been observed that the progress of the company has become stagnant. When scrutinized, it was found that the planning department was performing fairly well but the plans could not be implemented due to improper use of resources, undesirable tendencies of workers and non-conformance to norms and standards. You are hired as a Strategic Manager. Suggest the elements of process of control to overcome the problem. (MTP 5 Marks April 22)

Answer 52

Sanya Private Limited deteriorating performance due to poor implementation of plans that is improper use of resources, undesirable tendencies of the workers, and non-conformance to norms and standards, all point towards weak controls in the organization. Implementation of plans cannot assure results unless strong and sufficient controls are put in place. The management of the company should focus diligently on developing controls especially in the identified problem areas.

The process of control has the following elements:

(a) Objectives of the business system which could be operationalized into measurable and controllable standards.

(b) A mechanism for monitoring and measuring the performance of the system.

(c) A mechanism (i) for comparing the actual results with reference to the standards (ii) for detecting deviations from standards and (iii) for learning new insights on standards themselves.

(d) A mechanism for feeding back corrective and adaptive information and instructions to the system, for effecting the desired changes to set right the system to keep it on course.

Above elements of control would ensure a proper check on improper use of resources, undesirable tendencies of the workers, and non-conformance to norms and standards and ensure a result oriented implementation of plans.

Question 53

Discuss the concept of Hourglass Structure (RTP Nov'19)

Answer 53

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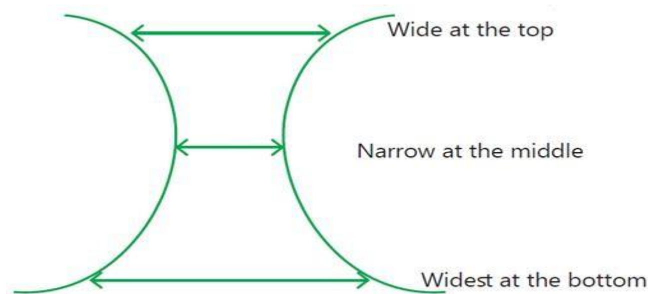
Information technology and communications have significantly altered the functioning of organizations. The role played by middle management is diminishing as the tasks performed by them are increasingly being replaced by the technological tools.
Hourglass organization structure consists of three layers with constricted middle layer. The structure has a short and narrow middle-management level. Information technology links the top and bottom levels in the organization taking away many tasks that are performed by the middle level managers. A shrunken middle layer coordinates diverse lower level activities. Contrary to traditional middle level managers who are often specialist, the managers in the hourglass structure are generalists and perform wide variety of tasks. They would be handling cross-functional issues emanating such as those from marketing, finance or production.
Hourglass structure has obvious benefit of reduced costs. It also helps in enhancing responsiveness by simplifying decision making. Decision making authority is shifted close to the source of information so that it is faster.



Question 54

What is implementation control? Discuss its basic forms. (MTP-MARCH-2019 & OCT-2018 5 Marks, RTP May'18, Nov'19, Nov'21, Nov'23)

Answer 54

Implementation Control: Managers implement strategy by converting major plans into
concrete, sequential actions that form incremental steps. Implementation control is directed towards assessing the need for changes in the overall strategy in light of unfolding events and results associated with incremental steps and actions.

Strategic implementation control is not a replacement to operational control. Strategic implementation control, unlike operational controls continuously monitors the basic direction of the strategy. The two basic forms of implementation control are:

i) **Monitoring strategic thrusts:** Monitoring strategic thrusts help managers to determine whether the overall strategy is progressing as desired or whether there is need for readjustments.

ii) **Milestone Reviews:** All key activities necessary to implement strategy are segregated in terms of time, events or major resource allocation. It normally involves a complete reassessment of the strategy. It also assesses the need to continue or refocus the direction of an organization.

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Question 55

Define Refreezing in Kurt Lewin's change process (RTP May'18)

Answer 55

Kurt Lewin proposed three phases of the change process – Unfreezing, changing and then refreezing. Refreezing occurs when the new behavior becomes a normal way of life. The new behavior must replace the former behavior completely for successful and permanent change to take place. It may be achieved through continuous reinforcement.

Question 56

Why is strategy evaluation more difficult? Give reasons. (MTP 5 Marks Sep'22, PYP 5 Marks Dec '21)

Answer 56

Strategic evaluation involves measuring and evaluating performance. The goals achieved are compared with the desired goals to identify deviations and make necessary adjustments in strategies or in the efforts being put to achieve those strategies.

Reasons why strategy evaluation is more difficult today include the following trends:

- A dramatic increase in the environment's complexity.
- The increasing difficulty of predicting the future with accuracy.
- The increasing number of variables in the environment.
- The rapid rate of obsolescence of even the best plans.
- The increase in the number of both domestic and world events affecting organizations.
- The decreasing time span for which planning can be done with any degree of certainty.

Question 57

State with reasons which of the following statements are correct/incorrect: Control systems run parallel with strategic levels. (RTP Nov'18)

Answer 57

Correct: There are three strategic levels in an organization – corporate, business and functional. Control systems are required at all the three levels. At the top level, strategic controls are built to check whether the strategy is being implemented as planned and the results produced by the strategy are those intended. Down the hierarchy management controls and operational controls are built in the systems. Operational controls are required for day-to-day management of business.

Question 58

"Samar Electronics Limited" is engaged in manufacturing and sale of consumer electronic goods globally. The company is rated 'best' in "customer satisfaction

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survey' for 5 years in a row. The spread of the current pandemic has affected the internal and external environment of the company adversely. Such adverse impact has negatively impacted the revenue of the company. In order to survive and· retain the business, the company decided to outsource a major part of its organisational activities, like manufacturing, distribution channels, after sales service etc. Now the organisation's business functions are scattered worldwide with a small headquarter connected to independent business units digitally. What type of organisational structure is the company transitioning into? List the·basic features of this new structure and the disadvantages that the company may face in future in this new structural arrangement. (RTP Nov'22)

Answer 58

Samar Electronics Limited transitioning into network structure. It is a newer and somewhat more radical organisational design. Its essential features are as follows:

1. It is termed as "non-structure" as it eliminates in house functions and outsources many of them.
2. An organisation organised in this manner is often called "virtual organisation" because it is composed of a series of project groups or collaborations linked by constantly changing nonhierarchical, cob-web like structures.
3. Network structures become most useful when the environment of a firm is unstable and is expected to remain so. Under such conditions, there is usually a strong need for innovation and quick response.
4. Instead of having salaried employees, it may contract with people for a specific project or length of time.
5. Long term contracts with suppliers and distributors replace services that company could provide for itself.

However, network structure does have following disadvantages that the company may face in future:

1. The availability of numerous potential partners can be a source of trouble.
2. Co-ordination among the functioning of business partners is perhaps, the biggest problem for the management in the networking structure.
3. Employees may lack the level of confidence necessary to participate actively in organisation sponsored learning experiences.

Question 59

State with reasons which of the following statements are correct/incorrect: Strategic surveillance is highly focused and organized control activity. (RTP May'18)

Answer 59

Incorrect: The strategic surveillance is unfocussed. It involves general monitoring of various sources of information to uncover unanticipated information having a bearing on the organizational strategy. It involves casual environmental browsing. Reading financial and other newspapers, business magazines, attending meetings, conferences, discussions and so on. Strategic surveillance, a loose form of strategic control, is capable of uncovering information relevant to strategy.

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Question 60

Strategy Formulation and Strategy Implementation. (MTP 5 Marks Oct 21)

Answer 60

Although inextricably linked, strategy implementation is fundamentally different from strategy formulation in the following ways:

Strategy Formulation	Strategy Implementation
♦ Strategy formulation focuses on effectiveness.	♦ Strategy implementation focuses on efficiency.
♦ Strategy formulation is primarily an intellectual process.	♦ Strategy implementation is primarily an operational process.
♦ Strategy formulation requires conceptual intuitive and analytical skills.	♦ Strategy implementation requires motivation and leadership skills.
♦ Strategy formulation requires coordination among the executives at the top level.	♦ Strategy implementation requires coordination among the executives at the middle and lower levels.

Question 61

Dr. Raman has been running a nursing home for about twenty two years now, and has gained enormous name for his benevolence in Balram district of Chhattisgarh. Recently, his daughter, Dr. Radhika completed her medicine degree from the United States of America and returned to her hometown to be a part of her father's practice. She has been given the baton to promote modern medicine and retain the local skilled youth in their practice. However, their nursing home's skilled youth has been more inclined to E-Commerce employment opportunities. Dr. Radhika has taken it as a challenge to imbibe the very essence of service in them, by being employed as nurses and caretakers of the ill. This shall be very crucial in growing the practice as desired. Which of the following phases of Kurt Lewin's Model of Change will be most challenging for Dr. Radhika to strategically positioning her father's nursing home? (MTP 5 Marks May 20)

Answer 61

Kurt Lewin's Model of Change proposes three phases of change process to make the change lasting. They are Compliance, Identification and Internalization.

For Dr. Radhika, Compliance and Identification will not a big challenge, as her father has been one of the most sort after personalities serving the ill in their district. And her return from the USA to serve her country, especially her district, will help the workforce identify her as a role model and there would actually be no need for compliance, i.e. Reward and Punishment for bringing about a change. However, the new lucrative E-Commerce employment opportunities will have to be fought through Internalization, i.e. internal changing of the individual's thought process, to give them freedom to learn and succeed. Thus, Internalization will be the most challenging phase.

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Question 62

HQ is a service company? Two years back the company hired a reputed management consultant to formulate its strategy. The consultant recommended an aggressive expansion plan. Now in an internal review meeting the company finds that many of the suggestions are not even fully considered. Which part of strategic management process is missing in HQ? (RTP May'19)

Answer 62

Strategy implementation is missing in HQ. Implementation is the managerial exercise of putting a chosen strategy into action. It deals with the managerial exercise of supervising the ongoing pursuit of strategy, making it work, improving the competence with which it is executed and showing measurable progress in achieving the targeted results.

Strategic implementation is concerned with translating a strategic decision into action, which presupposes that the decision itself (i.e., the strategic choice) was made with some thought being given to feasibility and acceptability. The allocation of resources to new courses of action will need to be undertaken, and there may be a need for adapting the organization's structure to handle new activities as well as training personnel and devising appropriate systems.

It is crucial to realize the difference between the formulation and implementation because they both require very different skills. Also, a company will be successful only when the strategy formulation is sound and implementation is excellent.

Question 63

State with reasons the following statement is correct/incorrect: Information gathering and deep analysis can eliminate uncertainty. (RTP May'18)

Answer 63

Incorrect: Strategic uncertainty is often represented by a future trend or event that has inherent unpredictability. Information gathering and additional analysis is not able to eliminate uncertainty.

Question 64

Distinguish between Operational Control and Management Control. (MTP 5 Marks Oct'22 & Sep '23)

Answer 64

Differences between Operational Control and Management Control are as under:

(i) The thrust of operational control is on individual tasks or transactions as against total or more aggregative management functions. When compared with operational, management control is more inclusive and more aggregative, in the sense of embracing the integrated activities of a complete department, division or even entire organization, instead or mere narrowly circumscribed activities of sub-units. For example, procuring specific items for inventory is a matter of operational control, in contrast to inventory management as a whole.

(ii) Many of the control systems in organizations are operational and mechanistic in nature. A set of standards, plans and instructions are formulated. On the other hand, the basic purpose of management control is the achievement of enterprise goals – short

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range and long range – in an effective and efficient manner.

Question 65

How the 'Strategic Business Unit (SBU), structure becomes imperative in an organization with increase in number, size and diversity of divisions? (RTP May '22)

Answer 65

SBU is a part of a large business organization that is treated separately for strategic management purposes. The concept of SBU is helpful in creating an SBU organizational structure. It is separate part of large business serving product markets with readily identifiable competitors. It is created by adding another level of management in a divisional structure after the divisions have been grouped under a divisional top management authority based on the common strategic interests.

Very large organisations, particularly those running into several products, or operating at distant geographical locations that are extremely diverse in terms of environmental factors, can be better managed by creating strategic business units. SBU structu re becomes imperative in an organisation with increase in number, size and diversity. SBUs helps such organisations by:

- Establishing coordination between divisions having common strategic interest.
- Facilitate strategic management and control.
- Determine accountability at the level of distinct business units.
- Allow strategic planning to be done at the most relevant level within the total enterprise.
- Make the task of strategic review by top executives more objective and more effective.
- Help to allocate resources to areas with better opportunities.

Question 66

Why is Strategic Control important for organizations? Discuss briefly 4 types of strategic control that can be implemented to achieve the enterprise goals. (RTP May'21)

Answer 66

Importance of strategic control: Strategic control is an important process that keeps organization on its desired path. It involves evaluating strategy as it is formulated and implemented. It is directed towards identifying problems and changes in premises and making necessary adjustments. Strategic control focuses on the dual questions of whether: (1) the strategy is being implemented as planned; and (2) the results produced by the strategy are those intended.

There are four types of strategic control:

- **Premise control**: A strategy is formed on the basis of certain assumptions or premises about the environment. Premise control is a tool for systematic and continuous monitoring of the environment to verify the validity and accuracy of the premises on which the strategy has been built.
- **Strategic surveillance**: Strategic surveillance is unfocussed. It involves general monitoring of various sources of information to uncover unanticipated information having a bearing on the organizational strategy.
- **Special alert control**: At times, unexpected events may force organizations to reconsider their strategy. Sudden changes in government, natural calamities,

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unexpected merger/acquisition by competitors, industrial disasters and other such events may trigger an immediate and intense review of strategy.

- **Implementation control:** Managers implement strategy by converting major plans into concrete, sequential actions that form incremental steps. Implementation control is directed towards assessing the need for changes in the overall strategy in light of unfolding events and results.

Question 67

"A network structure is suited to unstable environment." Elucidate this statement. (RTP May '22)

Answer 67

Network structure is a newer and somewhat more radical organizational design. The network structure could be termed a "non-structure" as it virtually eliminates in-house business functions and outsource many of them. An organization organized in this manner is often called a virtual organization because it is composed of a series of project groups or collaborations linked by constantly changing non-hierarchical, cobweb-like networks.

The network structure becomes most useful when the environment of a firm is unstable and is expected to remain so. Under such conditions, there is usually a strong need for innovation and quick response. Instead of having salaried employees, it may contract with people for a specific project or length of time. Long-term contracts with suppliers and distributors replace services that the company could provide for itself through vertical integration. The network structure provides organization with increased flexibility and adaptability to cope with rapid technological change and shifting pattern of international trade and competition.

Question 68

Anshuman was a CEO at a struggling company. Despite the challenges, he believed in the potential of his team and was determined to turn the company around. He started by communicating his vision to his employees. He encouraged them to think outside the box, take risks and be creative. He also invested in training programs to help employees develop new skills. He regularly recognized and rewarded employees for their hard work, which increased their job satisfaction and commitment. As a result, the company began to see positive changes. Identify and discuss the leadership style adopted by Anshuman? (RTP May 23)

Answer 68

Being a CEO of a struggling company, Anshuman has adopted Transformational leadership style. The style uses charisma and enthusiasm to inspire people to exert them for the good of the organization. Transformational leaders offer excitement, vision, intellectual stimulation and personal satisfaction. They inspire involvement in a mission, giving followers a 'dream' or 'vision' of a higher calling so as to elicit more dramatic changes in organizational performance. Such a leadership motivates followers to do more than originally affected to do by stretching their abilities and increasing their self - confidence, and also promote innovation throughout the organization.

Anshuman believed in the potential of his team. He started by communicating his vision to his employees. He encouraged them to think outside the box, take risks and

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be creative. He also invested in training programs to help employees develop new skills. He regularly recognized and rewarded employees for their hard work, which increased their job satisfaction and commitment.

Question 69

How can a corporate culture be both strength and weakness of an organisation? (MTP Oct '19, Mar'19 5 Marks, MTP 5 Marks Oct'20)

Answer 69

The most important phenomenon which often distinguishes one organisation with another is its corporate culture. Corporate culture refers to a company's values, beliefs, business principles, traditions, and ways of operating and internal work environment. Every corporation has a culture that exerts powerful influences on the behaviour of managers.

(i) **As a strength**: Culture can facilitate communication, decision making and control and instill cooperation and commitment. An organization's culture could be strong and cohesive when it conducts its business according to clear and explicit set of principles and values, which the management devotes considerable time to communicating to employees and which values are shared widely across the organisation.

(ii) **As a weakness**: Culture, as a weakness can obstruct the smooth implementation of strategy by creating resistance to change. An organization's culture could be characterised as weak when many sub-cultures exists, few values and behavioural norms are shared and traditions are rare. In such organizations, employees do not have a sense of commitment, loyalty and sense of identity.

Question 70

Mathew & Sons Ltd. is a diversified business entity having business operations across the globe. Presently, Mr. Mathew is the CEO of Mathew & Sons Ltd. He is going to retire in next 4 months, so he has decided to change the company's leadership and hand over the pedals to his elder son Marshal. Marshal is a highly educated with an engineering degree from USA. However, being very young he is not clear about his role and responsibilities. In your view, what are the responsibilities of Marshal as CEO of Mathew & Sons Ltd. [MTP-Aug '18, 5 Marks)

Answer 70

Marshal, to be an effective strategic leader of Mathew & Sons Ltd. must be able to deal with the diverse and cognitively complex competitive situations that are characteristic of today's competitive landscape. He has several responsibilities, including the following:

- Making strategic decisions.
- Formulating policies and action plans to implement strategic decision.
- Ensuring effective communication in the organisation.
- Managing human capital (perhaps the most critical of the strategic leader's skills).

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- Managing change in the organisation.
- Creating and sustaining strong corporate culture.

Sustaining high performance over time.

Question 71

ABC Ltd. is a shoe manufacturing company. The strategic manager of ABC ltd. is Ms. Suman. Ms. Suman hired the best designers she could find online for her ethnic shoe brand but later she found that the designers were better at leather designs. Identify and explain linkage in the given situation as she had to change her strategy basis the actual resources she had? (MTP 5 Marks Sep'22)

Answer 71

The strategy formulation and strategy implementation are intertwined and linked with each other. Two types of linkages exist between these two phases of strategic management. The forward linkages deal with the impact of strategy formulation on strategy implementation while the backward linkages are concerned with the impact in the opposite direction.

In the given situation Ms. Suman has to follow Backward Linkages as she had to change her strategy basis the actual resources she had. While dealing with strategic choice, remember that past strategic actions also determine the choice of strategy. Organizations tend to adopt those strategies which can be implemented with the help of the present structure of resources combined with some additional efforts. Such incremental changes, over a period of time, take the organization from where it is to where it wishes to be.

Question 72

Write a short note on Matrix structure. (PYP 5 Marks, Jan '21)

Answer 72

In matrix structure, functional and product forms are combined simultaneously at the same level of the organization. Employees have two superiors, a product / project manager and a functional manager. The "home" department - that is, engineering, manufacturing, or marketing - is usually functional and is reasonably permanent. People from these functional units are often assigned temporarily to one or more product units or projects.

The product units / projects are usually temporary and act like divisions in that they are differentiated on a product-market basis. The matrix structure may be very appropriate when organizations conclude that neither functional nor divisional forms, even when combined with horizontal linking mechanisms like strategic business units, are right for the implementation of their strategies. Matrix structure was developed to combine the stability of the functional structure with flexibility of the product form. It is very useful when the external environment (especially its technological and market aspects) is very complex and changeable.

A matrix structure is most complex of all designs because it depends upon both vertical and horizontal flows of authority and communication. It may result in higher overhead costs due to more management positions.

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The matrix structure is often found in an organization when the following three conditions exist:

4. Ideas need to be cross-fertilized across projects or products;
5. Resources are scarce; and
6. Abilities to process information and to make decisions need to be improved.

Question 73

Strategy execution is an operations-oriented activity which involves a good fit between strategy and organizational capabilities, structure, climate & culture. Enumerate the principal aspects of strategy execution process which are used in most of the situations. (MTP 5 Marks Oct 21)

OR

What are the important aspects of the process of implementation of strategy? (PYP 5 Marks Dec '21 & Jan '21)

Answer 73

In most situations, strategy-execution process includes the following principal aspects:

- Developing budgets that steer ample resources into those activities critical to strategic success.
- Staffing the organization with the needed skills and expertise, consciously building and strengthening strategy-supportive competencies and competitive capabilities, and organizing the work effort.
- Ensuring that policies and operating procedures facilitate rather than impede effective execution.
- Using the best-known practices to perform core business activities and pushing for continuous improvement.
- Installing information and operating systems that enable company personnel to better carry out their strategic roles day in and day out.
- Motivating people to pursue the target objectives energetically
- Creating a company culture and work climate conducive to successful strategy implementation and execution.
- Exerting the internal leadership needed to drive implementation forward and keep improving strategy execution. When the organization encounters stumbling blocks or weaknesses, management has to see that they are addressed and rectified quickly. Good strategy execution involves creating strong "fits" between strategy and organizational capabilities, between strategy and the reward structure, between strategy and internal operating systems, and between strategy and the organization's work climate and culture.

Question 74

What is a strategic business unit? What are its advantages? (MTP 5 Marks May 20)

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Answer 74

A strategic business unit (SBU) is any part of a business organization which is treated separately for strategic management purposes. The concept of SBU is helpful in creating an SBU organizational structure. It is discrete element of the business serving product markets with readily identifiable competitors and for which strategic planning can be concluded. It is created by adding another level of management in a divisional structure after the divisions have been grouped under a divisional top management authority based on the common strategic interests.

Advantages of SBU are:

- Establishing coordination between divisions having common strategic interests.
- Facilitates strategic management and control on large and diverse organizations.
- Fixes accountabilities at the level of distinct business units.
- Allows strategic planning to be done at the most relevant level within the total enterprise.
- Makes the task of strategic review by top executives more objective and more effective.
- Helps allocate corporate resources to areas with greatest growth opportunities.

Question 75

You are appointed as a manager of a company where you find that the company's culture is out of sync with what is needed for strategic success. Discuss steps you would initiate to tackle the problem. (RTP May 23)

Answer 75

Corporate culture refers to company's values, beliefs, business principles, traditions, ways of operating and internal work environment. Changing problem cultures is very difficult because of deeply held values and habits. It takes concerted management action over a period of time to replace an unhealthy culture with a healthy culture or to root out certain unwanted cultural obstacles and instil ones that are more strategy-supportive.

- The first step is to diagnose which facets of the present culture are strategy supportive and which are not.
- Then, managers have to talk openly and forthrightly to all concerned about those aspects of the culture that have to be changed.
- The talk has to be followed swiftly by visible, aggressive actions to modify the culture -actions that everyone will understand are intended to establish a new culture more in tune with the strategy.

Management through communication has to create a shared vision to manage changes. The menu of culture-changing actions includes revising policies and procedures, altering incentive compensation, shifting budgetary allocations for

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substantial resources to new strategy projects, recruiting and hiring new managers and employees, replacing key executives, communication on need and benefit to employees and so on.

Question 76

You have been appointed as a Chief Executive Officer (CEO) in a company which is facing many difficulties in proper execution of its strategy. Explain the leadership roles which you should play in pushing for good strategy execution. (PYP 5 Marks Nov 22)

Answer 76

A manager as a strategic leader has many different leadership roles to play: visionary, chief entrepreneur and strategist, chief administrator, culture builder, resource acquirer and allocator, capabilities builder, process integrator, crisis solver, spokesperson, negotiator, motivator, arbitrator, policy maker a so on. Managers have five leadership roles to play in pushing for good strategy execution:

(i) Staying on top of what is happening, closely monitoring progress, solving out issues, and learning what obstacles lie in the path of good execution.

(ii) Promoting a culture of esprit de corps that mobilizes and energizes organizational members to execute strategy in a competent fashion and perform at a high level.

(iii) Keeping the organization responsive to changing conditions, alert for new opportunities, bubbling with innovative ideas, and ahead of rivals in developing competitively valuable competencies and capabilities.

(iv) Exercising ethical leadership and insisting that the company conduct its affairs like a model corporate citizen.

(v) Pushing corrective actions to improve strategy execution and overall strategic performance.

Question 77

'A strategy-supportive culture promotes good strategy execution.' - Explain. (MTP 5 Marks Oct '23)

Answer 77

Strong cultures promote good strategy execution when there's fit and hurt execution when there's negligible fit. A culture grounded in values, practices, and behavioral norms that match what is needed for good strategy execution helps energize people throughout the organization to do their jobs in a strategy-supportive manner. A culture built around such business principles as listening to customers, encouraging employees to take pride in their work, and giving employees a high degree of decision-making responsibility. This is very conducive to successful execution of a strategy of delivering superior customer service.

A work environment where the culture matches the conditions for good strategy execution provides a system of informal rules and peer pressure regarding how to conduct business internally and how to go about doing one's job.

A strong strategy-supportive culture makes employees feel genuinely better about their jobs and work environment and the merits of what the company is trying to accomplish.

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Employees are stimulated to take on the challenge of realizing the organizational vision, do their jobs competently and with enthusiasm, and collaborate with others.

Question 78

Ram and Shyam are two brothers engaged in the business of spices. Both have different approaches to management. Ram prefers the conventional and formal approach in which authority is used for explicit rewards and punishment. While, on the other hand, Shyam believes in democratic participative management approach, involving employees to give their best.

Analyse the leadership style followed by Ram and Shyam. (PYP 5 Marks, May'18)

Answer 78

Surah Prakash is a follower of transactional leadership style that focuses on designing systems and controlling the organization's activities. Such a leader believes in using authority of its office to exchange rewards, such as pay and status. They prefer a more formalized approach to motivation, setting clear goals with explicit rewards or penalties for achievement or non-achievement. Transactional leaders try to build on the existing culture and enhance current practices. The style is better suited in persuading people to work efficiently and run operations smoothly.
On the other hand, Chandler Prakash is a follower of transformational leadership style. The style uses charisma and enthusiasm to inspire people to exert them for the good of the organization. Transformational leaders offer excitement, vision, intellect teal stimulation and personal satisfaction. They inspire involvement in a mission, giving followers a 'dream' or 'vision' of a higher calling so as to elicit more dramatic changes in organizational performance. Such a leadership motivates followers to do more than originally affected to do by stretching their abilities and increasing their self -confidence, and also promote innovation throughout the organization.

Question 79

Explain the steps for initiating strategic change. (PYP 5 Marks May '23)

Answer 79

The changes in the environmental forces often require businesses to make modifications in their existing strategies and bring out new strategies. Strategic change is a complex process that involves a corporate strategy focused on new markets, products, services and new ways of doing business.

Three steps for initiating strategic change are:

(iv) **Recognise the need for change** – The first step is to diagnose the which facets of the present corporate culture are strategy supportive and which are not.

(v) **Create a shared vision to manage change** – Objectives of both individuals and organisation should coincide. There should be no conflict between them. This is possible only if the management and the organisation members follow a shared vision.

(vi) **Institutionalise the change** – This is an action stage which requires the implementation of the changed strategy. Creating and sustaining a different attitude towards change is essential to ensure that the firm does not slip back into old ways of doing things.

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Question 80

How can a company deal with strategic uncertainty? (MTP Aug. '18, 3 Marks)

Answer 80

Strategic uncertainty denotes the uncertainty that has crucial implications for the organisation. A typical external analysis will emerge with dozens of strategic uncertainties. To be manageable, they need to be grouped into logical clusters or themes. It is then useful to assess the importance of each cluster in order to set priorities with respect to Information gathering and analysis.

Question 81

Discuss the concept of Multi Divisional Structure. (MTP April '19, 5 Marks)

Answer 81

Multidivisional (M-form) structure is composed of operating divisions where each division represents a separate business to which the top corporate officer delegates responsibility for day - today operations and business unit strategy to division managers. By such delegation, the corporate office is responsible for formulating and implementing overall corporate strategy and manages divisions through strategic and financial controls.

Multidivisional or M-form structure was developed in the 1920s, in response to co-ordination-and control-related problems in large firms. Functional departments often had difficulty dealing with distinct product lines and markets, especially in coordinating conflicting priorities among the products.

Costs were not allocated to individual products, so it was not possible to assess an individual product's profit contribution. Loss of control meant that optimal allocation of firm resources between products was difficult (if not impossible). Top managers became over -involved in solving short-run problems (such as coordination, communications, conflict resolution) and neglected long -term strategic issues. Multidivisional structure calls for:

- Creating separate divisions, each representing a distinct business
- Each division would house its functional hierarchy;
- Division managers would be given responsibility for managing day-to-day operations;
- A small corporate office that would determine the long-term strategic direction of the firm and exercise overall financial control over the semi-autonomous divisions.

Question 82

Distinguish between the following:

Transformational leadership and Transactional leadership. (MTP 5 Marks Oct 21, Sept'22)

Answer 82

Following are the differences between transformational and transactional leadership:

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4. Transformational leadership style uses charisma and enthusiasm to inspire people to exert them for the good of organization. Transactional leadership style uses the authority of its office to exchange rewards such as pay, status symbols etc.
5. Transformational leadership style may be appropriate in turbulent environment, in industries at the very start or end of their cycles, poorly performing organisations, when there is a needto inspire a company to embrace major changes. Transactional leadership style can be appropriate in static environment, in growing or mature industries and in organisations that are performing well.
6. Transformational leaders inspire employees by offering excitement, vision, intellectual stimulation and personal satisfaction. Transactional leaders prefer a more formalized approach to motivation, setting clear goals with explicit rewards or penalties for achievement and non-achievement. Transactional leaders focus mainly to build on existing culture and enhance current practices.

Question 83

Ramesh is owner of a popular brand of Breads. Yashpal, his son af ter completing Chartered Accountancy started assisting his father in running of business. The approaches followed by father and son in management were very different. While Ramesh preferred to use authority and having a formal system of defining goals and motivation with explicit rewards and punishments, Yashpal believed in involving employees and generating enthusiasm to inspire people to deliver in the organization. Discuss the difference in leadership style of father and son. (MTP 5 Marks April 22 & Sep '23)

Answer 83

Ramesh is a follower of transactional leadership style that focuses on designing systems and controlling the organization's activities. Such a leader believes in using authority of its office to exchange rewards, such as pay and status. They prefer a more formalized approach to motivation, setting clear goals with explicit rewards or penalties for achievement or non-achievement. Transactional leaders try to build on the existing culture and enhance current practices. The style is better suited in persuading people to work efficiently and run operations smoothly.

On the other hand, Yashpal is follower of transformational leadership style. The style uses charisma and enthusiasm to inspire people to exert them for the good of the organization. Transformational leaders offer excitement, vision, intellectual stimulation and personal satisfaction. They inspire involvement in a mission, giving followers a 'dream' or 'vision' of a higher calling so as to elicit more dramatic changes in organizational performance. Such a leadership motivates followers to do more than originally affected to do by stretching their abilities and increasing their self-confidence, and also promote innovation throughout the organization.

Section B

1. **leadership style may be appropriate in turbulent environment.**

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(a) Transactional

(b) Transformational

(c) Autocratic

(d) None of these

Ans: (b)

2. An organizational structure with constricted middle level is:

(a) Divisional structure

(b) Network structure

(c) Hour Glass structure

(d) Matrix structure

Ans: (c)

3. You are the head of operations of a company. When you focus on total or aggregate management functions in the sense of embracing the integrated activities of a complete department et al, you are practicing: -

(a) Strategic Control

(b) Management control

(c) Administrative Control

(d) Operations Control

Ans: (b)

4. Which of the following would be chosen by the core strategist to implement operational control: -

(a) Premise Control

(b Special Alert Control

(c) Implementation Control

(d) Budgetary Control

Ans: (d)

5. Compliance, Identification and Internalization are the three processes involved in:

(a) Refreezing

(b) Defreezing

(c) Changing behavior patterns

(d) Breaking down old attitudes

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Ans: (c)

6. **Which one is NOT a type of strategic control?**

   (a) Operational control

   (b) Strategic surveillance

   (c) Special alert control

   (d) Premise control

Ans: (a)

Question 1

Ramesh, is owner of a popular brand of Breads. Yashpal, his son after completing Chartered Accountancy started assisting his father in running of business. The approaches followed by father and son in management were very different. While Ramesh preferred to use authority and having a formal system of defining goals and motivation with explicit rewards and punishments, Yashpal believed in involving employees and generating enthusiasm to inspire people to deliver in the organization.

Discuss the difference in leadership style of father and son.

Answer 1

Ramesh is a follower of transactional leadership style that focuses on designing systems and controlling the organization's activities. Such a leader believes in using authority of its office to exchange rewards, such as pay and status. They prefer a more formalized approach to motivation, setting clear goals with explicit rewards or penalties for achievement or non-achievement. Transactional leaders try to build on the existing culture and enhance current practices. The style is better suited in persuading people to work efficiently and run operations smoothly.

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Question 2

Suresh Sinha has been recently appointed as the head of a strategic business unit of a large multiproduct company. Advise Mr Sinha about the leadership role to be played by him in execution of strategy.

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Answer 2

Leading change has to start with diagnosing the situation and then deciding which of several ways to handle it. Managers have five leadership roles to play in pushing for good strategy execution:

(i) Staying on top of what is happening, closely monitoring progress, solving out issues, and learning what obstacles lie in the path of good execution.

(ii) Promoting a culture of esprit de corps that mobilizes and energizes organizational members to execute strategy in a competent fashion and perform at a high level.

(iii) Keeping the organization responsive to changing conditions, alert for new opportunities, bubbling with innovative ideas, and ahead of rivals in developing competitively valuable competencies and capabilities.

(iv) Exercising ethical leadership and insisting that the company conduct its affairs like a model corporate citizen.

(v) Pushing corrective actions to improve strategy execution and overall strategic performance.

Question 3

KaAthens Ltd., a diversified business entity having business operations across the globe. The company leadership has just changed as Mr. D. Bandopadhyay handed over the pedals to his son Aditya Bandopadhyay, due to his poor health. Aditya is a highly educated with an engineering degree from IIT, Delhi. However, being very young he is not clear about his role and responsibilities,
In your view, what are the responsibilities of Aditya Bandopadhyay as CEO of the company.

Answer 3

Aditya Bandopadhyay, an effective strategic leader of KaAthens Ltd. must be able to deal with the diverse and cognitively complex competitive situations that are characteristic of today's competitive landscape.

A Strategic leader has several responsibilities, including the following:

- Making strategic decisions.
- Formulating policies and action plans to implement strategic decision.
- Ensuring effective communication in the organisation.
- Managing human capital (perhaps the most critical of the strategic leader's skills).
- Managing change in the organisation.
- Creating and sustaining strong corporate culture.
- Sustaining high performance over time.

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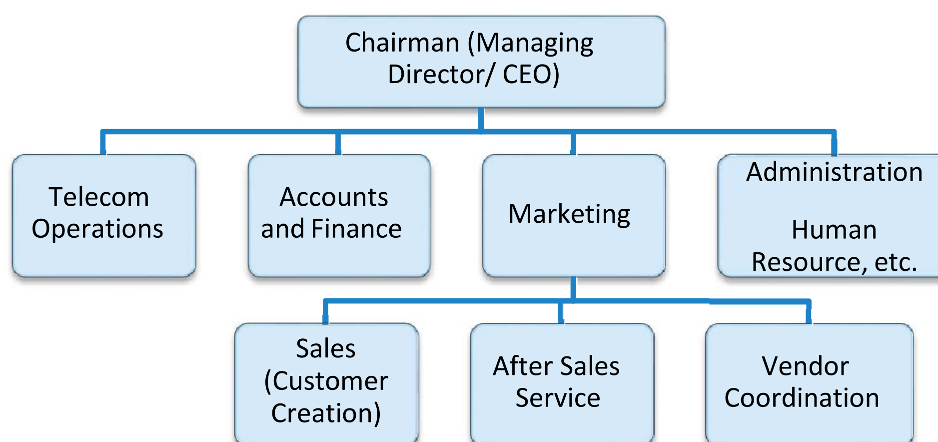
Question 4

Manoj started his rs, he gradually hired fifty people for various activities such as to keep his accounts, administration, sell his products in the market, create more customers, provide after sales service, coordinate with vendors.
Draw the organization structure Manoj should implement in his organization and name it.

Answer 4

Manoj has started a telecom business. Accounts, Administration, Marketing (customer creation, after sales service, vendor coordination) are the functional areas that are desired in the organisational structure. Further there is inherent need to have a department for the management of telecom services/ operations.

Thus, the functional structure in the telecom business of Manoj can be as follows:



Question 5

Moonlight Private Limited deals in multi-products and multi-businesses. It has its own set of competitors. It seems impractical for the company to provide separate strategic planning treatment to each one of its product or businesses. As a strategic manager, suggest the type of structure best suitable for Moonlight Private Limited and state its benefits.

Answer 5

It is advisable for Moonlight Private Limited to follow the strategic business unit (SBU) structure.

Moonlight Private Limited has a multi-product and multi-business structure where, each of these businesses has its own set of competitors. In the given case, Strategic Business Unit (SBU) structure would best suit the interests of the company.

SBU is a part of a large business organization that is treated separately for strategic management purposes. It is separate part of large business serving product markets

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with readily identifiable competitors. It is created by adding another level of management in a divisional structure after the divisions have been grouped under a divisional top management authority based on the common strategic interests.

Very large organizations, particularly those running into several products, or operating at distant geographical locations that are extremely diverse in terms of environmental factors, can be better managed by creating strategic business units, just as is the case for Moonlight Private Limited. SBU structure becomes imperative in an organization with increase in number, size anddiversity.

Benefits of SBUs:

1. Establishing coordination between divisions having common strategicinterest.
2. Facilitate strategic management and control.
3. Determine accountability at the level of distinct business units.
4. Allow strategic planning to be done at the most relevant level within the total enterprise.
5. Make the task of strategic review by top executives more objective and more effective.
6. Help to allocate resources to areas with better opportunities.

Thus, an SBU structure with its set of advantages would be most suitable for the company with the given diverse businesses having separate identifiable competitors, but a common organizational goal.

Question 6

Sanya Private Limited is an automobile company. For the past few years, it has been observed that the progress of the company has become stagnant. When scrutinized, it was found that the planning department was performing fairly well but the plans could not be implemented due to improper use of resources, undesirable tendencies of workers and non-conformance to norms and standards. You are hired as a Strategic Manager. Suggest the elements of process of control to overcome the problem.

Answer 6

Sanya Private Limited deteriorating performance due to poor implementation of plans that is improper use of resources, undesirable tendencies of theworkers, and non-conformance to norms and standards, all point towardsweak controls in the organization. Implementation of plans cannot assureresults unless strong and sufficient controls are put in place. The management of the company should focus diligently on developing controls especially inthe identified problem areas.

The process of control has the following elements:

(a) Objectives of the business system which could be operationalized into measurable

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and controllable standards.

(b) A mechanism for monitoring and measuring the performance of the system.

(c) A mechanism (i) for comparing the actual results with reference to the standards (ii) for detecting deviations from standards and (iii) for learning new insights on standards themselves.

(d) A mechanism for feeding back corrective and adaptive information and instructions to the system, for effecting the desired changes to set right the system to keep it on course.

Above elements of control would ensure a proper check on improper use of resources, undesirable tendencies of the workers, and non-conformance to norms and standards and ensure a result oriented implementation of plans.

Question 7

What is a strategic business unit? What are its advantages?

Answer 7

A strategic business unit (SBU) is any part of a business organization which is treated separately for strategic management purposes. The concept of SBU is helpful in creating an SBU organizational structure. It is discrete element of the business serving product markets with readily identifiable competitors and for which strategic planning can be concluded. It is created by adding another level of management in a divisional structure after the divisions have been grouped under a divisional top management authority based on the common strategic interests.

Advantages of SBU are:

- Establishing coordination between divisions having common strategicinterests.
- Facilitates strategic management and control on large and diverseorganizations.
- Fixes accountabilities at the level of distinct business units.
- Allows strategic planning to be done at the most relevant level withinthe total enterprise.
- Makes the task of strategic review by top executives more objective andmore effective.
- Helps allocate corporate resources to areas with greatest growthopportunities.

Question 8

Draw 'Divisional Structure' with the help of a diagram. Also, give advantages and disadvantages of this structure in brief.

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Answer 8

Divisional structure is that organizational structure which is based on extensive delegation of authority and built on division basis. The divisional structure can be organized in one of the four ways: by geographic area, by product or service, by customer, or by process. With a divisional structure, functionalactivities are performed both centrally and in each division separately.

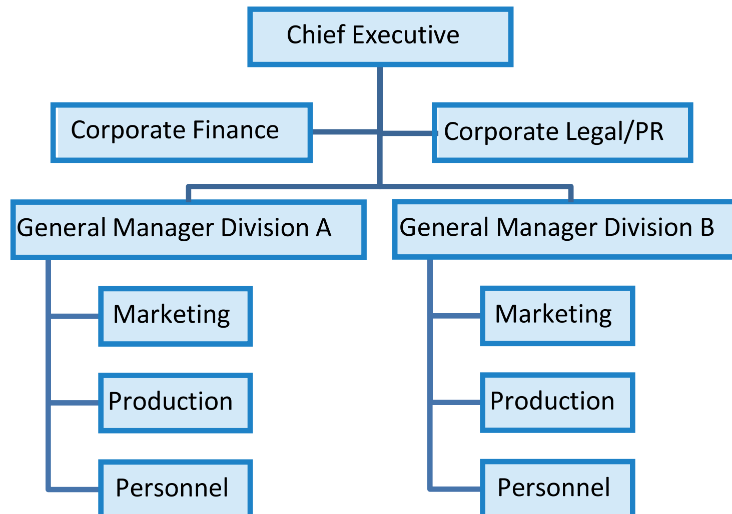

Figure: Divisional Structure

Advantages of Divisional Structure

- **Accountability is clear:** Divisional managers can be held responsible for sales and profit levels. Because a divisional structure is based on extensive delegation of authority, managers and employees can easilysee the results of their good or bad performances and thus their moraleis high.
- **Other advantages:** It creates career development opportunities for managers, allows local control of local situations, leads to a competitive climate within an organization, and allows new businesses and products to be added easily.

Disadvantages of Divisional Structure

- **Higher cost:** Owing to following reasons: (i). requires qualified functional specialist at different divisions and needed centrally (at headquarters); (ii). It requires an elaborate, headquarters –driven control system.
- **Conflicts between divisional managers:** Certain regions, products, or customers may sometimes receive special treatment, and it may be difficult to maintain consistent, company-wide practices.

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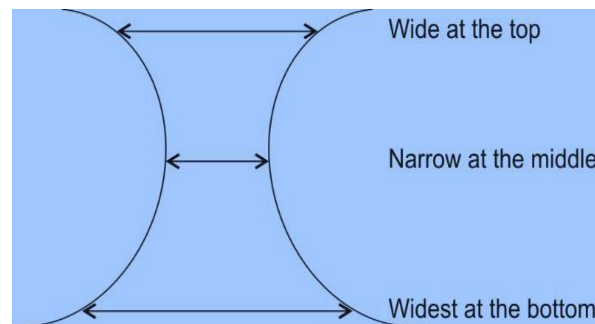
Question 9

What is an 'hourglass structure'? How can this structure benefit an organization?

Answer 9

In the recent years information technology and communications have significantly altered the functioning of organizations. The role played by middle management is diminishing as the tasks performed by them are increasingly being replaced by the technological tools. Hourglass organization structure consists of three layers in an organisation structure with constricted middle layer. The structure has a short and narrow middle management level.

Information technology links the top and bottom levels in the organization taking away many tasks that are performed by the middle level managers. A shrunken middle layer coordinates diverse lower level activities.



Hourglass Organization Structure

Hourglass structure has obvious benefit of reduced costs. It also helps inenhancing responsiveness by simplifying decision making. Decision making authority is shifted close to the source of information so that it is faster. However, with the reduced size of middle management, the promotion opportunities for the lower levels diminish significantly.

Question 10

How can you differentiate between transformational and transactional leaders? Difference between transformational and transactional leadership

Answer 10

Transformational leadership style uses charisma and enthusiasm to inspire people to exert them for the good of organization. Transactional leadership style uses the authority of its office to exchange rewards such as pay, status symbols etc.

1. Transformational leadership style may be appropriate in turbulent environment, in industries at the very start or end of their cycles, poorly performing organisations, when there is a need to inspire a company to embrace major changes. Transactional leadership style can be appropriate in static environment, in growing or mature industries andin organisations that are performing well.

2. Transformational leaders inspire employees by offering excitement, vision,

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intellectual stimulation and personal satisfaction. Transactional leaders prefer a more formalized approach to motivation, setting clear goals with explicit rewards or penalties for achievement and non- achievement. Transactional leaders focus mainly to build on existing culture and enhance current practices.

Question 11

What is strategic change? Explain the change process proposed by Kurt Lewin that can be useful in implementing strategies?

Answer 11

The changes in the environmental forces often require businesses to make modifications in their existing strategies and bring out new strategies. Strategic change is a complex process and it involves a corporate strategy focused on new markets, products, services and new ways of doing business.

To make the change lasting, Kurt Lewin proposed three phases of the change process for moving the organization from the present to the future. These stages are unfreezing, changing and refreezing.

(a) Unfreezing the situation: The process of unfreezing simply makes the individuals or organizations aware of the necessity for change and prepares them for such a change. Lewin proposes that the changes should not come as a surprise to the members of the organization. Sudden and unannounced change would be socially destructive and morale lowering. The management must pave the way for the change by first "unfreezing the situation", so that members would be willing and ready to accept the change.

Unfreezing is the process of breaking down the old attitudes and behaviours, customs and traditions so that they start with a clean slate. This can be achieved by making announcements, holding meetings and promoting the ideas throughout the organization.

(b) Changing to New situation: Once the unfreezing process has been completed and the members of the organization recognise the need for change and have been fully prepared to accept such change, their behaviour patterns need to be redefined. H.C. Kellman proposed three methods for reassigning new patterns of behavior as compliance, identification and internalisation.

(c) Refreezing: Refreezing occurs when the new behaviour becomes a normal way of life. The new behaviour must replace the former behaviour completely for successful and permanent change to take place. In order for the new behaviour to become permanent, it must be continuously reinforced so that this newly acquired behaviour does not diminish or extinguish.

Change process is not a one time application but a continuous process due to dynamism and ever changing environment. The process of unfreezing, changing and refreezing is a cyclical one and remains continuously in action.

Question 12

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What are the differences between operational control and management control?
Differences between Operational Control and Management Control are as under:

Answer 12

(i) The thrust of operational control is on individual tasks or transactions as against total or more aggregative management functions. Whencompared with operational, management control is more inclusive and more aggregative, in the sense of embracing the integrated activities of a complete department, division or even entire organisation, instead or mere narrowly circumscribed activities of sub-units. **For example**, procuring specific items for inventory is a matter of operational control, in contrast to inventory management as a whole.

(ii) Many of the control systems in organisations are operational and mechanistic in nature. A set of standards, plans and instructions are formulated. On the other hand, the basic purpose of management control is the achievement of enterprise goals – short range and long range – in an effective and efficient manner.

Question 13

What is strategic control? Briefly explain the different types of strategic control.

Answer 13

Strategic Control focuses on the dual questions of whether: (1) the strategy is being implemented as planned; and (2) the results produced by the strategy are those intended.

There are four types of strategic control:

- **Premise control**: A strategy is formed on the basis of certainassumptions or premises about the environment. Premise control is a tool for systematic and continuous monitoring of the environment to verify the validity and accuracy of the premises on which the strategyhas been built.
- **Strategic surveillance**: Strategic surveillance is unfocussed. It involves general monitoring of various sources of information to uncover unanticipated information having a bearing on the organizational strategy.
- **Special alert control:** At times, unexpected events may force organizations to reconsider their strategy. Sudden changes in government, natural calamities, unexpected merger/acquisition by competitors, industrial disasters and other such events may trigger an immediate and intense review of strategy.
- **Implementation control:** Managers implement strategy by converting major plans into concrete, sequential actions that form incremental steps. Implementation control is directed towards assessing the needfor changes in the overall strategy in light of unfolding events and results.

Question 14

What is implementation control? Discuss its basic forms.

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Answer 14

Managers implement strategy by converting major plans into concrete, sequential actions that form incremental steps. Implementation control is directed towards assessing the need for changes in the overall strategy in light of unfolding events and results associated with incremental steps and actions.

Strategic implementation control is not a replacement to operational control. Strategic implementation control, unlike operational controls continuously

monitors the basic direction of the strategy. The two basic forms of implementation control are:

(i) **Monitoring strategic thrusts:** Monitoring strategic thrusts help managers to determine whether the overall strategy is progressing as desired or whether there is need for readjustments.

(ii) **Milestone Reviews.** All key activities necessary to implement strategy are segregated in terms of time, events or major resource allocation. It normally involves a complete reassessment of the strategy. It also assesses the need to continue or refocus the direction of an organization.

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