CA Inter – New Syllabus
Financial Management

FM New Questions

PYQ May 24, Sep 24
RTP Sep 24, Jan 25
MTP July 24, Aug 24, Nov 24, Dec 24

Compiled Chapter-wise by
CA Mohnish Vora (MVSIR)

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Case Study (PYQ Sep 2024)

RS Limited is manufacturing and selling soft drinks in India. The production process involves one important process that increases the shelf life of the soft drinks. Presently, the machine used for this purpose is old, resulting in high wastage due to breakage of lass bottles and limiting the company's production capacity. The production manager proposes the purchase of an automated machine that will reduce breakage and support increased production.

The production manager has approached the CEO of RS. Limited for purchasing an machine, which will drastically reduce the wastage due to breakage during the process of increasing shelf life of soft drinks. The automated machine will support increase in production. The production manager is confident that acquisition of the automated machine will be beneficial for the company.

Other information is as under:

With the introduction of automated machine, additional sales and related costs over the next five years would be as follows:

Year	Additional Sales Units	Selling Price per Unit (Rs)	Variable Cost per Unit (Rs.)	Additional Fixed Costs (Rs.)
1	20000	30	20	25000
2	25000	30	20	30000
3	30000	30	20	30000
4	32000	35	22	35000
5	28000	35	22	35000

Cost of acquisition of automated machine is 5,00,000. Residual value of the automated machine at the end of its life of 5 years will be 7,50,000. Depreciation on automated machine will be under Straight line method. Depreciation is not included in the cost stated above.

The Production manager has estimated the cost savings (before tax) due to reduction in breakages as under:

Year	1	2	3	4	5
Savings in Cost due to Reduction in Breakages (Rs.)	15000	15000	20000	20000	20000

The machine which is being used at present has zero written down value and if sold, would fetch an amount of Rs. 10,000 only.

The cost of capital of the company is 10%. The tax rate applicable for the company is 30%. Ignore capital pain taxes,

Year	1	2	3	4	5
PV Factor at 10%	0.909	0.826	0.751	0.683	0.621

PYQ Sep 24

1. What is the Profit before Taxes for the Year 2, Year 3 and Year 4 of the investment proposal ?

a) Rs. 2,35,000, Rs. 4,40,000, Rs. 4,01,000
b) Rs. 1,45,000, Rs. 3,50,000, Rs. 3,11,000
c) Rs. 2,05,000, Rs. 4,10,000, Rs. 3,66,000
d) Rs. 1,40,000, Rs. 3,60,000, Rs. 3,31,000

PYQ Sep 24

2. What is the Cash Inflow after Taxes for the Year 1, Year 2 and Year 3 of the investment proposal ?

a) Rs. 1,50,000, Rs. 1,85,000, Rs. 3,45,000
b) Rs.1,65,000, Rs. 1,95,500, Rs. 3,55,000
c) Rs. 1,60,000, Rs. 1,91,500, Rs. 3,35,000
d) Rs. 1,70,000, Rs. 1,90,000, Rs. 3,40,000

PYQ Sep 24

3. What is the Discounted Cash Inflow after Taxes for the Year 1, Year 2 and Year 3 of the investment proposal ?

a) Rs. 1,49,985, Rs. 1,61,483, Rs. 2,66,605
b) Rs. 1,36,350, Rs. 1,52,810, Rs. 2,59,095
c) Rs. 1,54,530, Rs. 1,56,940, Rs. 2,55,340
d) Rs. 1,45,440, Rs. 1,58,179, Rs. 2,51,585

PYQ Sep 24

4. What is the Net Present Value of the investment proposal?

a) Rs. 3,78,990.30
b) Rs. 4,54,980.60
c) Rs. 4,74,890.40
d) Rs. 3,89,260.70

PYQ Sep 24

5. What is the Discounted Payback period of the investment proposal ?

a) 2.74 years
b) 2.87 years
c) 2.38 years
d) 2.48 years

ANSWER KEY

1.	B	2.	C	3.	D	4.	C
5.	A						

Case Study (PYQ Sep 2024)

Mr. Ronak, a doctor by profession, has his own private hospital at Goa having specialization in cardiac treatments. However, now-a-days, Goa not only being a place for the tourists, but is also a place for business delegates, cultural people, politicians, students and other classes of people. Gradually, Goa is opening new windows for businesses and getting recognition as an important tourist and leisure hub in South West India.

There are a number of hotels and resorts at Goa. However, the need still exists for more hotel services, in particular with the excellent service, and because of the large number of visitors from all over the country and all walks of life always favor Goa state for their recreation.

Mr. Ronak although being a doctor by profession is contemplating to establish a five-star hotel at Goa. The hotel will consist of 5 floors. The hotel will include 40 normal rooms and 8 deluxe suites, as well as a restaurant and couple of conference rooms with a small wedding hall on the ground floor. Following are the estimated occupancy rate including fare composition in the Table 1. Being a five-star hotel, breakfast would be complementary but lunch and dinner are on a-la-carte basis.

Table 1: Hotel accommodation, estimated occupancy rate and fare.

Types of Facility	Numbers	Occupancy Rate	Average Rent Per Room Per Day	Growth Rate in Rent
Normal Room	40	33% or 120 Days	Rs. 8000	12%
Deluxe Suites	8	33% or 120 Days	Rs. 25,000	9%
Conference with Wedding Hall	2	40 days	Rs. 3,00,000	9%
Restaurant	1	All days	Rs. 27,000 sales per day	8%

For the sake of simplicity in calculation, growth rate to be applied only once after completion of 10 years.

The estimated cost of land will be Rs. 250 million and the construction cost will be Rs. 100 million. The estimated salvage value at the end of 15th year will be 25% of the cost of construction. The cost of furniture will be of Rs. 1,50,000 for each normal room and Rs. 3,80,000 for each deluxe suite. The cost of the furniture for the conference room with wedding hall will be Rs. 7,00,000 each and for restaurant it will be 10,00,000. In addition, the hotel will require 4 elevators at different locations and will be costing around Rs. 35,00,000 each. The cost of buying and installing electronic appliances like TV sets, Air conditioners, Fridge etc. will be around Rs. 35 million. Elevators would be depreciated at a rate of 5% p.a. Electronic appliances will have a salvage value of 15% of its acquisition cost at the end of 15 years.

The hotel will be built by renowned builder named 'Harihar Infrastructure'. The builder estimated that building will survive for 15 years. The required furniture will be supplied by the local reputed furniture company named Veru Furnishings Ltd. They ensured that furniture will go for 10 years very smoothly. At the end of tenth year, new furniture for normal rooms and deluxe suites will be bought and old furniture for the same will be sold by the hotel owner. The owner of the hotel estimates that he would be able to purchase the required furniture at 15% higher price than the previous purchase price. The salvage values of the furniture at the end of tenth year will be 5% of their purchase prices with no book value remaining. Furniture at restaurant, conference and wedding hall will not require any major changes as such except for minor renovation which will cost Rs. 20,00,000 in total at the end of 12th year. Any scrap generated on account of such renovation will be sold at Rs. 1,75,000.

In order to boost the tourism industry at Goa, the state govt will be granting subsidy of 15% on the initial capex incurred, it will be paid at the time of cost incurred and additional subsidy of 10% on annual revenue expenses for the first 3 years of operation, but will be credited directly in the bank account only at the end of 5th year and the same shall be non-taxable.
The total annual recurring expenses will be Rs. 1,80,00,000/-. It includes salaries to managers, staff and employees, utilities expenses, house keeping and security services' contract, AMC for electronic appliances, restaurant supplies and materials, other miscellaneous expenses, etc.
After the end of 10 years, annual recurring expenses will increase at a rate of 10% which is to be applied once. Furthermore, the hotel authority is determined to provide the best and professional hotel services to the clients by offering training to the employees. They decided to spend Rs. 5,00,000 per year for the purpose of training of the employees.
The hotel project will be entitled to enjoy tax holiday for the first five years after which the corporate tax rate of 25% will also be applied for the hotel. The Cost of equity for the company is 12% and the estimated hurdle rate by considering the structure of capital of the proposed hotel is fixed at 15%.
(Depreciation to be taken on SLM basis and assume 360 days in a year. Ignore depreciation on furniture used in restaurant, conference and wedding hall)
Based on above, please answer to the following MCQs.

RTP Sep 24

1 (i)	The amount of net initial investment required is:

a) Rs. 41.044 Crores
b) Rs. 34.887 Crores
c) Rs. 6.156 Crores
d) Rs. 40.74 Crores

RTP Sep 24

1 (ii)	NPV of the project is:

a) Rs. 7.0532 Cr
b) Rs. 8.4029 Cr
c) Rs. 8.4935 Cr
d) Rs. 2.4700 Cr

RTP Sep 24

1 (iii)	Pay Back period of the project to recover the initial investment is:

a) 5.12 years
b) 12.02 years
c) 11.80 years
d) 4.46 years

RTP Sep 24

1 (iv)	Estimated Recurring accounting profit/(loss) for first three years are:

a) Rs. 7.0928 Cr p.a
b) Rs. 6.9078 Cr p.a
c) Rs. 6.9937 Cr p.a
d) Rs. 9.6120 Cr p.a

RTP Sep 24

1 (v)	IRR of the project is:

a) 16.25%
b) 19.39%
c) 15%
d) 12%

RTP Sep 24

2	KT Ltd.'s opening stock was Rs. 2,50,000 and the closing stock was Rs. 3,75,000. Sales during the year were Rs. 13,00,000 and the gross profit ratio was 25% on sales. Average accounts payable are Rs. 80,000. Creditors Turnover Ratio =?

a) 13.33
b) 14.33
c) 14.44
d) 13.75

ANSWER KEY

1(i)	b	**1 (ii)**	a	**1 (iii)**	d
1 (iv)	a	**1 (v)**	b	**2.**	d

Case Study (RTP Jan 2025)

Samvar Ltd, a leading FMCG company having its current presence in more than 150 Tier I and Tier II cities in India. The stores are operating in the brand name of Go MART competing with Reliance fresh, Walmart, Big Bazaar and other chains. Owing to the increase in demand from Tier III cities and rural areas, it is planning for massive expansion and is contemplating to open up additional 50 stores which will have variety of FMCG products.

The CFO and his team estimate that the funds needed for massive expansion would be Rs. 200 lakhs per store. Such funds would be utilized for buying out a space and setting up a store, buying the other required fixed assets, etc. Central government will provide a revenue subsidy of 15% on Gross profit if the overall cost of capital doesn't exceed 10% Apart from above, CFO and his team require an estimate on the additional capital needed based for the smooth running of fixed assets and its daily operations. Based on their market research, they have collected the other information for each store which is as follows-

Average Sales would be Rs. 120 lakhs p.a. with a GP margin of 18%. Customers pay through different digital modes and channels including POS systems (Debit and credit cards) which generally takes approx. 9 days for the funds to get credited in the bank account. 15% of the customers use debit and credit cards to make the payment. Installing a POS system comes with a fee of 2% of total sales through POS.

Being a FMCG outlet, inventories of multiple products need to be kept. Different products have different storage period. However primarily, products are classified into three broad categories, Durable, Semi Durable & Perishable. Perishable products comprise 60% of sales, whereas semi-durable is 25% and balance is for durable products. Inventory storage period for perishable, semi-durable & durable products are 10 days, 30 days & 60 days respectively. Suppliers of these products provide a credit period of average 30 days.

Each store will employ around 20 personnel of a different hierarchy and monthly average salaries to staff for each store is estimated at Rs. 4 lakhs per month. Company will pay employees' dues on the 1st of next month.

Samvar Ltd plans to keep optimum cash balance in hand as suggested by Baumol's model. Excess cash balance if any, will be invested in the marketable securities which will generate a return of 12% p.a. The total disbursement for the year is estimated at Rs. 1.50 lakhs per month with the transaction cost of Rs. 20 per transfer to the disbursement account.

The optimum capital structure with debt equity of 2:1 has been proven ideal for raising the finance and company wishes to follow the same pattern for the additional funds required for each store. Trade credit can also be utilized for financing the expansion needs.

The cost of raising debt and equity for each store is as per the slabs as under:

Project Cost *	Cost of Debt	Minimum rate expected by equity share holders
Upto 80 lakhs	10%	12.5%
Above 80 lakhs but upto 150 Lakhs	11.5%	13.5%
Above 150 lakhs & Upto 250 lakhs	12%	14%
Above 250 lakhs	13.5%	15%

*It means that upto 80 lakhs of project cost company can raise debt at 10% and equity at 12.5% and so on.

Tax rate applicable to the corporate is 25%

Based on the above details, calculate the following for each store:

RTP Jan 2025	
1. (i)	The optimum Cash balance is

a) Rs. 7,071
b) Rs. 26,500
c) Rs. 7,150
d) Rs. 24,495

RTP Jan 2025	
1. (ii)	The Gross and Net Working Capital for the next year would be

a) Rs. 6.7730 L, (5.9396 L)
b) Rs. 6.7730 L, 12.7125 L
c) Rs. 200 L, (5.9396L)
d) Rs. (5.9396 L), 6.7730 L

RTP Jan 2025	
1. (iii)	The amount of total funds needed to setup a store is

a) Rs. 194.0605 L
b) Rs. 200 L
c) Rs. 6.7730 L
d) Rs. 206.7730 L

RTP Jan 2025	
1. (iv)	The overall cost of capital for raising additional funds for setting up of each store is

a) 10.01%
b) 10.65%
c) 9.90%
d) 8.91%

RTP Jan 2025	
1. (v)	The amount of revenue subsidy granted by the central govt is

a) Rs. 3 L
b) Rs. 3.24 L
c) Nil
d) Rs. 2.25 L

ANSWER KEY

1.(i)	d	1.(ii)	a	1.(iii)	a
1.(iv)	c	1.(v)	b		

Division A: Case Scenario based MCQs

Kaivalyabodhi Limited (KbL) has completed 35 years of operations in India. It has many subsidiary & associate companies in more than 100 countries. KbL's business s include home and personal care, foods and beverages, and industrial, agricultural and other products. It is one of the largest producers of soaps and detergents in India. The company has grown organically as well as through acquisitions. Over the years, the company has built a diverse portfolio of powerful brands, some being household names.

It is planning to acquire one of its competitors named Prestige Limited, which would enhance the growth of 'KbL'. The consideration amount will be 1.5X of its average Market Capitalization. Prestige limited has 1,30,000 outstanding equity shares and its shares were traded at an average market price of Rs. 45 as on the valuation date. The consideration amount will be paid equally in 5 years where the first installment is to be paid immediately. Prestige Limited has Ko of 15%

KbL will raise the funds required through debt and equity in the ratio of 30:70. The company requires the cost of capital estimates for evaluating its acquisitions, investment decisions and the performance of its businesses.

KbL's share price has grown from Rs. 150 to Rs. 301 in the last 5 years and it will continue to grow at the same rate. KbL pays dividends regularly. The company has recently paid a dividend of Rs. 8. For the calculation of equity, an average of 52 weeks high market price in the last 5 years is to be considered, which is as follows:

Yr 1	Yr 2	Yr 3	Yr 4	Yr 5
MPS 185	MPS 210	MPS 252	MPS 325	MPS 280

Ke calculated as per growth model holds a weight of 0.6.

The company also wishes to calculate the equity's expectation using CAPM which holds a weight of 0.4. The risk-free rate is assumed as the yield on long-term government bonds that the company regards as about 8%. KbL regards the market- risk premium to be equal to 11 per cent. Its estimation on the Beta is 0.78.

KbL will issue debentures with FV of Rs. 10,500 which is to be amortised equally over the life of 7 years. The company considers the effective rate of interest applicable to an 'AAA' rated company with a markup of 200 basis points as its coupon rate. It thinks that considering the trends over the years, 'AAA' rate is 7.5%.

Ignore taxation. Based on the above details, answer the question 1 to 5:

MTP July 2024	
1.	Calculate the cost of equity under both the methods

a) 11%, 16%
b) 18.65%, 10.34%
c) 18.65%, 16.58%
d) 16.5%, 9%

MTP July 2024	
2.	Calculate the overall cost of equity

a) 17.82%
b) 17.63%
c) 15.37%
d) 35.25%

MTP July 2024	
3.	Calculate the cost of debt, if the intrinsic value of debenture today is close to Rs. 9,740

a) 15%
b) 12%
c) 9.5%
d) 7.5%

MTP July 2024	
4.	Calculate the WACC & the amount of purchase consideration

a) 18%, Rs. 90,00,000
b) 15.21%, Rs. 87,75,000
c) 16.07%, Rs. 87,75,000
d) 15.94%, Rs. 58,50,000

MTP July 2024	
5.	Present Value of Purchase consideration is close to Rs.

a) 58,83,032
b) 67,65,487
c) 57,35,680
d) 66,58,997

ANSWER KEY

1.	c	2.	a	3.	b	4.	c	5.	d

Division A: Case Scenario
Investment Decision

Mathangi Ltd. is a News broadcasting channel having its broadcasting Centre in Chennai. There are total 200 employees in the organization including top management. As a part of employee benefit expenses, the company serves tea to its employees, which is outsourced from a third-party. The company offers tea three times a day to each of its employees. The third-party charges Rs. 10 for each cup of tea. The company works for 200 days in a year.

Looking at the substantial amount of expenditure on tea, the finance department has proposed to the management an installation of a master tea vending machine from Nirmal Ltd which will cost Rs. 5,00,000 with a useful life of five years. Upon purchasing the machine, the company will have to incur annual maintenance which will require a payment of Rs. 25,000 every year. The machine would require electricity consumption of 500 units p.m. and current incremental cost of electricity for the company is Rs. 24 per unit. Apart from these running costs, the company will have to incur Rs. 8,00,000 for consumables like milk, tea powder, paper cup, sugar etc. The company is in the 25% tax bracket. Straight line method of depreciation is allowed for the purpose of taxation.

Nirmal Ltd sells 100 master tea vending machines. Variable cost is Rs. 4,50,000 per machine and fixed operating cost is Rs. 25,00,000. Capital Structure of Mathangi Ltd and Nirmal Ltd consists of the following –

Particulars	Mathangi Ltd.	Nirmal Ltd.
Equity Share Capital (Face value Rs.10 each)	40,00,000	40,00,000
Reserves & Surplus	25,00,000	50,00,000
12% Preference Share Capital	12,00,000	Nil
15% Debentures	20,00,000	40,00,000

Risk free rate of return = 5%, Market return = 10%, Beta of the Mathangi Ltd. = 1.9

You are required to answer the following five questions based on the above details:

MTP Aug 2024

1. If sales of Nirmal Ltd are up by 10%, impact on its EBIT is -

a) 30%
b) 60%
c) 5%
d) 20%

MTP Aug 2024

2. Combined leverage of Nirmal Ltd is

a) 1.63
b) 2.63
c) 1.315
d) 2

MTP Aug 2024

3. Discount rate that can be applied for making investment decisions of Mathangi Ltd is -

a) 12%
b) 13.52%
c) 15%
d) 20%

MTP Aug 2024	
4.	Incremental cash flow after tax per annum attributable to Mathangi Ltd due to investment in the machine is

a) Rs. 2,39,438
b) Rs. 1,98,250
c) Rs. 98,250
d) Rs. 1,31,000

MTP Aug 2024	
5.	Net present value of investment in the machine by Mathangi Ltd is

a) Rs. 6,88,522
b) Rs. 1,88,522
c) Rs. 9,91,250
d) Rs. 4,91,250

ANSWER KEY

1.	d	2.	b	3.	b	4.	b	5.	b

Case Study (MTP Nov 2024)

Small bus Company is into manufacturing mini buses. Since its establishment it has seen a phenomenal growth in both its market share and profitability. The financial statements (Statement of P&L and Balance Sheet) are shown below. The company enjoys the confidence of its shareholders who have been rewarded with growing dividends year after year. Last year too, the company had announced 20 per cent dividend, which was the highest in the automobile sector. The company has never defaulted on its loan payments and enjoys a favourable face with its lenders, which include financial institutions, commercial banks and other private debenture holders. The competition in the bus industry has increased in the past few years and the company foresees further intensification of competition with the entry of several foreign bus manufacturers; many of whom are market leaders in their respective countries. The mini bus segment especially, will witness entry of foreign majors in the near future, with latest technology being offered to the Indian customer. Small bus company's management realises the need for large scale investment in upgradation of technology and improvement of manufacturing facilities to beat competition.

While on one hand, the competition in the industry has been intensifying, on the other hand, there has been a slowdown in the Indian economy, which has not only reduced the demand for buses, but also led to adoption of price cutting strategies by various bus manufacturers.

The Company needs Rs. 3,12,50,000 for the investment in technology and improvement of manufacturing facilities. Company has three options for the funds:

I. The Company may issue 31,25,000 equity shares at Rs. 10 per share.
II. The Company may issue 15,62,500 equity shares at Rs. 10 per share and 1,56,250 debentures of Rs. 100 denomination bearing an 9% rate of interest.
III. The Company may issue 15,62,500 equity shares at Rs. 10 per share and 1,56,250 preference shares at Rs. 100 per share bearing an 10% rate of dividend.

The company's earnings before interest and taxes after investment is Rs. 37,50,000. Income tax rate applicable to the company is 40%.

Based on the above facts, the management of the company asked you to answer the following questions (MCQs 1 to 5):

	MTP Nov 2024
1	**What is the EPS under financial plan I?**
a) Rs. 0.50 b) Rs. 0.62 c) Rs. 0.72 d) Rs. 0.44	

	MTP Nov 2024
2	**What is the EPS under financial plan II?**
a) Rs. 0.70 b) Rs. 0.90 c) Rs. 0.42 d) Rs. 1.10	

MTP Nov 2024	
3	What is the EPS under financial plan III?

a) Rs. 0.44
b) Rs. 0.70
c) Rs. 0.85
d) Rs. 1.20

MTP Nov 2024	
4	What is the EBIT-EPS indifference points by formulae between Financing Plan I and Plan II?

a) Rs. 28,12,500.00
b) Rs. 29,00,000.00
c) Rs. 32,50,666.66
d) Rs. 45,15,253.56

MTP Nov 2024	
5	What is the EBIT-EPS indifference points by formulae between Financing Plan I and Plan III?

a) Rs. 36,36,666.66
b) Rs. 45,25,000.00
c) Rs. 28,56,256.25
d) Rs. 52,08,333.33

ANSWER KEY

1	c	2	b	3	a	4	a	5	d

Case Study (MTP Dec 24)

MNP Ltd. is a multinational company having its operations spread mostly in India and neighbouring countries of India. The promotors of the company believed that capital structure of a company must be kept flexible and balanced, where proper mix should always be maintained between debt and equity. Such mix of debt and equity should be reviewed from time to time keeping in mind the changing situation of India and the global scenario.

The capital structure of MNP Ltd. is as under:

9% Debentures	Rs. 2,75,000
11% Preference shares	Rs. 2,25,000
Equity shares (face value: Rs. 10 per share)	Rs. 5,00,000
Total capital of the company	Rs. 10,00,000

The following are some of the additional information provided by MNP Ltd. relating to the above mentioned capital structure.

i. Rs. 100 per debenture redeemable at par has 2% floatation cost and 10 years of maturity. The market price per debenture is Rs. 105.
ii. Rs. 100 per preference share redeemable at par has 3% floatation cost and 10 years of maturity. The market price per preference share is Rs. 106.
iii. Equity share has Rs. 4 floatation cost and market price per share of Rs. 24. The next year expected dividend is Rs. 2 per share with an annual growth of 5%. The firm has a practice of paying all earnings in the form of dividends.
iv. Corporate Income-tax rate is 35%.

Since the company is a multinational company market value weights are preferred over book value weights when calculating the Weighted Average Cost of Capital (WACC) for several reasons. The company believes that market values reflect the current market perception of a company's financial health and future prospects. This is more relevant for calculating the cost of capital today, as investors base their decisions on current market conditions. Book values, based on historical accounting principles, may not accurately represent the true economic value of the company's capital components. Market values capture the actual cost that a company would incur if it were to raise new capital in the current market. Book values might not reflect the true cost of debt due to factors like changes in interest rates or creditworthiness. Similarly, book value of equity might not reflect the current investor expectations for future dividends and growth. Market values are readily available through stock prices and market interest rates. Obtaining accurate book values, especially for intangible assets, can be a complex and time- consuming process.

On the basis of this information provided above you are required to answer the following MCQs (1 to 5):

MTP Dec 24

1. Calculate the cost of equity and choose the correct answer from the following?

a) 14%
b) 15%
c) 16%
d) 17%

MTP Dec 24

2. Calculate the cost of debt and choose the correct answer from the following?

a) 6.11%
b) 5.48%
c) 9%
d) 10.55%

MTP Dec 24	
3.	Calculate the cost of preference shares and choose the correct answer from the following?

a) 10.57 %
b) 5.11%
c) 9%
d) 10%

MTP Dec 24	
4.	Calculate the WACC using market value weights and choose the correct answer from the following?

a) 12.80 %
b) 5.11%
c) 9%
d) 10.55%

MTP Dec 24	
5.	What will be the current market price of MNP Ltd.'s equity shares if Ke = 10%, expected dividend is Rs. 2 per share and annual growth rate is 5% from the following options:

a) 40 per share
b) 20 per share
c) 30 per share
d) 45 per share

ANSWER KEY

1.	B	2.	B	3.	A	4.	A	5.	A

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CA Inter – New Syllabus
Financial Management

CHAPTER 1

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Question 1

PYQ May 24

State with brief reasons whether the following statements are true or false:

i. Maximising Market Price Per Share (MPS) as the financial objective which maximises the wealth of shareholders.

ii. A combination of lower risk and higher return is known as risk return trade off and at this level of risk-return, profit is maximum.

iii. Financial distress is a position when accounting profits of a firm are sufficient to meet its long-term obligations.

iv. Angel investor is one who provides funds for start-up m exchange for an ownership/equity.

Solution 2

Statement	True or False	Reason
Maximising Market Price Per Share (MPS) as the financial objective which maximises the wealth of shareholders.	**True**	Maximizing MPS or Market value as the financial objective will ensure the maximizing shareholder's wealth.
A combination of lower risk and higher return is known as risk-return trade off and at this level of risk-return, profit is maximum.	**False**	There is a direct relationship between risk and profit. Higher the risk, higher is the possibility of profits. Stockholders expect greater returns from investments of higher risk and vice-versa.
Financial distress is a position when accounting profits of a firm are sufficient to meet its long-term obligations.	**False**	Financial distress is a position where Cash inflows of a firm are inadequate to meet all its current obligations.
Angel investor is one who provides funds for start-up in exchange for an ownership/equity.	**True**	Angel Financing is a form of an equity-financing where an angel investor provides capital for start-up or expansion, in exchange for an ownership/equity in the company.

Question 2

PYQ Sep 24

Explain Angel Financing.

Solution 2

Angel Financing is a form of an equity-financing in which individual or a group of individuals provides capital to entrepreneurs and early-stage businesses, or start-ups, in exchange for an ownership/equity in the company.

They may provide a one-time investment or an ongoing capital injection via a series of investments, Angel investors are looking for a higher rate of return than what is given by traditional investment

Question 3

EXPLAIN the advantages and disadvantages of both profit maximization and wealth maximization goals

Solution 3

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

Question 4

RTP Jan 2025

LIST the emerging issues (any four) affecting the future role of CFO.

Solution 4

Emerging Issues/Priorities Affecting the Future Role of Chief Financial Officer (CFO)

- **Regulation:** Regulation requirements are increasing and CFOs have an increasingly personal stake in regulatory adherence.

- **Globalisation:** The challenges of globalisation are creating a need for finance leaders to develop a finance function that works effectively on the global stage and that embraces diversity.

- **Technology:** Technology is evolving very quickly, providing the potential for CFOs to reconfigure finance processes and drive business insight through 'big data' and analytics.

- **Risk:** The nature of the risks that organisations face are changing, requiring more effective risk management approaches and increasingly CFOs have a role to play in ensuring an appropriate corporate ethos.

- **Transformation:** There will be more pressure on CFOs to transform their finance functions to drive a better service to the business at zero cost impact.

- **Stakeholder Management:** Stakeholder management and relationships will become important as increasingly CFOs become the face of the corporate brand.

- **Strategy:** There will be a greater role to play in strategy validation and execution, because the environment is more complex and quick changing, calling on the analytical skills CFOs can bring.

- **Reporting:** Reporting requirements will broaden and continue to be burdensome for CFOs.

- **Talent and Capability:** A brighter spotlight will shine on talent, capability and behaviours in the top finance role.

Question 5

MTP July 2024

DISCUSS the role of a chief financial officer.

Solution 5

The finance executive of an organisation plays an important role in the 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 terms as possible i.e. determining the composition of liabilities.

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

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

Question 6

MTP Aug 2024

The agency problem is one of the key concepts in corporate governance and financial management. On the light of this statement, EXPLAIN agency problem, consequences of agency problem and how to overcome the issue.

Solution 6

Though in a sole proprietorship firm, partnership etc., owners participate in management but in corporates, 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 maximise 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 behaviour so as to maximise shareholders 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.

Question 7

MTP Nov 2024

"XYZ Corp. has adopted a strategy to maximize short-term profits by increasing product prices significantly. ANALYZE why this might not be a feasible operational criterion for sustainable growth."

Solution 7

"The profit maximisation is not an operationally feasible criterion." This statement is true because Profit maximisation can be a short-term objective for any organisation 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:

i. 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?

ii. 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.

iii. It ignores the risk factor.

iv. The term maximization is also vague.

Question 8

MTP Dec 24

DESCRIBE some of the tasks that demonstrate the importance of good financial management

Solution 8

Some of the tasks that demonstrate the importance of good financial management

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

CA Inter – New Syllabus
Financial Management

CHAPTER 2

Compiled by
CA Mohnish Vora (MVSIR)

Question 1

PYQ May 24

ABC Ltd. is approaching the banks for financing its business activity. You are required to describe any four forms of bank credit for the consideration of the company.

Solution 1

Some of the forms of bank credit are:

i. **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.

ii. **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.

iii. **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.

iv. **Bills Acceptance:** To obtain finance under this type of arrangement a company 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.

v. **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.

vi. **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.

vii. **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.

viii. **Short Term Loans:** In a loan account, the entire advance is disbursed at one time either in cash or by transfer to the current account of the borrower. It is a single advance and given against securities like shares, government securities, life insurance policies and fixed deposit receipts, etc.

ix. **Clean Overdrafts:** Request for clean advances are entertained only from parties which are financially sound and reputed for their integrity. The bank has to rely upon the personal security of the borrowers.

x. **Advances against goods:** Goods are charged to the bank either by way of pledge or by way of hypothecation. Goods include all forms of movables which are offered to the bank as security.

xi. Usance bills maturing at a future date or sight are discounted by the banks for approved parties. The borrower is paid the present worth and the bank collects the full amount on maturity.

xii. **Advance against documents of title to goods:** A document becomes a document of title to goods when its possession is recognised by law or business custom as possession of the goods like bill of lading, dock warehouse keeper's certificate, railway receipt, etc. An advance against the pledge of such documents is an advance against the pledge of goods themselves.

xiii. **Advance against supply of bills:** Advances against bills for supply of goods to government or semi-government departments against firm orders after acceptance of tender fall under this category. It is this debt that is assigned to the bank by endorsement of supply bills and executing irrevocable power of attorney in favour of the banks for receiving the amount of supply bills from the Government departments.

Question 2

PYQ May 24

Explain the features of crowd funding.

Solution 2

Crowd funding: crowdfunding means raising money for an individual or organisation from a group of people to fund a project, typically via internet (social media and crowdfunding websites). It generally involves collecting funds from family, friends, strangers, corporates and many more in exchange of equity (known as Equity funding), loans (known as P2P lending) or nothing at all (i.e. donation). This source of funding also helps start-up to substantiate demand for their product before entering into production.

In the crowdfunding process, three parties are involved i.e. fund raiser, mediator and fund investor. The platforms (mediator) may also charge certain fees in the form of processing fee, transaction fee, etc. either as a fixed amount or a percentage or in combination of both.

Question 3

PYQ Sep 24

Discuss any 2 advantages and 2 disadvantages of raising finance by issue of debentures.

Solution 3

Advantages of raising finance by issue of debentures are:

i. The cost of debentures is much lower than the cost of preference or equity capital as the interest is tax-deductible. Also, investors consider debenture investment safer than equity or preferred investment and, hence, may require a lower return on debenture investment.

ii. Debenture financing does not result in dilution of control.

iii. In a period of rising prices, debenture issue is advantageous. The fixed monetary outgo decreases in real terms as the price level increases. In other words, the company has to pay a fixed rate of interest.

Disadvantages of debenture financing are:

i. Debenture interest and the repayment of its principal amount is an obligatory payment.

ii. The protective covenants associated with a debenture issue may be restrictive.

iii. Debenture financing enhances the financial risk associated with the firm because of the reasons given in point (i).

iv. Since debentures need to be paid at the time of maturity, a large amount of cash outflow is needed at that time.

Question 4

PYQ Sep 24

What is Leveraged Lease? Explain.

Solution 4

Leveraged Lease: Under this lease, a third party is involved besides lessor and the lessee. The lessor borrows a part of the purchase cost (say 80%) of the asset from the third party i.e., lender and asset so purchased is held as security against the loan. The lender is paid off from the lease rentals directly by the lessee and the surplus after meeting the claims of the lender goes to the lessor. The lessor is entitled to claim depreciation allowance.

Question 5

EXPLAIN in brief the features of various types of preference shares.

Solution 5

Various types of Preference shares can be as below:

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 6

MTP July 2024

Briefly EXPLAIN the following –

i. Fully Hedged Bonds

ii. Medium Term Notes

iii. Floating Rate Notes

iv. Euro Commercial Papers

Solution 6

i. **Fully Hedged Bonds:** 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.

ii. **Medium Term Notes (MTN):** Certain issuers need frequent financing through the Bond route including that of the Euro bond. However, it may be costly and ineffective to go in for frequent issues. Instead, investors can follow the MTN programme. Under this programme, several lots of bonds can be issued, all having different features e.g. different coupon rates, different currencies etc. The timing of each lot can be decided keeping in mind the future market opportunities. The entire documentation and various regulatory approvals can be taken at one point of time.

iii. **Floating Rate Notes (FRN):** These are issued up to seven years maturity. Interest rates are adjusted to reflect the prevailing exchange rates. They provide cheaper money than foreign loans.

iv. **Euro Commercial Papers (ECP):** ECPs are short term money market instruments. They have maturity period of less than one year. They are usually designated in US Dollars.

Question 7

MTP Aug 2024

Operating leases and financial leases are traditionally the most important types of leases in financial management. However, in recent years, other types of leases have also gained significance due to their unique benefits and applications. IDENTIFY AND EXPLAIN at least four other types of leases that have become increasingly important in modern business practices.

Solution 7

i. **Sales and Lease Back:** Under this type of lease, the owner of an asset sells the asset to a party (the buyer), who in turn leases back the same asset to the owner in consideration of a lease rentals. Under this arrangement, the asset is not physically exchanged but it all happen in records only. The main advantage of this method is that the lessee can satisfy himself completely regarding the quality of an asset and after possession of the asset convert the sale into a lease agreement. Under this transaction, the seller assumes the role of lessee (as the same asset which he has sold came back to him in the form of lease) and the buyer assumes the role of a lessor (as asset purchased by him was leased back to the seller). So, the seller gets the agreed selling price and the buyer gets the lease rentals.

ii. **Leveraged Lease:** Under this lease, a third party is involved besides lessor and the lessee. The lessor borrows a part of the purchase cost (say 80%) of the asset from the third party i.e., lender and asset so purchased is held as security against the loan. The lender is paid off from the lease rentals directly by the lessee and the surplus after meeting the claims of the lender goes to the lessor. The lessor is entitled to claim depreciation allowance.

iii. **Sales-aid Lease:** Under this lease contract, the lessor enters into a tie up with a manufacturer for marketing the latter's product through his own leasing operations, it is called a sales-aid lease. In consideration of the aid in sales, the manufacturer may grant either credit or a commission to the lessor. Thus, the lessor earns from both sources i.e. From lessee as well as the manufacturer.

iv. **Close-ended and Open-ended Leases:** In the close-ended lease, the assets get transferred to the lessor at the end of lease, the risk of obsolescence, residual value etc., remain with the lessor being the legal owner of the asset. In the open-ended lease, the lessee has the option of purchasing the asset at the end of the lease period.

Question 8

MTP Nov 2024

A company is evaluating two options for financing its current assets: using short-term loans or long-term loans. HOW should the company balance risk and return in making this decision, and WHAT factors should it consider to ensure optimal financing?

Solution 8

The financing of current assets involves a trade off between risk and return. A firm can choose from short or long term sources of finance. Short term financing is less expensive than long term financing but at the same time, short term financing involves greater risk than long term financing.

Depending on the mix of short term and long term financing, the approach followed by a company may be referred as matching approach, conservative approach and aggressive approach.

In matching approach, long-term finance is used to finance fixed assets and permanent current assets and short term financing to finance temporary or variable current assets.

Under the conservative plan, the firm finances its permanent assets and also a part of temporary current assets with long term financing and hence less risk of facing the problem of shortage of funds.

An aggressive policy is said to be followed by the firm when it uses more short term financing than warranted by the matching plan and finances a part of its permanent current assets with short term financing.

Question 9

MTP Dec 24

EXPLAIN the concept of Drop – Lock Bond (DL Bonds)

Solution 9

A drop lock is an arrangement whereby the interest rate on a floating- rate note becomes fixed if it falls to a specified level. Above that level the rate floats based on a benchmark market rate, typically with a semi- annual reset. In other words, drop lock bonds marry the attributes of both floating-rate securities and fixed-rate securities. The drop lock effectively sets a floor on the rate and a guaranteed minimum return to

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CHAPTER 3

Compiled by
CA Mohnish Vora (MVSIR)

PYQ Sep 24	
1.	ZX Limited has total assets of Rs.7,20,000 and its Shareholders' equity is Rs. 4,50,000. The net profit margin of ZX Limited is 12.5% and asset turnover ratio is 1.5. Using the DuPont model, the return on equity of ZX Limited is calculated as :

a) 7.03%
b) 50%
c) 11.72%
d) 30%

MTP Dec 24	
2.	If velocity of stock is 3 months, annual sales amount to Rs.6 lakh at 20% gross profit margin and opening stock is Rs.90,000; what is the closing stock value?

a) Rs. 90,000
b) Rs. 70,000
c) Rs. 1,50,000
d) Rs. 1,00,000

MTP July 2024	
3.	Assuming Ke = 11%, Kd = 8% and Ko = 10%, Debt Equity ratio of the company

a) 2:3
b) 3:2
c) 1:2
d) 2:1

Question 1

PYQ May 24

Theme Ltd provides you the following information:	
12.5 % Debt	*Rs. 45,00,000*
Debt to Equity ratio	*1.5 : 1*
Return on Shareholder's fund	*54%*
Operating Ratio	*85%*
Ratio of operating expenses to Cost of Goods sold	*2 : 6*
Tax rate	*25%*
Fixed Assets	*Rs. 39,00,000*
Current Ratio	*1.8 : 1*
You are required to calculate:	
(i) Interest Coverage Ratio *(ii) Gross Profit Ratio* *(iii) Current Assets*	

Solution 1

Debt = Rs.45,00,000

Interest = Rs. 45,00,000 x 12.5%= 5,62,500

Debt to Equity = 1.5:1 = $\frac{\text{Total Debt}}{\text{Shareholders' Equity}}$

Return of Shareholder's funds = 54% = $\frac{\text{Net Profit after taxes}}{\text{Equity shareholders 'fund}} \times 100$

Profit after tax (PAT) = 54% x Equity = Rs.16,20,000

Profit before tax (PBT)(1-25%) = Profit after tax

= Rs.16,20,000/75% = Rs.21,60,000

Earning before interest and tax (EBIT) = PBT + Interest

= Rs.21,60,000 + Rs. 5,62,500

= Rs.27,22,500

(i) Interest Coverage Ratio = EBIT/Interest

= Rs.27,22,500/Rs.5,62,500

= 4.84 Times

(ii) Operating Profit Ratio = 1 - Operating Ratio

= 1 – 0.85 = 0.15 or 15%

0.15 = $\frac{\text{Operating Profit}}{\text{Sales}} \times 100$

Sales = EBIT or Operating Profit /0.15

= Rs. 27,22,500 / 0.15

= Rs. 1,81,50,000

Operating ratio = $\frac{\text{Operating expenses}}{\text{Cost of goods sold COGS}}$ = 2 : 6 = 1 : 3

Operating expenses = 1/3COGS

Operating cost = Sales – Operating profit

= Rs. 1,81,50,000 - Rs. 27,22,500

= Rs. 1,54,27,500

Rs. 1,54,27,500 = COGS + Operating expenses

Rs. 1,54,27,500 = COGS + 1/3COGS

COGS = Rs. 1,15,70,625

Gross profit = Sales – COGS

= 1,81,50,000 – 1,15,70,625

= Rs. 65,79,375

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

= 65,79,375/1,81,50,000

= **0.3625 or 36.25%**

Gross profit and sales can be calculated in alternative way also.

However, there will be no change in GP ratio i.e 36.25%

(iii) Current Ratio = Current Assets / Current Liabilities

= 1.8

Current Assets = 1.8 Current Liabilities

Total of Balance sheet liability = Equity + Debt + Current Liabilities

= 30,00,000+45,00,000+CL .....(2)

Total Balance sheet asset = Fixed Assets + Current Assets

= 39 lakhs + CA= 39 + 1.8CL.....(3)

Equating 2 and 3,

75,00,000 + CL = 39,00,000 + 1.8CL

0.8CL = 36,00,000

CL = Rs. 45,00,000

Current Assets = 1.8 CL = 1.8 x 45 lakhs= Rs. 81,00,000

Question 2

PYQ Sep 24

Following information relates to MNP Limited for the year ended on 31st March, 2024:

Inventory turnover ration (based on cost of goods sold)	7.5 times
Total assets turnover ration	2.5 times
Long term debt to shareholders fund	0.6:1
Debtors collection period	30 days
Gross Profit ratio	25% on sales
Current Ratio	2.9:1

Balance Sheet as on 31* March, 2024

Liabilities	Rs.	Assets	Rs.
Equity share capital	6,00,000	Fixed Assets	?
Reserves & Surplus	3,00,000	Inventories	?
Long term debt	?	Debtors	?
Creditors	3,00,000	Cash	?
Total		Total	

You are required to complete the Balance Sheet of MNP Limited as on 31st March, 2024. Assume a 360 days year and all sales are credit sales.

Solution 2

Long Term Debt/ Shareholders Fund = 0.6:1

Long Term Debt = Rs. 900000 x 0.6 = Rs. 5,40,000

Total Assets = Rs. 17,40,000

Total Asset turnover ratio = $\frac{\text{Sales}}{\text{Total assets}}$ = **3 times**

Sales = 2.5 x Rs. 17,40,000 = Rs. 43,50,000

Current ratio = $\frac{\text{Current ratio}}{\text{Current liabilities}}$ = **2.9:1**

Current Assets = 2.9 x Rs. 3,00,000 = Rs. 8,70,000

Fixed Assets = Total Assets - Current Assets

= Rs. 17,40,000 – Rs. 8,70,000 = Rs. 8,70,000

Gross profit ratio = 25% on sales

Gross Profit (GP) = Rs. 43,50,000 x 0.25 = Rs. 10,87,500

Cost of Good Sold (COGS) = Sales – GP

= Rs. 43,50,000 - Rs. 10,87,500

= Rs. 32,62,500

Current ratio = $\frac{\text{Cost of Goods Sold}}{\text{Average Inventory}}$ = **7.5 times**

Inventory = Rs. 32,62,500/7.5 = Rs. 4,35,000

Current ratio = $\frac{\text{Average Accounts Receivables}}{\text{Average Daily Credit Sales}}$ = **30 days**

Receivables = 30 days x Rs. 43,50,000/360 days = Rs. 3,62,500

Balance Sheet as on 31st March 2024

Liabilities	(Rs.)	Assets	(Rs.)
Share Capital	6,00,000	Fixed Assets	8,70,000
Reserve and Surplus	3,00,000	Inventories	4,35,000
Long-term loan	5,40,000	Debtors	3,62,500
Creditors	3,00,000	Cash (Balancing Figure)	**72,500**
	17,40,000		17,40,000

Question 3

RTP Sep 24

Following are the data in respect of LP enterprises for the year ended 31st March, 2024:

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	:	60 days
Cost of goods sold	:	Rs. 64,00,000

Liabilities	Rs.	Assets	Rs.
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 LP enterprises as on 31st March, 2024. All calculations should be in nearest Rupee. Assume 360 days in a year.

Solution 3

Working Notes:

(1) Total liability = Total Assets = Rs. 50,00,000

Debt to Total Asset Ratio = 0.40

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

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

So, Debt = 20,00,000

(2) Total Liabilities = Rs. 50,00,000

Equity share Capital + Reserves + Debt = Rs. 50,00,000

So, Reserves = Rs. 50,00,000 - Rs. 20,00,000 - Rs. 20,00,000

So, Reserves & Surplus = Rs. 10,00,000

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

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

Long Term Debt = Rs. 9,00,000

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

Accounts Payable = Rs. 11,00,000

(5) Gross Profit to sales = 20%

Cost of Goods Sold = 80% of Sales = Rs. 64,00,000

Sales = $\frac{100}{80}$ × 64,00,000 = 80,00,000

(6) Inventory Turnover = $\frac{360}{60}$

$\frac{\text{COGS}}{\text{Closing inventory}}$ = $\frac{360}{60}$

$\frac{64,00,000}{\text{Closing inventory}}$ = $\frac{360}{60}$

Closing inventory = 10,66,667

(7) Accounts Receivable period = 36 days

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

Accounts Receivable = $\frac{36}{360}$ × credit sales

= $\frac{36}{360}$ × 80,00,000 (assumed all sales are on credit)

Accounts Receivable = Rs. 8,00,000

(8) Quick Ratio = 0.9

$\frac{\text{Quick Assets}}{\text{Current liabilities}}$ = 0.9

Cash + Debtors / 11,00,000 = 0.9

Cash + 8,00,000 = Rs. 9,90,000

Cash = Rs. 1,90,000

(9) Fixed Assets = Total Assets - Current Assets = 50,00,000 – (10,66,667 + 8,00,000 + 1,90,000)

= 29,43,333

(10)Balance Sheet of LP enterprises as on 31st March 2024

Liabilities	(Rs.)	Assets	(Rs.)
Share Capital	20,00,000	Fixed Assets	29,43,333
Reserved surplus	10,00,000	Current Assets:	
Long Term Debt	9,00,000	Inventory	10,66,667
Accounts Payable	11,00,000	Accounts Receivables	8,00,000
		Cash	1,90,000
Total	50,00,000	Total	50,00,000

(***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 4

RTP Jan 2025

Vardhaman Limited gives you the following information related for the year ending 31st March, 2024:

Particulars	Amount (Rs.)
Current Ratio	3:1
Loan funds to Owned Funds Ratio	1:3
Gross Profit Ratio	25%
Stock Turnover Ratio	10
Net Working Capital	Rs. 5,00,000
Return on Total Assets (pre-tax)	15%
MPS	Rs. 20
Total Assets Turnover Ratio	2.5
Opening stock	Rs. 6,50,500
Fixed Assets	Rs. 15,00,000
75,000 equity shares of	Rs. 10 each
25,000, 12% Pref. Shares of	Rs. 10 each
Depreciation	Rs. 50,000
Interest on Debt	9%
Future Instalments	Rs. 2,00,000

Tax rate applicable to the company is 25% You are required to CALCULATE:

i. Quick Ratio

ii. Fixed Assets Turnover Ratio

iii. Debt Service Coverage

iv. Earnings per Share

v. Price Earnings Ratio

Solution 4

WN 1: Calculation of Current Assets & Current Liabilities

Current Ratio	= CA / CL = 3:1
Therefore, CA	= 3CL
Net Working Capital	= CA - CL = 5,00,000
	= 3CL (-) CL = 5,00,000
Therefore, CL	= 2,50,000,
CA	= 7,50,000

WN 2: Calculation of Average Stock Value & Closing Stock

Total Assets	= Fixed Assets + Current Assets
	= 15 L + 7.5 L = 22.50 lakhs
Total Assets Turnover Ratio	= Sales / Total Assets = 2.5 (given)
Therefore Sales	= 22.5 lakhs X 2.5
Sales	= 56,25,000
GP Margin	= 25%, therefore COGS = 75% of Sales
COGS	= 56.25 x 75% = 42,18,750
Stock Turnover Ratio	= COGS / Average Stock = 10 (given)
Average Stock	= 42,18,750 / 10 = 4,21,875
Average Stock	= Op. Stock + Cl. Stock / 2
4,21,875	= 6,50,500 + Cl. Stock / 2
Cl Stock	= 1,93,250

WN 3: Calculation of Cash Profit before Interest & Tax

Return on Total Assets (pre-tax)	= (EBIT / Total Assets)
0.15	= EBIT / 22.50 lakhs
Therefore, EBIT	= 3,37,500

Cash Profit before Int & Tax = EBIT + Depreciation

= 337500 + 50000

Cash Profit before Int & Tax = 3,87,500

WN 4 : Calculation of Loan Funds (Debt) & Owned Funds (Equity)

Debt to Equity = 1 : 3, which means 3 times Debt = Equity (Owned Funds)

As per the Accounting equation,

Equity + Debt + Current Liab. = Fixed Assets + Current Assets

3 Debt + Debt + 2,50,000 = 15,00,000 + 7,50,000

4 Debt = 20,00,000

Therefor Debt (Loan Funds) = 5,00,000

Equity (Owned Funds) = 15,00,000

WN 5: Calculation of Earnings Available to Eq. Share holders

Particulars	Amount (Rs.)
EBIT	3,37,500
(-) Int (5 lakhs x 9%)	(45,000)
EBT	2,92,500
(-) Tax @ 0.25	(73,125)
EAT	2,19,375
(-) Pref Div. (250000 x 12%)	(30,000)
Earnings For Eq. Sh Holders	1,89,375

1. Quick Ratio = {CA - Cl Stock}/CL

= 7,50,000 – 1,93,250 / 2,50,000

Quick Ratio = 2.23 : 1

2. Fixed Assets Turnover Ratio = Sales / Total Fixed Assets

= 56,25,000 / 15,00,000

Fixed Assets Turnover Ratio = 3.75 times

3. Debt Service Coverage Ratio = Cash profit before Int & Tax / Int + Instalments

= 3,87,500 / (45,000+2,00,000)

Debt Service Coverage Ratio = 1.58 times.

4. EPS = Earnings for Eq. Shareholders / No of Eq. Shareholders

= 1,89,375/75,000

EPS = Rs. 2.53

5. Price to Earnings Ratio = MPS / EPS

= 20 / 2.53

Price to Earnings Ratio = 7.91 times

Question 5

MTP July 2024

You are required to CALCULATE the Total Current Assets of Ananya Limited from the given information:

Stock Turnover	= 5 times
Sales (All credit)	= Rs.7,20,000
Gross Profit Ratio	= 25%
Current Liabilities	= 2,40,000
Liquidity Ratio	= 1.25

Stock at the end is Rs. 30,000 more than stock in the beginning.

Solution 5

1. Cost of Goods Sold = Sales – Gross Profit

= Rs. 7,20,000 – 25% x Rs. 7,20,000 = Rs. 5,40,000

2. Stock Turnover = $\frac{\text{Cost of Goods Sold}}{\text{Average Stock}} = \frac{\text{Rs. 5,40,000}}{\text{Average Stock}}$ = 5 times.

Average Stock = $\frac{\text{Rs. 5,40 ,000}}{5}$ = Rs. 1,08,000

3. Let Opening Stock be x.

Closing Stock is Rs. 30,000 more than Opening Stock.

Closing Stock = (x + 30,000)

Average Stock = $\frac{x + x + 30{,}000}{2}$ = 1,08,000.

2x = 2,16,000 – 30,000

X = $\frac{1{,}86{,}000}{2}$ = 93,000 = opening stock

Closing Stock = x + 30,000

= 93,000 + 30,000 = Rs. 1,23,000

4. Liquid Ratio = $\frac{\text{Liquid Assets}}{\text{Current Liabilities}} = \frac{\text{Liquid Assets}}{2{,}40{,}000}$ = 1.25

Liquid Assets = Rs. 3,00,000

5. Current Assets = Liquid Assets + Closing Stock

= Rs. 3,00,000 + Rs. 1,23,000 = Rs. 4,23,000

Question 6

MTP Aug 2024

Paarath Limited had recently repurchased 20,000 equity shares at a premium of 10% to its prevailing market price. The book value per share (after repurchasing) is Rs. 193.20.

Other Details of the company are as follows:

Earnings of the company (before buyback) = Rs. 18,00,000 Current MPS is Rs. 270 with a P/E Ratio of 18.

CALCULATE the Book Value per share of the company before the re- purchase.

Solution 6

i. No of Eq. Shares (before buyback) = Total Earnings (before buyback)/EPS
= 18,00,000/(270/18)
= 1,20,000 shares

ii. Buyback price = 270 + 10% premium = 297

iii. No of Eq. shares (after buyback) = 1,20,000 (-) 20,000 = 1,00,000 shares

iv. Total Book Value of Equity (after buyback) = 1,00,000 X 193.20 = 1,93,20,000

Now,

Total BV of Eq. (after buyback) = Total BV of Eq.(before buyback) (-) Amt of buyback

1,93,20,000 = x (-) (20,000 X 297)

Therefore x = Total BV (before buyback)
= 2,52,60,000

BV per share (before buyback) = 2,52,60,000 / 1,20,000
= 210.50 per share

Question 7

MTP Aug 2024

EPL Ltd. has furnished the following information relating to the year ended 31st March 2023 and 31st March, 2024:

	31st March, 2023	31st March, 2024
Share Capital	50,00,000	50,00,000
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 $1\frac{1}{2}$ 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 2024 in following format:

Liabilities	(Rs.)	Assets	(Rs.)
Share Capital	-	Fixed Assets	-
Reserve and Surplus	-	Sundry Debtors	-
Long-term loan	-	Closing Stock	-
Sundry Creditors	-	Cash in hand	-

Solution 7

Change in Reserve & Surplus = Rs. 25, 00,000 – Rs. 20,00,000 = Rs.5,00,000

So, Net profit = Rs. 5, 00,000

(i) Net Profit Ratio = 8%

$\therefore$ Sales = $\frac{5,00,000}{8\%}$ = Rs. 62, 50, 000

(ii) Cost of Goods sold = Sales – Gross profit Margin

= Rs. 62, 50,000 – 20% of Rs. 62, 50,000

= Rs. 50, 00,000

(iii) Fixed Assets = $\frac{\text{Rs.30,00,000}}{40\%}$ = Rs. 75, 00, 000

(iv) Stock = $\frac{\text{Cost of Goods Sold}}{\text{STR}} = \frac{50,00,000}{4}$ = Rs. 12,50,000

(v) Debtors = $\frac{62,50,000}{360} \times 90$ = Rs. 15,62,500

vi. Cash Equivalent = $\frac{50,00,000}{12} \times 1.5 = 6,25,000$

Balance Sheet as on 31st March 2024

Liabilities	(`)	Assets	(`)
Share Capital	50,00,000	Fixed Assets	75,00,000
Reserve and Surplus	20,00,000	Sundry Debtors	15,62,500
Long-term loan	30,00,000	Closing Stock	12,50,000
Sundry Creditors (Balancing Figure)	9,37,500	Cash in hand	6,25,000
	1,09,37,500		1,09,37,500

Question 8

MTP Nov 2024

From the following information pertaining to M/s Anya Co. Ltd., PREPARE its trading, Profit & Loss Account for the year ended on 31 March, 2024 and a summarized Balance Sheet as at that date:

	Amt in Rs.
Current Ratio	2.5
Quick Ratio	1.3
Proprietary Ratio (Fixed Assets/ Proprietary Fund)	0.6
Gross Profit to Sale Ratio	10%
Debtors Velocity	40 days
Sales	730,000
Working Capital	120,000
Bank Overdraft	15,000
Share Capital	2,50,000

Closing Stock is 10% more than opening Stock.

Net Profit is 10% of Proprietary Funds.

Solution 8

1. Current Liabilities and Current Assets:

Let Current Liabilities be x

Given Current ratio = 2.5

Current Assets = 2.5x

Working Capital = 2.5x- x =1.5x

or x = 1,20,000/1.5 = 80,000

So Current Liabilities = 80,000

And Current Assets = 80,000 x 2.5 = 2,00,000

2. Closing Stock

Given, Quick Ratio = 1.3

$$\frac{\text{Current Assets - Closing Stock}}{\text{Current Liabilities - Bank Overdraft}} = 1.3$$

$$\frac{2,00,000 - \text{Closing Stock}}{80,000 - 15,000} = 1.3$$

or Closing Stock = 2,00,000-84,500 =1,15,500

Opening Stock = 1,15,000 x 100/110 =1,05,000

3. Debtors

Given Debtors Velocity = 40 days

$\frac{\text{Debtors}}{\text{Sales}} \times 365 = 40$

Debtors $= \frac{7,30,000 \times 40}{365} = 80,000$

4. Gross Profit = 7,30,000 x 10/100 = 73,000

5. Proprietary Fund:

Proprietary Ratio = 0.6

$\frac{\text{Fixed Assets}}{\text{Proprietary Fund}} = 0.6$

$\frac{\text{Working Capital}}{\text{Proprietary Fund}} = 0.4$

Proprietary Fund $= \frac{1,20,000}{0.4} = 3,00,000$

Fixed Assets = 3,00,000 x 0.6 = 1,80,000

Net Profit = 10% of Proprietary Fund = 30,000

M/s Anya Co Ltd.

Trading and Profit and loss Account for the year ended 31 March 2024

Particulars	Amount in Rs.	Particulars	Amount in Rs.
To Opening Stock	1,05,000	By Sales	7,30,000
To Purchase (Balancing Fig.)	6,67,500	By Closing Stock	1,15,500
To Gross Profit	73,000		
	8,45,500		**8,45,500**
To Operating Expenses (Balancing Figure)	43,000	By Gross Profit	73,000
To Net Profit	30,000		
	73,000		**73,000**

Balance Sheet as on 31 March 2024

Liabilities	Amount in Rs.	Assets	Amount in Rs.
Share Capital	2,50,000	Fixed Assets	1,80,000
Reserves & Surplus (Opening bal. + current profit)	50,000		
Current Liabilities		*Current Assets*	
Bank Overdraft	15,000	Stock	1,15,500
Other Current Liabilities	65,000	Debtors	80,000
		Other Current Assets	4,500
	3,80,000		**3,80,000**

Question 9

MTP Dec 24

The financial statement and operating results of Alpha Limited revealed the following position as on 31st March, 2023:

— Equity share capital (Rs. 10 fully paid share)	Rs. 20,00,000
— Working capital	Rs. 6,00,000
— Bank overdraft	Rs. 1,00,000
— Current ratio	2.5 : 1
— Liquidity ratio	1.5 : 1
— Proprietary ratio (Net fixed assets/Proprietary fund)	.75 : 1
— Cost of sales	Rs. 14,40,000
— Debtors velocity	2 months
— Stock turnover based on cost of sales	4 times
— Gross profit ratio	20% of sales
— Net profit ratio	15% of sales

Closing stock was 25% higher than the opening stock. There were also free reserves brought forward from earlier years. Current assets include stock, debtors and cash only. The current liabilities expect bank overdraft treated as creditors.

Expenses include depreciation of Rs. 90,000.

The following information was collected from the records for the year ended 31st March, 2024:

- Total sales for the year were 20% higher as compared to previous year.

— Balances as on 31st March, 2024 were : Stock Rs. 5,20,000, Creditors Rs. 4,15,000, Debtors Rs. 4,95,000 and Cash balance Rs. 3,10,000.

— Percentage of Gross profit on turnover has gone up from 20% to 25% and ratio of net profit to sales from 15% to 16%.

— A portion of Fixed assets was very old (book values Rs. 1,80,000) disposed for Rs. 90,000. (No depreciations to be provided on this item).

— Long-term investments were purchased for Rs. 2,96,600.

— Bank overdraft fully discharged.

- Percentage of depreciation to Fixed assets to be provided at the rate in the previous year.

PREPARE Balance Sheet as on 31st March, 2023 and 31st March, 2024.

Solution 9

Balance Sheets of Alpha Limited

Liabilities	Rs.		Assets	Rs.	
	31 March 2023	31 March 2024		31 March 2023	31 March 2024
Equity share capital (Rs. 10 each fully paid)	20,00,000	20,00,000	Fixed Assets (Rs.18,90,000- Rs.90,000)	18,00,000	15,39,000
Reserve and Surplus (balancing)	1,30,000	1,30,000	Long term investment	[illegible]	2,96,600
Profit & Loss A/c (15% of sales)	2,70,000	6,15,600	**Current Assets** (Rs. 10,00,000)		
Current Liabilities			Stock	4,00,000	5,20,000
Bank Overdraft	1,00,000	[illegible]	Sundry Debtors	3,00,000	4,95,000
Creditors	3,00,000	4,15,000	Cash at Bank (Balancing)	3,00,000	3,10,000
Total	**28,00,000**	**31,60,600**	**Total**	**28,00,000**	**31,60,600**

Calculation for 31st March, 2023

(i) Calculation of Current Liabilities

Suppose that Current Liabilities = x, then current assets will be 2.5 x

Working capital = Current Assets – Current Liabilities

6,00,000	= 2.5x – x
x = 6,00,000 / 1.5	= Rs. 4,00,000 (C.L.)
Other Current Liabilities Overdraft	= Current Liabilities – Bank
(Creditors)	= 4,00,000 – 1,00,000 = Rs. 3,00,000
Current Assets	= 2.5 x 4,00,000 = Rs. 10,00,000

(ii) Liquid Ratio = $\frac{\text{Liquid Assets}}{\text{Current Liabilities}}$

1.5 = $\frac{\text{Liquid Assets}}{4,00,000}$

Liquid assets = Rs.6,00,000

Liquid assets = Current Assets – Stock

6,00,000 = 10,00,000 – Stock

So, Stock = Rs. 4,00,000

iii. Calculation of fixed assets: Fixed assets to proprietary fund is 0.75, working capital is therefore 0.25 of proprietary fund. So,

Fixed Assets = 6,00,000 / 0.25 x 0.75 = Rs. 18,00,000

iv. Sales = (14,40,000 / 80) X 100 = Rs. 18,00,000

(v) Debtors = $\frac{2}{12}$ x Sales

2 / 12 - 18,00,000 = Rs. 3,00,000

vi. Net profit = 15% of Rs.18,00,000 = Rs. 2,70,000

Calculation for the year 31st March, 2024

vii. Sales = 18,00,000 + (18,00,000 X 0.2) = 21,60,000

viii. Calculation of fixed assets

	Rs.		Rs.
To Opening balance	18,00,000	By Banks (Sale)	90,000
		By Loss on sales of Fixed asset	90,000
		By P & L (Dep.) (5% as in previous year)	81,000
		By Balance b/d	15,39,000
Total	18,00,000		18,00,000

ix. Net profit for the year 2011, 16% X 21,60,000 = Rs. 3,45,600

Total Profit = 2,70,000 + 3,45,600 = Rs. 6,15,600

CA Inter – New Syllabus
Financial Management

CHAPTER 4

Compiled by
CA Mohnish Vora (MVSIR)

PYQ Sep 24

1. The capital structure of KPS Limited includes 5,00,000 equity shares of Rs. 10 each. The market price of equity share (cum-dividend) is Rs. 75 per share. The company has declared to pay dividend on equity shares @ Rs. 6 per share which will be paid within next three days. The company has a history of consistent growth in its dividends. It has been predicted that in the next year KPS Limited will pay dividend on its equity shares@ Rs. 7.59 per share. The rate of dividend growth will be maintained in foreseeable future. The cost of equity is calculated as:

a) 36.5%
b) 34.5%
c) 37.5%
d) 38.5%

RTP Jan 2025

2. Abhi Ltd is an all equity financed company. It is considering replacing Rs. 275 lakhs equity shares with 15% debentures of the same amount. Current Market value of the company is 1750 lakhs with cost of capital at 20%. Future EBITs are going to be constant and entire earnings are going to be distributed. Corporate Tax Rate can be assumed to be 30%. What will be the new cost of equity of the firm?

a) 19.11%
b) 17.53%
c) 10.50%
d) 20.62%

MTP Aug 2024

3. A company has issued bonds with a face value of Rs. 100,000 at an annual coupon rate of 8%. The bonds are currently trading at 95% of their face value. What is the approximate cost of debt for the company before taxes.

a) 9.00%
b) 7.65%
c) 8.00%
d) 8.42%

MTP Aug 2024

4. A company is considering changing its capital structure by increasing its debt ratio from 40% to 55%. What is the likely impact on the company's cost of equity, assuming all other factors remain constant?

a) Cost of equity will be unaffected by debt ratio
b) Cost of equity will remain unchanged
c) Cost of equity will decrease
d) Cost of equity will increase

Question 1

PYQ May 24

The capital structure of Shine Ltd. as on 31.03.2024 is as under:

Particulars	Amount (Rs.)
Equity share capital off 10 each	45,00,000
15% Preference share capital of f 100 each	36,00,000
Retained earnings	32,00,000
13% Convertible Debenture off 100 each	67,00,000
11% Term Loan	20,00,000
Total	2,00,00,000

Additional information:

A) Company issued 13% Convertible Debentures of Rs. 100 each on 01.04.2023 with a maturity period of 6 years. At maturity, the debenture holders will have an option to convert the debentures into equity shares of the company in the ratio of 1 : 4 (4 shares for each debenture).

B) The market price of the equity share is Rs. 25 each as on 31.03.2024 and the growth rate of the share is 6% per annum.

Preference stock, redeemable after eight years, is currently selling at Rs. 150 per share.

(C) The prevailing default-risk free interest rate on 10-year GOI treasury bonds is 6%. The average market risk premium is 8% and the Beta of the company is 1.54.

Corporate tax rate is 25% and rate of personal income tax is 20%.

Solution 1

You are required to calculate the cost of:
(i) Equity Share Capital
(ii) Preference Share Capital
(iii) Convertible Debenture
(iv) Retained Earnings
(v) Term Loan

(i) Cost of Equity Share capital

As per CAPM Model Ke = Rf + ß (Rm – Rf)

Rf = 6%

B = 1.54

Rm-Rf = 8%

Ke = 6% + 1.54(8%)

Ke = **18.32%**

(ii) Cost of Preference Share capital

n = 8

Net Proceeds (NP) = 150

Redemption Value (RV) = 100

Preference Dividend (PD) = 15

$$Kp = \frac{PD + \frac{(RV - NP)}{n}}{\frac{(RV + NP)}{2}} \qquad Kp = \frac{15 + \frac{(100 - 150)}{8}}{\frac{(100 + 150)}{2}}$$

Kp = 7%

Alternatively, if we take NP as 100 and RV as 100, then solution can be done in the following way: Cost of Preference Share capital

n = 8

Net Proceeds (NP) = 100

Redemption Value (RV) = 150

Preference Dividend (PD) = 15

$$Kp = \frac{PD + \frac{(RV - NP)}{n}}{\frac{(RV + NP)}{2}}$$

$$Kp = \frac{15 + \frac{(150 - 100)}{8}}{\frac{(150 + 100)}{2}} \qquad Kp = 7\%$$

(iii) Cost of convertible debenture

Cash Redemption Value (RV) = 100

Share Redemption Value (RV):

Value of share after 5 years = 25 x (1.06)5 = 33.46

Share Redemption Value (RV) = 33.46 X 4=133.82

Therefore, investor will choose share redemption.

Redemption Value (RV) = 133.82

Net Proceeds (NP) = 100

n = 5

Interest (I) = 13

Tax (t) = 25%

$$Kp = \frac{I(1-t) + \frac{(RV - NP)}{n}}{\frac{(RV + NP)}{2}} \qquad Kp = \frac{13(1-0.25) + \frac{(133.82 - 100)}{5}}{\frac{(133.82 + 100)}{2}}$$

Kd = 14.13%

(iv) Cost of Retained Earnings

Kr = Ke (1-tp)= 18.32 % x (1-0.20) = 14.66%

We can also take cost of equity as cost of retained earnings,

Accordingly, Kr = Ke = 18.32%

(v) Cost of Term Loan

= 11% x (1-0.25) = 8.25%

Question 2

PYQ Sep 24

Capital structure of T Limited as on 1st April 2024 is as under:

	Rs.
Equity Share Capital (Rs. 10 per share)	50,00,000
10% Debentures (Rs. 100 per Debenture)	40,00,000
12% Preference Share Capital (10,000 shares of Rs. 100 each)	10,00,000

Additional Information:

(1) The risk free rate of return is 10%. The Beta of T Ltd. is 1.75 and the return on market portfolio is 12%. The Equity shares have a current market price of Rs. 70 per share.

(2) The debentures are trading at a market price of t80 per debenture. The Debentures are to be redeemed after 5 years at par.

(3) Preference shares are redeemable after 5 years at a premium of 5%, presently selling at Rs. 104 per share.

(4) The Company pays tax at a rate of 30%

(5) The Cost of Debentures are to be calculated on Yield to Maturity approach.

(6) The present value factors at 10% and 14% are:

Year	1	2	3	4	5
VlFo.10,t	0.9.09	0.826	0.751	0.683	0.621
VlFo.14,t	0.877	0.769	0.675	0.592	0.519

You are required to calculate Weighted Average Cost of Capital (after tax) of T Limited using Market value weights.

Solution 2

Cost of Equity Share Capital using Capital Asset Pricing Model (CAPM) Approach

Ke = Rf + ß (Rm – Rf)

Ke = 0.10 + 1.75 (0.12 – 0.10)

= 0.10 + 1.75 (0.02) = 0.135 or **13.5%**

Cost of Redeemable Debentures using Yield to Maturity (YTM) Approach

Step-1: Identification of relevant cash flows

Year	Cash flows
0	Current market price (P_0) = Rs. 80
1 to 5	Interest net of tax [I(1-t)] = 10% of Rs. 100 (1-0.30) = Rs. 7
5	Redemption value (RV) = Face value i.e. Rs. 100

Step- 2: Calculation of NPVs at two discount rates

Year	Cash flows (Rs.)	Discount factor @ 10% (L)	Present Value (Rs.)	Discount factor @ 14% (H)	Present Value (Rs.)
0	80	1.000	(80.000)	1.000	(80.000)
1 to 5	7	3.790	26.530	3.432	24.024
5	100	0.621	62.100	0.519	51.900
NPV			**+8.630**		**-4.076**

Step- 3: Calculation of Cost of Debentures (Kd)

$$Kd = L + \frac{NPVL}{NPVL - NPVH}(H - L) = 10\% + \frac{Rs.8.630}{Rs.8.630 - (Rs.-4.076)}(14\% - 10\%) = 12.72\%$$

Cost of Redeemable Preference Share Capital using approximation method

$$Kp = \frac{Pref,dividend + \frac{(RV - NP)}{n}}{\frac{(RV - NP)}{2}}$$

$$= \frac{12 + \frac{(105 - 104)}{5}}{\frac{(105 + 104)}{2}} = 11.67\%$$

Calculation of WACC using market value weights

Source of Capital	Market Value	Weights	After tax cost of capital	WACC (Ko)
	(Rs.)	(a)	(b)	(c) = (a)×(b)
Equity Share Capital (Rs. 70 x 5,00,000 equity shares)	3,50,00,000	0.8919	0.1350	**0.1204**
10% Debentures (Rs. 80 × 40,000)	32,00,000	0.0816	0.1272	**0.0104**
12% Preference Share Capital (Rs. 104 × 10,000 shares)	10,40,000	0.0265	0.1167	**0.0031**
	3,92,40,000	1.000		**0.1339**

WACC (Ko) = 0.1339 or 13.39%

Question 3

RTP Sep 24

BS Ltd. has the following capital structure at book-value as on 31st March, 2024:

Particulars	(Rs.)
Equity share capital (10,00,000 shares)	3,00,00,000
11.5% Preference shares	60,00,000
10% Debentures	1,00,00,000
	4,60,00,000

The equity shares of the company are sold for Rs. 300. It is expected that the company will pay next year a dividend of Rs. 15 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.

ii. COMPUTE the new WACC, if the company raises an additional Rs. 50 lakhs debt by issuing 10 years 12% debentures but the yield on debentures of similar maturity and risk class is 13%; flotation cost is 2%. Face value of the debenture is Rs.100. This would result in increasing the expected equity dividend to Rs. 20 and leave the growth rate unchanged, but the price of equity share will fall to Rs. 250 per share.

Solution 3

(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)	3,00,00,000	0.652	10.00	6.52
11.5% Preference share capital	60,00,000	0.130	11.50	1.50
10% Debentures (W.N.2)	1,00,00,000	0.218	6.50	1.42
Total	4,60,00,000	1.000		9.44

Working Notes:

1. Cost of Equity Capital:

$$K_e = \frac{\text{Expected dividend}(D_1)}{\text{Current Market Price}(P_0)} + \text{Growth}(g)$$

$$= \frac{Rs.15}{Rs.30} + 0.05$$

$$= 10\%$$

2. Cost of 10% Debentures

$$K_d = \frac{\text{Interest}(1-t)}{\text{Netproceeds}}$$

$$= \frac{\text{Rs.10,00,000 } (1- 0.35)}{\text{Rs.1,00,00,000}}$$

$$= 0.065 \text{ or } 6.5\%$$

(ii) Computation of Weighted Average Cost of Capital based on new capital structure

Source of Capital	New Capital structure (Rs.)	Weights (a)	After tax cost of capital (%) (b)	WACC (%) (a) x (b)
Equity share capital (W.N.3)	3,00,00,000	0.588	13.00	7.64
11.5% Preference share capital	60,00,000	0.118	11.50	1.36
10% Debentures (W.N.2)	1,00,00,000	0.196	6.50	1.27
12% Debentures (W.N.4)	50,00,000	0.098	9.21	0.90
Total	5,10,00,000	1.000		11.17

Working Notes:

3. Cost of Equity Capital:

$$K_e = \frac{\text{Rs. 20}}{\text{Rs. 250}} + 0.05 = 13\%$$

4. Cost of 12% Debentures

$$K_d = \frac{I(1-t)+\left(\frac{RV-NP}{n}\right)}{\frac{RV+NP}{2}}$$

$$K_d = \frac{\text{Rs. 12}(1-0.35) + \left(\frac{\text{Rs. 100} - \text{Rs.90.31*}}{\text{10 Years}}\right)}{\frac{\text{Rs. 100} + \text{Rs. 90.31*}}{2}}$$

$$= \frac{\text{Rs. 8.769}}{\text{Rs. 95.155}} = 0.0921$$

*Since yield on similar type of debentures is 13 per cent, the company would be required to offer debentures at discount.

Market price of debentures (approximation method) = Rs. 12 ÷ 0.13 = Rs. 92.31

Sale proceeds from debentures = Rs. 92.31 – Rs. 2 (i.e., floatation cost) = Rs. 90.31

Question 4

RTP Sep 24

Company XYZ is unlevered and has a cost of equity of 20 percent and a total market value of Rs. 10,00,00,000. Company ABC is identical to XYZ in all respects except that it uses debt finance in its capital structure with a market value of Rs. 4,00,00,000 and a cost of 10 percent. FIND the market value of equity, weighted average cost of capital and cost of equity of ABC if the tax advantage of debt is 25 percent.

Solution 4

Computation of Market Value of Equity of Company ABC

Total market value of Company ABC $V_{ABC} = V_{XYZ} + Bt$.....(i)

Where,

V_{ABC} = Market value of leveraged company.

V_{XYZ} = Market value of unleveraged company.

B = Market value of debt.

t = Tax rate.

Now, given

V_{xyz} = Rs. 10,00,00,000

B = Rs. 4,00,00,000

t = 25%

By substituting values in equation (i) above, we have

V_{ABC} = Rs. 10,00,00,000 + Rs. 4,00,00,000 × 0.25%

= Rs. 11,00,00,000

The Market Value of Equity (s) of Company ABC,

= Rs. 11,00,00,000 – Rs. 4,00,00,000

= Rs. 7,00,00,000

Weighted Average Cost of Capital of Company ABC

$WACC_{ABC} = WACCXYZ [1- Bt/V_{ABC}]$

$$= 20\% \left[1 - \frac{4,00,00,000}{11,00,00,000} \times 0.25\right]$$

= 18.18%

Where,

WACCABC is the weighted average cost of capital of the levered company ABC

WACCXYZ is the weighted average cost of capital of the unlevered company XYZ.

Cost of Equity of company ABC

REabc = RExyz+ [(1 - t)B/E(RExyz- RB)]

20%+[(1-.25)4,00,00,000/7,00,00,000(.20-.10)]

24.28% approx.

Where,

RE_{ABC} is the cost of equity in the levered Company ABC.

RExyz is the cost of equity in the unlevered Company XYZ.

E is the market value of equity.

B is the market value of debt.

RB is the cost of debt

Question 5

The Capital Structure of Samyaktva Limited is as follows:

	Amount (in Rs.)
12% Debentures	3,50,000
14% Pref. Shares	4,50,000
Equity shares (Face value of Rs. 10 each)	8,50,000
	16,50,000

Additional Information:

1. Rs. 100 per debentures redeemable at premium of 6% with floatation cost of 5% & 5 years of maturity. The current market price of the debenture is Rs. 115

2. Rs. 100 per preference shares redeemable at a premium of 10%, issued at discount of 2% with a floatation cost of 5% on the issue price. The current market price per preference share is Rs. 108. It has maturity of 10 years

3. An equity share has a floatation cost of Rs. 5 with a market price per share currently quoted at Rs. 30. Samyukta Limited paid a last dividend of Rs. 4 and the company is expected to give an annual growth rate of 9% on the dividends. The company has a practice of paying all the earnings in the form of dividends.

4. Corporate Taxation rate is at 25% CALCULATE WACC using market value weights

Solution 5

WN 1: Calculation of Cost of Debt

$$Kd = \frac{I(1-t)+\frac{(RV-NP)}{n}}{\frac{(RV+NP)}{2}}$$

RV = 100 + 6% = 106

n = term = 5 years

t = tax = 0.25

NP = Issue Price – Floatation cost

= 115 – 5% (Issue price will be at Market price and no Face Value)

= 109.25

$$Kd = \frac{12(1-0.25)+\frac{(106-109.25)}{5}}{\frac{(106+109.25)}{2}}$$

Therefore Kd = 7.76%

WN 2: Calculation of Cost of Preference Shares

$$Kp = \frac{PD+\frac{(RV-NP)}{n}}{\frac{(RV+NP)}{2}}$$

RV = 100 + 10% = 110

n = term = 10 years

NP = Issue Price – Floatation cost

Issue Price = (108 – 2%) = 105.84

Net Proceeds = 105.84 (-) 5% = 100.55

$$Kp = \frac{14+\frac{(110-100.55)}{10}}{\frac{(110+100.55)}{2}}$$

Therefore Kp = 14.19%

WN 3: Calculation of Cost of Equity

Since growth rate is given, Ke is to be calculated by using Gordon's formula As per Gordon,

$$Ke = \frac{D1}{P0} + g$$

Where, D1 = Expected dividend at the end of Year 1

Po = Current Market Price (-) Floatation cost

G = growth rate in dividends

$$Ke = \frac{4 + 9\% \times 4}{30-5} + 0.09$$

Ke = 26.44%

4. **Calculation of WACC using Market Value Weights**

Sources	Amount of Capital (Rs.)	Weights (W)	Cost (K)	W X K
Debentures	4,02,500 (3,500 x 115)	0.1171	7.76 (WN 1)	0.9087
Preference shares	4,86,000 (4,500 x 108)	0.1413	14.19 (WN 2)	2.00
Equity shares	25,50,000 (85,000 x 30)	0.7416	26.44 (WN 3)	19.6079
	34,38,500			Ko = 22.52%

Question 6

RTP Jan 2025

EXPLAIN any four Methods for Computation of Cost of Equity Capital.

Solution 6

Cost of equity capital is the rate of return which equates the present value of expected dividends with the market share price.

Methods for Computation of Cost of Equity Capital

- Dividend Price Approach (: Here, cost of equity capital is computed by dividing the expected dividend by market price per share.

$$K_e = \frac{D_1}{P_o}$$

- Earning/ Price Approach: The advocates of this approach co- relate the earnings of the company with the market price of its share.

$$K_e = \frac{E}{P}$$

- Realized Yield Approach: According to this approach, the average rate of return realized in the past few years is historically regarded as 'expected return' in the future. The yield of equity for the year is:

$$Y_t = \frac{D_t + P_t}{P_{t-1}}$$

- Capital Asset Pricing Model Approach (CAPM): CAPM model describes the risk-return trade-off for securities. It describes the linear relationship between risk and return for securities.

Ke = Rf + ß (Rm – Rf)

Question 7

MTP July 2024

Gitarth Limited has a current debt equity ratio of 3:7. The company is presently considering several alternative investment proposals costing less than Rs. 25 lakhs. The company will always raise the funds required without disturbing its current capital structure ratio.

The cost of raising debt and equity are as follows-

Cost of Project	Kd	Ke
Upto 5 lakhs	10%	12%
Above 5 lakhs & upto 10 lakhs	12%	13.5%
Above 10 lakhs & upto 20 lakhs	13%	15%
Above 20 lakhs	14%	16%

Corporate tax rate is 30%, CALCULATE:

i. Cut off rate for two Projects I & Project II whose fund requirements are 15 lakhs & Rs. 26 lakhs respectively.

ii. If a project is expected to give an after-tax return of 13%, determine under what conditions it would be acceptable.

Solution 7

Calculation of slab wise Overall Cost of Capital **(i)**

Project Cost	Capital Source	Weights (w)	Cost (k)	w x k (%)
Upto 5 Lakhs	Debt	0.3	10	3
	Equity	0.7	12	8.4
			Ko	**11.4**
Above 5 lakhs upto 10 lakhs	Debt	0.3	12	3.6
	Equity	0.7	13.5	9.45
			Ko	**13.05**
Above 10 lakhs upto 20 lakhs	Debt	0.3	13	3.9
	Equity	0.7	15	10.5
			Ko	**14.4**

Above 20 lakhs	Debt	0.3	14	4.2
	Equity	0.7	16	11.2
			Ko	**15.4**

Cost of Raising funds for Project I

Total Capital	Ko(%)	Total Cost (in Rs.)
5,00,000	11.40	57,000
5,00,000	13.05	65,250
5,00,000	14.40	72,000
15,00,000		**1,94,250**

Overall COC (%) = Total Cost (in Rs.) / Total Capital

= 1,94,250/15,00,000 * 100

= 12.95 %

Cost of Raising funds for Project II

Total Capital	Ko(%)	Total Cost (in Rs.)
5,00,000	11.4	57,000
5,00,000	13.05	65,250
10,00,000	14.4	1,44,000
6,00,000	15.4	92,400
26,00,000		**3,58,650**

Overall COC (%) = 358650 / 2600000 * 100 = 13.79%

(ii) If any project is expected to give an after-tax return of 13%, it can be accepted only if the maximum Overall COC (%) of that project equals 13% or less, as at 13%, project would be at break-even i.e earning 13% from the project and incurring 13% COC.

So, under that scenario, Project I can be taken as its COC is

12.95% whereas Project II can't be taken as its COC is 13.79%.

Maximum Value of the Project that can be taken at 13% is approx. (Using IRR technique Interpolation)

At 15 Lakhs Ko = 12.95%

At 26 Lakhs Ko = 13.79%

By interpolation, maximum value of Project at 13% will be 15 Lakhs + {(0.05 x 11)/0.84}

= 15.6548 lakhs

Question 8

MTP Aug 2024

Calculate the WACC using the following data by using Market Value weights:

Particulars	Rs.
Equity Shares (Rs.10 per equity share)	15,00,000
Reserves & Surplus	5,00,000
Preference Shares (Rs.100 per preference share)	7,50,000
Debentures (Rs.100 per debenture)	5,50,000

The market prices of these securities are:

Debentures - Rs. 105 per debenture,

Preference shares - Rs.115 per preference share

Equity shares - Rs. 27 per equity share

Additional information:

1. Rs. 100 FV per debenture redeemable at premium of 10%, 10% coupon rate, 4% floatation costs, 10-year maturity.
2. Rs. 100 FV per preference share redeemable at par, 12% coupon rate, 2% floatation cost and 10-year maturity.
3. Equity shares have Rs. 4.5 floatation cost and market price of 27 per share.

The last dividend paid by the company was Rs. 2 which is expected to grow at an annual growth rate of 9%. The firm has the practice of paying all earnings as a dividend.

The corporate tax rate is 25%. To calculate the overall cost of debt & preference shares, take the average of their respective costs using YTM & approximation method.

Solution 8

WN-1 : Calculation of Cost of Debt (Kd)

Approximation Method = $\frac{\text{Int}\,(1-t)+(RV - NP)/N}{(RV + NP)/2}$

RV = 100 + 10% = 110, NP = 105 - 4% = 100.8

$= \frac{10\,(1- 0.25)+(110 - 100.8)/10}{(110 + 100.8)/2} = 7.99\%$

YTM Method:

CMP (Po) (-) Floatation Cost = {Int(1-t) × PVAF (r%,10years)} + {RV × PVIF (r%,10th Year)}

105 - 4% = {10 (1 – 0.25) × PVAF (r%,10 years)} + {110 × PVIF (r%,10th year)}

Using trial and error method, NPV at 5% & 10%

Year	Cash flows	Disc Factor @ 5%	PV (Rs.)	Disc Factor @ 10%	PV (Rs.)
0	-100.8	1	-100.8	1	-100.8
1 to 10	7.5	7.7217	57.91275	6.1446	46.0845
10	110	0.6139	67.529	0.3855	42.405
			24.64175		**-12.3105**

$$IRR = 5 + \frac{24.64175}{24.64175 - (-12.3105)} \times (10-5) = 8.33\%$$

Therefore overall cost of debt (Kd) = (7.99 + 8.33) / 2 = 8.16%

WN-2 : Calculation of Cost of Preference (Kp)

$$\text{Approximation Method} = \frac{\text{Pref. Div.} + (RV - NP)/N}{(RV + NP) / 2}$$

RV = 100 NP = 115 - 2% = 112.7

$$= \frac{12 + (100 - 112.7)/10}{(100 + 112.7) / 2} = 10.09\%$$

YTM Method:

CMP (Po) (-) Floatation Cost = {Pref Div × PVAF (r%,10years)} + {RV × PVIF (r%,10th Year)}

115 - 2% = {12 × PVAF (r%,10 years)} + {100 × PVIF (r%,10th year)}

Using trial and error method, NPV at 5% & 10%

Year	Cash flows	Disc Factor @ 5%	PV (Rs.)	Disc Factor @ 10%	PV (Rs.)
0	-112.7	1	-112.7	1	-112.7
1 to 10	12	7.7217	92.6604	6.1446	73.7352
10	100	0.6139	61.39	0.3855	38.55
			41.3504		**-0.4148**

$$IRR = 5 + \frac{41.3504}{41.3504 - (-0.4148)} \times (10-5) = \mathbf{9.95\%}$$

Therefore, overall cost of debt (Kp) = (10.09 + 9.95) / 2 = 10.02%

WN-3 : Calculation of Cost of equity (Ke)

Ke = {D1 / (Po - Floatation)} + G

= {2+9% / 27 – 4.5} + 0.09

= 18.69%

Calculation of WACC using market value weights

Source of Capital	Working	Market Value	Weights	Cost (K)	WACC (Ko)
		(Rs.)	(A)	(B)	(A x B)
Equity	27 x 150000	40,50,000	0.7377	18.69	13.7877
Reserves	Included in equity	-	-	-	-
Preference	115 x 7500	8,62,500	0.1571	10.02	1.5741
Debentures	105 x 5500	5,77,500	0.1052	8.16	0.8584
		54,90,000	**1**		**16.22%**

WACC (Ko) = 16.22%

Question 9

MTP Nov 2024

P Ltd. has the following capital structure at book-value as on 31st March, 2024:

Particulars	(Rs.)
Equity share capital (1,00,000 shares)	10,00,000
12% Preference shares	15,00,000
10% Debentures	15,00,000
	40,00,000

Additional Information:

1. The equity shares of P Ltd. are currently traded at ₹ 100 per share.
2. The company expects to pay a dividend of ₹ 5 per equity share next year, with dividends projected to grow perpetually at a rate of 5% p.a.
3. The corporate tax rate is 35%.

Requirements:

1. CALCULATE the Weighted Average Cost of Capital (WACC) based on the current capital structure.
2. RECALCULATE the WACC if the company raises an additional ₹ 5 lakhs of debt by issuing 12% debentures. This change will result in:

- An increase in the expected equity dividend to ₹ 7 per share while the growth rate remains constant at 5%.
- A decrease in the market price of equity shares to ₹90 per share

Solution 9

(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)	10,00,000	0.250	10.000	2.500
12% Preference share capital	15,00,000	0.375	12.000	4.500
10% Debentures (W.N.2)	15,00,000	0.375	6.500	2.438
Total	40,00,000	1.000		9.438

Working Notes:

1. Cost of Equity Capital:

$$K_e = \frac{\text{Expected dividend } (D_1)}{\text{Current Market Price } (P_0)} + \text{Growth}(g)$$

$$= \frac{\text{Rs. } 5}{\text{Rs. } 100} + 0.05$$

$$= 10\%$$

2. Cost of 10% Debentures

$$K_d = \frac{\text{Interest}(1-t)}{\text{Net proceeds}}$$

$$= \frac{\text{Rs. } 1,50,000\ (1-0.35)}{\text{Rs. } 15,00,000}$$

$$= 0.065 \text{ or } 6.5\%$$

(ii) Computation of Weighted Average Cost of Capital based on new capital structure

Source of Capital	New Capital structure (Rs.)	Weights (a)	After tax cost of capital (%) (b)	WACC (%) (a) × (b)
Equity share capital (W.N.3)	10,00,000	0.222	12.777	2.836
12% Preference share capital	15,00,000	0.334	12.000	4.000
10% Debentures (W.N.2)	15,00,000	0.333	6.500	2.165
12% Debentures (W.N.4)	5,00,000	0.111	7.800	0.866
Total	45,00,000	1.000		9.867

Working Notes:

3. Cost of Equity Capital:

$$Ke = \frac{Rs.\ 7}{Rs.\ 90} + 0.05$$

$$= 12.777\%$$

4. Cost of 12% Debentures

$$Kd = \frac{Rs.\ 60,000\ (1-0.35)}{Rs.\ 5,00,000}$$

$$= 0.078 \text{ or } 7.8\%$$

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CHAPTER 5

Compiled by
CA Mohnish Vora (MVSIR)

MTP July 2024	
8.	**Given:** **Earnings available to the equity shareholders Rs. 30 Lakhs,** **Cost of equity is 15%,** **Debt outstanding Rs. 150 Lakhs** **Value of the firm will be –**
a) Rs. 200 Lakhs b) Rs. 250 Lakhs **c) Rs. 350 Lakhs** d) Rs. 300 Lakhs	

MTP Nov 2024	
8.	**Under Modigliani and Miller's Dividend Irrelevance Theory, a company has ₹1,00,000 to distribute. If it chooses to retain the earnings instead of paying dividends, what happens to shareholder wealth?**
a) Increases due to reinvestment opportunities. b) Decreases due to lower immediate returns. **c) Remains unchanged becausevalue depends on earnings and investment policy.** d) Depends on the dividend payout ratio	

Question 1

PYQ May 24

Following data is available in respect of Levered and Unlevered companies having same business risk:

Capital employed = Rs. 2,00,000, EBIT = Rs. 25,000 and Ke = 12.5%

Sources	Levered Company (f)	Unlevered Company (Rs.)
Debt (@8%)	75,000	Nil
Equity	1,25,000	2,00,000

An investor is holding 12% shares in levered company. Calculate the increase in annual earnings of investor if he switches over his holding from Levered to Unlevered company.

Solution 2(b)

1. Valuation of firms

Particulars	Levered Firm (Rs.)	Unlevered Firm (Rs.)
EBIT	25,000	25,000
Less: Interest on debt (8% × Rs.75,000)	6,000	Nil
Earnings available to Equity shareholders	19,000	25,000
Ke	12.5%	12.5%
Value of Equity (S)	1,52,000	2,00,000
(Earnings available to Equity shareholders/		
Ke)		
Debt (D)	75,000	Nil
Value of Firm (V) = S + D	2,27,000	2,00,000

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.

2. Investment & Borrowings	Rs.
Sell shares in Levered company (Rs. 1,52,000 x 12%)	18,240
Borrow money (Rs. 75,000 x 12%)	9,000
Buy shares in Unlevered company	27,240

3. Change in Return	
Income from shares in Unlevered company (Rs. 27,240 x 12.5%)	3,405
Less: Interest on loan (Rs. 9,000 x 8%)	720
Net Income from unlevered firm	2,685
Less: Income from Levered firm (Rs. 18,240 x 12.5%)	2,280
Incremental Income due to arbitrage	405

Solution can also be done in the following way:

Valuation of firms

Particulars	Levered Firm (Rs.)	Unlevered Firm (Rs.)
EBIT	25,000	25,000
Less: Interest on debt (8% × Rs.75,000)	6,000	Nil
Earnings available to Equity shareholders	19,000	25,000
K_e	12.5%	12.5%
Value of Equity (S) (Earnings available to Equity shareholders/ K_e)	1,52,000	2,00,000
Debt (D)	75,000	Nil
Value of Firm (V) = S + D	2,27,000	2,00,000

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.

Arbitrage Process:

If investor have 12% shares of levered company, value of investment in equity shares is 12% of Rs. 1,52,000 i.e. Rs. 18,240 and return will be 12% of Rs.19,000 = Rs. 2,280.

Alternate Strategy will be:

Sell 12% shares of levered firm for Rs. 18,240 and borrow 12% of levered firm's debt i.e. Rs. 9,000 (12% of Rs. 75,000) and invest the money i.e. 12% in unlevered firm's stock:

Total resources /Money investor have = Rs. 18,240 + Rs. 9,000 = Rs. 27,240 and investor invest 12% of Rs. 2,00,000 = Rs. 24,000

Surplus cash available with investor is = Rs. 27,240 – Rs. 24,000 = Rs. 3,240

Investor return = 12% EBIT of unlevered firm – Interest to be paid on borrowed funds

i.e. = 12% of Rs. 25,000 – 8% of Rs. 9,000 = Rs. 3,000 – Rs. 720 = Rs. 2,280

Now, return remains the same i.e. Rs. 2,280 which investor is getting from levered company before investing in unlevered company but still have

Rs. 3,240 excess money available with investor.

Hence, investor is better off by doing arbitrage.

Question 2

PYQ Sep 24

ER Private Limited has a paid-up capital of Rs. 2,50,000 consisting of 25,000 Equity shares of Rs. 10 each. The Market price per snare is Rs. 24 with PE ratio of 8. The company is planning to purchase a plant which will cost Rs. 5,00,000. This plant is expected to yield earnings before interest and taxes of Rs. 2,00,000 per annum. It has two alternatives to finance the plant:

Alternative	Equity	Debt
A	100 %	-
B	50 %	50%

(i) Cost of debt is 12%.

(ii) Equity shares of face value of t10 each will be issued at a premium of Rs. 10Per share.

(iii) PE ratio of Leveraged company will be 7.

(iv) Tax rate- 40%

Advise which alternative is the most suitable to raise the funds for additional capital, keeping in mind to maximize the benefit to its Share holders.

Solution 2

Calculation of No. of Equity Shares and Existing Earnings before Interest and Taxes

Particulars	Existing	Alternative A: Issue Equity shares only	Alternative B: Issue Equity Shares and 12% Debentures of equal amount
Number of Equity Shares			
- Existing	25,000	25,000	25,000
- Newly issued		25,000 $\left(\frac{Rs.5,00,000}{Rs.(10+10)}\right)$	12,500 $\left(\frac{Rs.2,50,000}{Rs.(10+10)}\right)$
Total no. of Equity Shares	25,000	50,000	37,500

Calculation of Existing Earnings before Interest and Taxes (EBIT)			
Market Price per share (MPS)	Rs. 24		
Price-Earnings Ratio (PE Ratio)	8 times	8 times	7 times
Earning per share (EPS) = MPS/PE Ratio	3		
Earnings after Tax (EAT) = EPS x No. of Equity shares	**75,000**		
Earning before Tax (EBT) = EAT/0.6 (or EBIT as Interest nil)	1,25,000		

Calculation of EPS and MPS under two financial alternatives

Particulars	Existing	Alternative A	Alternative B
Earnings before Interest and Tax:			
- Existing EBIT	1,25,000	1,25,000	1,25,000
- From New Project		2,00,000	2,00,000
Less: Interest on 12% Debentures	1,25,000 -	3,25,000 -	3,25,000 30,000
Earnings before Tax (EBT)	1,25,000	3,25,000	2,95,000
Less: Tax @ 40%	50,000	1,30,000	1,18,000
Earnings after Tax (EAT)	**75,000**	**1,95,000**	**1,77,000**
EPS = EAT/ No. of Equity Shares	**3.00**	**3.90**	**4.72**
Market Price per share (MPS) = EPS x Price- Earning Ratio	**24.00**	**31.20**	**33.04**

Advise: Alternative B i.e., issue of 12% Debentures is most suitable to maximize the market price per share.

Alternatively, Solution can also be presented in following way:

Calculation of EPS and MPS under two financial alternatives

Particulars	Existing	Alternative A	Alternative B
Earnings before Interest and Tax:		2,00,000	2,00,000
- From New Project		2,00,000	2,00,000
Less: Interest on 12% Debentures	-	-	30,000
Earnings before Tax (EBT)		2,00,000	1,70,000
Less: Tax @ 40%		80,000	68,000
Earnings after Tax (EAT) from new project		1,20,000	1,02,000
Earnings from Existing (PAT)	75,000	75,000	75,000
Total Earnings After Tax (EAT)	75,000	1,95,000	1,77,000
Number of Shares	25,000	50,000	37,500
EPS = EAT/ No. of Equity Shares	**3.00**	**3.90**	**4.72**
Market Price (MPS) per x share =EPS Price-Earning Ratio	**24.00**	**31.20**	**33.04**

Advise: Alternative B i.e., issue of 12% Debentures is most suitable to maximize the market price per share.

Question 3

What are the remedies for over-capitalization ?

Solution 3

Following steps may be adopted to avoid the negative consequences of over capitalization:

(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 4

RTP Sep 24

The following data relate to two companies belonging to the same risk class:

Particulars	A Ltd.	B Ltd.
Expected Net Operating Income	Rs. 18,00,000	Rs. 18,00,000
12% Debt	Rs. 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.

Solution 4

(a) 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 (Vu) = [NOI/ke] = 18,00,000/.18

= Rs. 1,00,00,000

Ke of Unlevered Firm (given) = 0.18

Ko of Unlevered Firm (Same as above = ke as there is no debt)

= 0.18

Market Value of 'A Ltd' [Levered Firm (I)]

Total Value of Levered Firm (VL) = Vu + (Debt× Nil) = Rs. 1,00,00,000 + (54,00,000 × nil)

= Rs. 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 (kO)	0.18	0.18
E	Total Value of Firm (V = NOI/kO)	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 [WACC] (kO)	0.18	0.18

Assuming 40% taxes as per MM Approach

Calculation of Value of Firms 'A Ltd.' and 'B Ltd' according to MM Hypothesis Approach

Market Value of 'B Ltd' [Unlevered(u)]

Total Value of unlevered Firm (Vu) = [NOI(1 - t)/ke] = 18,00,000 (1 – 0.40)] / 0.18

= Rs. 60,00,000

Ke of unlevered Firm (given) = 0.18

Ko of unlevered Firm (Same as above = ke as there is no debt)

= 0.18

Market Value of 'A Ltd' [Levered Firm (I)]

Total Value of Levered Firm (VL) = Vu + (Debt × Tax)

= Rs. 60,00,000 + (54,00,000 × 0.40)

= Rs. 81,60,000

Computation of Weighted Average Cost of Capital (WACC) of 'B Ltd.'

= 18% (i.e. Ke = Ko)

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]	.2504
Weighted Average Cost of Capital (k_O)*	13.23

Computation of WACC A Ltd

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 5

RTP Jan 2025

Ritu Limited in the expansion stage and it provides you the following information:

	(Rs.)
Profit (EBIT)	5,00,000
Less: Interest on Debenture @ 10%	(1,00,000)
EBT	4,00,000
Less Income Tax @ 30%	(1,20,000)
	2,80,000
No. of Equity Shares (Rs. 10 each)	50,000
Earnings per share (EPS)	5.6
Price /EPS (PE) Ratio	10

The company has reserves and surplus of Rs. 10,00,000 and required Rs. 5,00,000 further for modernization. Return on Capital Employed (ROCE) is constant. Debt (Debt/ Equity) Ratio lesser than 2 will raise the P/E Ratio to 12. Interest rate on additional debts is 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.

Solution 5

Ascertainment of probable price of shares of Akash limited

Particulars	Plan-I If Rs. 5,00,000 is raised as debt (Rs.)	Plan-II If Rs. 5,00,000 is raised by issuing equity shares (Rs.)
Earnings Before Interest and Tax (EBIT) {20% of new capital i.e. 20% of (Rs. 25,00,000 + Rs. 5,00,000)} (Refer working note1)	6,00,000	6,00,000
Less: Interest on old debentures (10% of Rs. 10,00,000)	(1,00,000)	(1,00,000)
Less: Interest on new debt (12% of Rs. 5,00,000)	(60,000)	--
Earnings Before Tax (EBT)	4,40,000	5,00,000
Less: Tax @ 30%	(1,32,000)	(1,50,000)
Earnings for equity shareholders (EAT)	3,08,000	3,50,000
No. of Equity Shares (refer working note 2)	50,000	58,929
Earnings per Share (EPS)	Rs. 6.16	Rs. 5.94
Price/ Earnings (P/E) Ratio (refer working note 3)	12	10
Probable Price Per Share (PE Ratio × EPS)	Rs. 73.92	Rs. 59.40

Working Notes:

1. Calculation of existing Return of Capital Employed (ROCE):

	(Rs.)
Equity Share capital (50,000 shares × Rs. 10)	5,00,000
10% Debentures $\left(Rs.1,00,000 \times \frac{100}{10}\right)$	10,00,000
Reserves and Surplus	10,00,000
Total Capital Employed	25,00,000
Earnings before interest and tax (EBIT) (given)	5,00,000
ROCE = $\frac{Rs.\ 5,000,000}{Rs.\ 25,00,000} \times 100$	20%

2. Number of Equity Shares to be issued in Plan-II:

$= \frac{Rs.\ 5,00,000}{Rs.\ 56} = 8,929 shares$

Thus, after the issue total number of shares = 50,000 + 8,929 = 58,929 shares

Debt/Equity Ratio if Rs. 5,00,000 is raised as debt:

$= \frac{Rs.\ 15,00,000}{Rs.\ 15,00,000} = 1$

As the debt equity ratio is less than 2 the P/E ratio will be increase to 12 in Plan-I

Question 6

MTP August 24

X Ltd is willing to raise funds for its New Project which requires an investment of Rs. 84 Lakhs. The Company has two options:

Option I : To issue Equity Shares (Rs. 10 each) only

Option II : To avail Term Loan at an interest rate of 12%. But in this case, as insisted by the Financing Agencies, the Company will have to maintain a Debt-Equity proportion of 2:1.

The Corporate Tax Rate is 30%. FIND out the point of indifference for the project.

Solution 6

(a) Let the EBIT at the Indifference Point level be E

Particulars	Alternative 1	Alternative 2
Description	Fully Equity of 84 Lakhs	Debt = 56 Lakhs, Equity = 28 Lakhs
EBIT	E	E
Less: Interest at 12% of Rs. 56 Lakhs	Nil	6.72
EBT	E	E – 6.72
Less: Tax at 30%	0.3 E	0.3 E – 2.016
EAT	0.7 E	0.7 E – 4.704
Less: Preference Dividend	Nil	Nil
Residual Earnings	0.7 E	0.7 E – 4.704
No. of Equity Shares (Face Value Rs. 10)	8.4 Lakh Shares	2.8 Lakh Shares
EPS = Re sidual Earnings / No. of Equity Shares	0.7 E / 8.4 Lakh Shares	0.7 E - 4.704 / 2.8 Lakh Shares

For indifference between the above alternatives, EPS should be equal.

$$\text{So, } \frac{0.7\,E}{8.4 \text{ Lakh Shares}} = \frac{0.7\,E - 4.704}{2.8 \text{ Lakh Shares}}$$

On cross multiplication and simplification, 2.1 E – 14.112 = 0.7 E. So, 1.4 E = 14.112

$$\text{So, } E = \frac{14.112}{1.4} = 10.08$$

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

So, for same EPS, required EBIT = Rs. 10.08 Lakhs. EPS at that level = Rs. 0.84

Note: Presentation of solution may differ.

Question 7

MTP Aug 2024

EXPLAIN the Relationship between EBIT-EPS-MPS

Solution 7

The basic objective of financial management is to design an appropriate capital structure which can provide the highest wealth, i.e., highest MPS, which in turn depends on EPS.

Given a level of EBIT, EPS will be different under different financing mix depending upon the extent of debt financing. The effect of leverage on the EPS emerges because of the existence of fixed financial charge i.e., interest on debt, financial fixed dividend on preference share capital.

The effect of fixed financial charge on the EPS depends upon the relationship between the rate of return on assets and the rate of fixed charge. If the rate of return on assets is higher than the cost of financing, then the increasing use of fixed charge financing (i.e., debt and preference share capital) will result in increase in the EPS. This situation is also known as favourable financial leverage or Trading on Equity. On the other hand, if the rate of return on assets is less than the cost of financing, then the effect may be negative and, therefore, the increasing use of debt and preference share capital may reduce the EPS of the firm.

The fixed financial charge financing may further be analyzed with reference to the choice between the debt financing and the issue of preference shares. Theoretically, the choice is tilted in favour of debt financing for two reasons: (i) the explicit cost of debt financing i.e., the rate of interest payable on debt instruments or loans is generally lower than the rate of fixed dividend payable on preference shares, and (ii) interest on debt financing is tax-deductible and therefore the real cost (after-tax) is lower than the cost of preference share capital.

Question 8

MTP Nov 2024

You are a financial consultant for a company that has a very high capital base but low earnings per share (EPS). EXPLAIN over-capitalization. What are the causes and consequences of over-capitalization?"

Solution 8

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-capitalisation arises due to following reasons:

i. Raising more money through issue of shares or debentures than company can employ profitably.
ii. Borrowing huge amount at higher rate than rate at which company can earn.
iii. Excessive payment for the acquisition of fictitious assets such as goodwill etc.
iv. Improper provision for depreciation, replacement of assets and distribution of dividends at a higher rate.
v. Wrong estimation of earnings and capitalization.

Consequences of Over-Capitalisation

Over-capitalisation 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 9

MTP Dec 24

Theta Limited is expecting an annual earning of Rs. 3 Lakhs before paying any interest and taxes. The company has Rs. 10 lakhs of 10% debentures in its capital structure. The capitalisation rate is 12.5%. You are required to calculate the value of Theta Limited as per the NI approach. Also, COMPUTE the overall cost of capital.

Solution 9

EBIT = Rs. 3,00,000

Less: Interest = Rs. 10,00,000 X 10% = Rs. 1,00,000

Earnings available to equity shareholders = Rs. 2,00,000

Equity capitalization rate = 12.5%

Market value of equity = $\frac{\text{Rs. 2,00,000}}{12.5\%}$ = Rs. 16,00,000

Market value of debt = Rs. 10,00,000 Market value of the firm = Rs. 26,00,000

Overall cost of capital = $\frac{3,00,000 \times 100}{26,00,000}$ = 11.54%

CA Inter – New Syllabus
Financial Management

CHAPTER 6

Compiled by
CA Mohnish Vora (MVSIR)

PYQ Sep 24

1. A company has sales of Rs. 6,00,000, variable cost of Rs. 2,40,000, fixed operating cost of Rs. 2,70,000. The financial leverage is 2.5. The company wants to double its EBIT. The percentage change in ales required in order to double its EBIT will be :

a) 50%
b) 25%
c) 40%
d) 80%

RTP Sep 24

2. A firm has sales of Rs. 75,00,000, variable cost of Rs. 42,00,000 and fixed cost of Rs. 6,00,000. It has a debt of Rs. 45,00,000 at 9% and equity of Rs. 55,00,000. Does it have favourable financial leverage?

a) ROI is less than interest on loan funds and hence it has no favourable financial leverage.
b) ROI is equal to interest on loan funds and hence it has favourable financial leverage.
c) ROI is greater than interest on loan funds and hence it has favourable financial leverage.
d) ROI is greater than interest on loan funds and hence it has unfavourable financial leverage.

MTP July 2024

3. X ltd has actual Sales of Rs. 20 lakhs and its Break-even sales are at Rs. 15 lakhs. The degree of total risk involved in the company is 6.5. Calculate the % impact on EPS, if EBIT is affected by 12%.

a) 40%
b) 78%
c) 312%
d) 19.5%

MTP Aug 2024

4. Total Assets & Current liabilities of the Vitrag Limited are 50 lakhs & 10 lakhs respectively. ROCE is 15%, measure of business operating risk is at 3.5 & P/V ratio is 70%. Calculate Sales.

a) 21 lakhs
b) 30 lakhs
c) 37.50 lakhs
d) 40 lakhs

MTP Dec 24

5. Margin of safety is affected if:
1. P/V ratio changes
2. Fixed cost changes
3. Volume of sales changes

a) 1 only
b) 1 and 2 only
c) 2 and 3 only
d) 1, 2 and 3

MTP Dec 24

6. EBIT = 4,00,000
EBT = 3,00,000
Sales = 16,00,000
Which of the following is / are correct?
1. DFL is 1.33
2. Interest coverage ratio is 3
3. Operating profit margin is 25%
Select the correct answer using the code given below:

a) 1, 2 and 3
b) 1 and 2 only
c) 1 and 3 only
d) 3 only

MTP Nov 2024	
7.	A company has a degree of operating leverage is 2 and degree of financial leverage is 3. If the sales of the company increase by 5% during the next quarter, the Earning Per Share (EPS) will increase by?

a) 20%
b) 30%
c) 50%
d) 60%

Question 1

PYQ May 24

Alpha Limited has provided following information:

Equity Share Capital	*25,000 Shares @ Rs. 100 per Share*
15% Debentures	*10,000 Debentures@ Rs. 750/- per Debenture*
Sales	*50 Lakhs units@ Rs. 20 per unit*
Variable Cost	*Rs. 12.50 per unit*
Fixed Costs	*Rs. 175.00 Lakhs*

Due to recent policy changes and entry of foreign competitors in the sector, Alpha Limited expects the sales may decline by 15-20%, However, selling price and other costs will remain the same. Corporate Taxes will continue@20%.

You are required to calculate the decrease in Earnings per share, Degree of Operating Leverage and Financial Leverage separately if sales are declined by (i) 15%; and (ii) 20%;

Solution 1

Income Statement with required calculations

Particulars	(Rs.) Existing	(Rs.) Sales declined by 15%	(Rs.) Sales declined by 20%
Sales in units	50,00,000	42,50,000	40,00,000
Sales price per unit	20	20	20
Variable Cost per unit	(12.50)	(12.50)	(12.50)
Contribution per unit	7.5	7.5	7.5
Contribution	3,75,00,000	3,18,75,000	3,00,00,000
Fixed expenses	(1,75,00,000)	(1,75,00,000)	(1,75,00,000)
EBIT	2,00,00,000	1,43,75,000	1,25,00,000
Debenture Interest	(11,25,000)	(11,25,000)	(11,25,000)
EBT	1,88,75,000	1,32,50,000	1,13,75,000
Tax @ 20%	(37,75,000)	(26,50,000)	(22,75,000)
Profit after tax (PAT)	1,51,00,000	1,06,00,000	91,00,000
No. of shares	25,000	25,000	25,000
Earnings per share (EPS) = PAT / No. of shares	Rs.1,51,00,000 / 25,000 = Rs.604	Rs.1,06,00,000 / 25,000 = Rs.424	Rs.91,00,000 / 25,000 = Rs.364
(i) Decrease in EPS		= Rs.180 **Or** % Decrease in EPS = 180/604 x 100 = **29.80%**	= Rs.240 **Or** % Decrease in EPS = 240/604 x 100 = **39.73%**
(ii) Operating leverage = Contribution / EBIT Or		= Rs.3,18,75,000 / Rs.1,43,75,000 = **2.22** **Or** 28.125/15 =	= Rs.3,00,00,000 / Rs.1,25,00,000 = **2.40** **Or** 37.50/20 **1.875**
Degree of Operating leverage = Percentage change in EBIT / Percentage change in sales		**1.875**	
(iii) Financial Leverage = EBIT / EBT Or Degree of Financial Leverage = Percentage change in EPS / Percentage change in EBIT		= Rs.1,43,75,000 / Rs.1,32,50,000 = **1.08** **Or** 29.80/28.125 = **1.06**	Rs.1,25,00,000 / Rs.1,13,75,000 = **1.10** **Or** 39.735/37.50 = **1.06**

Question 2

PYQ Sep 24

Financial information for the year 2023-24 of two companies, N Limited and C Limited are as under:

Details	N Limited	C Limited
Equity share capital (Rs. 100 each)	Rs. 10,00,000	Rs. 8,00,000
Debt	Rs. 5,00,000@10%	Rs. 7,00,000@8%
Fixed Cost	3,00,000	3,36,000
Combined Leverage	8	4.5
Financial Leverage	2	1.5

You are required to calculate:

(i) Contribution forN Ltd. and C Ltd.

(ii) Margin of safety in% for N Ltd. and C. Ltd.

(iii) Sales ofC Ltd.

Solution 2

(i) Calculation of Contribution

N Limited	C Limited
Financial Leverage (FL) $= \frac{EBIT}{EBT}$ or $\frac{EBIT}{EBIT - Interest}$	
$2 = \frac{EBIT}{EBIT - 50,000}$	$1.5 = \frac{EBIT}{EBIT - 56,000}$
2 EBIT – 1,00,000 = EBIT	1.5 EBIT – 84,000 = EBIT
EBIT = Rs. 1,00,000	**EBIT = Rs. 1,68,000**
EBT = Rs. 50,000	EBT = Rs. 1,12,000
Combined Leverage (CL) $= \frac{Contribution}{EBT}$	
8 = Contribution / 50,000	4.5 = Contribution / 1,12,000
Contribution= Rs. 4,00,000	**Contribution= Rs. 5,04,000**

(ii) Calculation of Margin of safety (MOS) in %

$$MOS = \frac{Contribution - Fixed\ Cost}{Contribution} = \frac{EBIT}{Contribution}$$

N Limited	C Limited
MOS = 1,00,000/4,00,000 = **25%**	MOS = 1,68,000/5,04,000 = **33.33%**

Part (ii) can also be presented in following way:

Calculation of Margin of safety (MOS) in %

MOS = 1/operating leverage (OL)

OL = CL/FL

N Limited	C Limited
OL = 8/2 = 4	OL = 4.5/1.5 = 3
MOS = 1/4 = **25%**	MOS = 1/3 = **33.33%**

(iii) Sales of C Limited

Let assume that PV ratio is 40%

$$\textbf{PV Ratio} = \frac{\text{Contribution}}{\text{Sales OR Sales}} = \frac{\text{Contribution}}{\text{PV Ratio}}$$

$$\textbf{Sales} = \frac{5,04,000}{0.40} = \textbf{Rs. 12,60,000}$$

Part (iii) of the solution can be solved by any alternative assumption.

Question 3

RTP Sep 24

Following data of PC 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	Rs. 15,000	Rs. 22,500
Debt	Rs. 15,000	Rs. 7,500
Cost of Debt	12%	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.

Solution 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 = $\frac{C}{EBIT}$	$\frac{Rs.\ 24,000}{Rs.\ 21,000}$ = 1.14	$\frac{Rs.\ 24,000}{Rs.\ 18,000}$ = 1.33	$\frac{Rs.\ 24,000}{Rs.\ 15,000}$ = 1.60

Financial Leverage

	Financial Plan	
	A (Rs.)	B (Rs.)
Situation 1		
EBIT	21,000	21,000
Less: Interest on debt (Rs. 15,000 x 12%); (Rs. 7,500 x 12%)	1,800	900
EBT	19,200	20,100
Financial Leverage = $\frac{EBIT}{EBT}$	$\frac{Rs.\ 21,000}{Rs.19,200}$ = 1.09	$\frac{Rs.\ 21,000}{Rs.\ 20,100}$ = 1.04
Situation 2		
EBIT	18,000	18,000
Less: Interest on debt	1,800	900
EBT	16,200	17,100
Financial Leverage = $\frac{EBIT}{EBT}$	$\frac{Rs.\ 18,000}{Rs.\ 16,200}$ = 1.11	$\frac{Rs.\ 18,000}{Rs.\ 17,100}$ = 1.05

Situation 3		
EBIT	15,000	15,000
Less: Interest on debt	1,800	900
EBT	13,200	14,100
Financial Leverage = $\frac{EBIT}{EBT}$	$\frac{Rs.15,000}{Rs.13,200}$ = 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 Plan B.

Question 4

RTP Jan 2025

From the following financial data of Company X and Company Y:

i. PREPARE their Income Statements.

ii. CALCULATE Margin of Safety for both the Companies

iii. CALCULATE Percentage change in EPS for both the companies, if percentage change in sales is 25%

	Company X	Company Y
Variable Cost	72,000	65% of Sales
Fixed Cost	35,000	-
Interest Expenses	12,000	6,000
Financial Leverage	4:1	-
Operating Leverage	-	5:1
Income Tax Rate	30%	30%
Sales	-	1,45,000

Solution 4

(i) Income Statement

Particulars	Co. X (Rs.)	Co. Y (Rs.)
Sales	1,23,000 (WN 2)	1,45,000
(-) Variable Cost	(72,000)	(94,250) (65% on sales)
Contribution	51,000 (WN 2)	50,750
(-) Fixed Cost	(35,000)	(40,600)
EBIT	16,000 (WN 1)	10,150 (WN 3)
(-) Interest	(12,000)	(6,000)
EBT	4,000	4,150
(-) Tax @ 30%	(1,200)	(1,245)
EAT	**2,800**	**2,905**

WN 1: Calculation of EBIT for Co. X using Financial Leverage

$$FL = \frac{EBIT}{EBT} \quad \frac{EBIT}{EBIT - Interest}$$

$$4 = \frac{EBIT}{EBIT - 12,000}$$

EBIT = Rs. 16,000

EBT = Rs. 16,000 – Rs. 12,000 = Rs. 4,000

WN 2: Calculation of Contribution and Sales using reverse mechanism

Contribution = EBIT + Fixed Cost

= Rs. 16,000 + Rs. 35,000

Contribution = Rs. 51,000

Sales = Contribution + Variable Cost

Sales = Rs.1,23,000

WN 3: Calculation of EBIT for Co. Y using Operating leverage

OL = Contribution / EBIT

$$5 = \frac{50,750}{EBIT}$$

EBIT = Rs. 10,150

(ii) Margin of Safety (MOS) is inversely proportionate to the Operating Leverage as higher the safety margin lower would be the business risk

$$MOS = \frac{1}{OL}$$

$$\text{Operating Leverage (Co. X)} = \frac{51,000}{16,000}$$

Operating Leverage (Co. X) = 3.1875 : 1

Therefore, MOS for Co. X = 1 / 3.1875

MOS for Co. X = 31.37%

Operating Leverage (Co. Y) = 5 : 1

$$\text{Therefore, MOS for Co. X} = \frac{1}{5}$$

MOS for Co. Y = 20%

iii. Combined leverage measures the percentage change in EPS due to percentage change in sales

$$\text{Combined Leverage} = \frac{\text{Contribution}}{\text{EBT}}$$

$$\text{Combined Leverage (Co. X)} = \frac{51,000}{4,000}$$

= 12.75

$$\text{Combined Leverage} = \frac{\text{\% change in EPS}}{\text{\% change in sales}}$$

$$12.75 = \frac{\text{\% change in EPS}}{25\%}$$

% change in EPS (Co. X) = 318.75%

$$\text{Combined Leverage (Co. Y)} = \frac{50,750}{4,150}$$

= 12.23

$$12.23 = \frac{\text{\% change in EPS}}{25\%}$$

% change in EPS (Co. Y) = 305.75%

Question 5

MTP July 2024

From the following details of X Ltd, PREPARE the Income Statement for the year ended 31st December:

Financial Leverage	2
Interest	Rs.2,000
Operating Leverage	3
Variable Cost as a Percentage of Sales	75%
Income Tax Rate	30%

Solution 5

Income Statement

$$\text{DFL} = \frac{\text{EBIT}}{\text{EBT}} = \frac{\text{EBT + Interest}}{\text{EBT}} = \frac{\text{EBT + 2,000}}{\text{EBT}} = \frac{2}{1}$$

EBT + Rs. 2000= 2 EBT.

EBT = Rs. 2,000

EBIT = EBT + Interest = Rs. 2000 + Rs. 2000 = Rs. 4,000.

$$\text{Contribution} = \frac{\text{Contribution}}{\text{EBIT}} = \frac{\text{Contribution}}{4{,}000} = \frac{3}{1}$$

Sales	$\frac{\text{Contribution}}{\text{EBIT}} = \frac{12{,}000}{25\%}$	48,000
Less: Variable Cost	Given = 75%	(36,000)
Contribution		12,000
Less: Fixed Cost(Contribution - EBIT = Rs. 12,000 – Rs. 4,000)		(8,000)
EBIT		4,000
Less: Interest		(2,000)
EBT		2,000
Less: Tax at 30%		(600)
EAT		1,400

Question 6

MTP July 2024

WHAT is the range of DOL ?

Solution 6

DOL can never be between zero and one. It can be zero or less or it can be one or more.

When Sales is much higher than BEP sales, DOL will be slightly more than one. With decrease in sales, DOL will increase. At BEP, DOL will be infinite. When sales is slightly less than BEP, DOL will be negative infinite. With further reduction in sale, DOL will move towards zero. At zero sales, DOL will also be zero.

Question 7

MTP Aug 2024

EXPLAIN Financial Leverage as a 'Double edged Sword'

Solution 7

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 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 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

When, ROI = Interest – Neutral – Neither advantage nor disadvantage

Question 8

MTP Nov 2024

ABC Industries is a mid-sized company manufacturing consumer goods. Last quarter, the company reported sales of ₹ 2,00,000. The production process involves significant variable costs, which account for 50% of the sales value. Additionally, the company incurs ₹ 40,000 as fixed operating costs for rent, utilities, and management expenses. ABC Industries has also borrowed funds, leading to ₹ 10,000 as annual interest on long-term debt.

The company is currently planning to launch a new marketing campaign aimed at boosting sales by 10%. As a financial analyst at ABC Industries, you are required to:

1. CALCULATE the combined leverage.
2. ILLUSTRATE the impact of the 10% sales increase using the combined leverage.

Solution 8

Statement showing Computation of Combined leverage

	Rs.
Sales	2,00,000
Less: Variable costs (50%)	1,00,000
Contribution	1,00,000
Less: Fixed operating costs	40,000
EBIT	60,000
Less: Interest	10,000
Taxable Income (PBT)	50,000

$$\text{Combined leverage} = \frac{C}{PBT} = \frac{1,00,000}{50,000} = 2$$

The combined leverage of '2' indicates that with every increase of Rs. 1 in sales, the taxable income will increase by Rs. 2 (i.e. 1×2). This can be verified by the following computations when the sales increase by 10%

	Rs.
Sales	2,20,000
Less: variable costs (50%)	1,10,000
Contribution	1,10,000
Less: Fixed operating costs	40,000
EBIT	70,000
Less: Interest	10,000
Taxable Income (PBT)	60,000

It is clear from the above computation that on account of increase in sales by 10%, the profit before tax has increased by 20%.

Question 9

MTP Dec 24

The following data relates to Beta Limited:

Sales	2,00,000
Less: Variable Expenses (30%)	60,000
Contribution	1,40,000
Fixed operating expenses	1,00,000
EBIT	40,000
Less: Interest	5,000
EBT	35,000

i. CALCULATE by what percentage will EBT increase if sales increases by 6 percent.

ii. CALCULATE by what percentage will EBIT increase if there is 10 per cent increase in sales?

iii. CALCULATE by what percentage EBT increase if EBIT increases by 6 per cent?

Solution 9

(i) Increase in taxable income if sales increase by 6%.

$$\text{Combined Leverage} = \frac{\text{Contribution}}{\text{EBT}} = \frac{\text{Rs. 1,40,000}}{\text{Rs. 35,000}} = 4$$

If the sales increases by 6%, EBT will increase by 24%. (4 × 6%)

(ii) Increase in EBIT if sales increase by 10%.

$$\text{Operating Leverage} = \frac{\text{Contribution}}{\text{Earnings before interest and tax}} = \frac{\text{Rs.1,40,000}}{\text{Rs. 40,000}} = 3.5$$

If sales increases by 10%, EBIT will increase by (3.5 X 10) 35%.

(iii) Increase in taxable income if EBIT increase by 6%.

$$\text{Financial Leverage} = \frac{\text{Earnings before interest and tax (EBIT)}}{\text{EBT}} = \frac{\text{Rs. 40,000}}{\text{Rs.35,000}} = 1.14$$

If EBIT increases by 6%, EBT will increase by 6.8%. (1.14 X 6%)

CA Inter – New Syllabus
Financial Management

CHAPTER 7

Compiled by
CA Mohnish Vora (MVSIR)

MTP Nov 2024

7. Following are the data on a capital project being evaluated by the management of Aman Ltd.

Particulars	Project A
Annual cost saving	Rs. 1,80,000
Useful life	5 years
Internal rate of return	10%
Salvage value	0
PVAF (15,4 years)	3.79

Based upon the information, the payback period of the project will be

a) 2.652
b) 2.850
c) 3.790
d) 3.855

Question 1

PYQ May 24

HCP Ltd. is a leading manufacturer of railway parts for passenger coaches and freight wagons. Due to high wastage of material and quality issues in production, the General Manager of the company is considering the replacement of machine A with a new CNC machine B. Machine A has a book value of Rs. 4,80,000 and remaining economic life is 6 years. It could be sold now at Rs. 1,80,000 and zero salvage value at the end of sixth year. The purchase price of Machine B is Rs. 24,00,000 with economic life of 6 years. It will require Rs. 1,40,000 for installation and Rs. 60,000 for testing. Subsidy of 15% on the purchase price of the machine B will be received from Government at the end of 1st year. Salvage value at the end of sixth year will be Rs. 3,20,000.

The General manager estimates that the annual savings due to installation of machine B include a reduction of three skilled workers with annual salaries of Rs. 1,68,000 each, Rs. 4,80,000 from reduced wastage of materials and defectives and Rs. 3,50,000 from loss in sales due to delay in execution of purchase orders. Operation of Machine B will require the services of a trained technician with annual salary of t 3,90,000 and annual operation and maintenance cost will increase by Rs. 1,54,000. The company's tax rate is 30% and it's required rate of return is 14%. The company follows straight line method of depreciation. Ignore tax savings on loss due to sale of existing machine.

The present value factors at 14% are:

Years	*0*	*1*	*2*	*3*	*4*	*5*	*6*
PV Factor	*1*	*0.877*	*0.769*	*0.675*	*0.592*	*0.519*	*0.456*

Required:

i) Calculate the Net Present Value and Profitability Index and advise the company for replacement decision.

ii) Also calculate the discounted pay-back period.

Solution 1

(a) Calculation of Net Initial Cash Outflows:

Particulars	Rs.
Cost of new machine	24,00,000
Less: Sale proceeds of existing machine	(1,80,000)
Add: Installation	1,40,000
Add: Testing	60,000
Net initial cash outflows	**24,20,000**

Calculation of Incremental Depreciation

Particulars	Rs.
Depreciation on existing machine (4,80,000/6) **(i)**	80,000
Depreciation base of New Machine	
Cost of new machine	24,00,000
Add: Installation	1,40,000
Add: Testing	60,000
Less: Subsidy from government	(3,60,000)
Less: Salvage value at the end of 6th year	(3,20,000)
Depreciation base of New Machine	**19,20,000**
Depreciation on New Machine (19,20,000/6) **(ii)**	3,20,000
Incremental depreciation [(ii) – (i)]	2,40,000

Computation of Annual Operating Cash flow after tax (CFAT)

Particulars	Amount (Rs.)	Amount (Rs.)
Savings in cost		
Cost of 3 skilled workers (Rs.1,68,000 x 3)	5,04,000	
Reduced wastage of material	4,80,000	
Saving in loss of sales	3,50,000	
Total		13,34,000
Less: Increase in cost		
Salary to trained technician	3,90,000	
Increase in annual operation and maintenance cost	1,54,000	
Total		(5,44,000)

Incremental Saving before tax and depreciation		7,90,000
Less: Incremental Depreciation		(2,40,000)
Incremental PBT		5,50,000
Less: Tax @30%		(1,65,000)
PAT		3,85,000
Add: Depreciation		2,40,000
Incremental CFAT		6,25,000

Calculation of NPV

Particulars	Year	Net Cashflow (Rs.)	PVF @ 14%	PV (Rs.)
Net initial cash outflows	0	(24,20,000)	1	(24,20,000)
Subsidy	1	3,60,000	0.877	3,15,720
Incremental CFAT	1 to 6	6,25,000	3.888	24,30,000
Salvage Value of New Machine	6	3,20,000	0.456	1,45,920
PV of inflows				28,91,640
Net Present Value				**4,71,640**

Profitability Index = $\frac{\text{Sum of discounted cash inflows}}{\text{Initial cash outlay or Total discounted cash outflow (as the case may)}}$

= 28,91,640 /24,20,000 = 1.195

Advise: Since the NPV is positive and PI is greater than 1, the company should replace the machine

Computation of Discounted Payback Period

Year	Cashflow	PVF @ 14%	PV of CFs (Rs.)	Cumulative PV (Rs.)
1	9,85,000	0.877	8,63,845	8,63,845
2	6,25,000	0.769	4,80,625	13,44,470
3	6,25,000	0.675	4,21,875	17,66,345
4	6,25,000	0.592	3,70,000	21,36,345
5	6,25,000	0.519	3,24,375	24,60,720
6	9,45,000	0.456	4,30,920	28,91,640

Discounted Payback Period

$= 4 + \frac{24,20,000 - 21,36,345}{3,24,375}$

= 4.87 years

Question 2

PYQ May 24

Discuss the relevance of Payback reciprocal in capital budgeting decisions.

Solution 2

Reciprocal of the payback would be a close approximation of the Internal Rate of Return if the life of the project is at least twice the payback period and the project generates equal amount of the annual cash inflows.

The payback reciprocal is a helpful tool for quick estimation of rate of return of a project provided its life is at least twice the payback period.

It may be calculated as follows:

Payback Reciprocal = Average annual cash flows/initial Investment Or

Payback Reciprocal = 1 / payback period

Question 3

RTP Jan 2025

A company is considering the proposal to take up a new project which requires investment of Rs. 850 lakhs in plant & machinery and Rs. 150 lakhs in working capital. The project is expected to yield the following Cash flows before tax and depreciation over the next five years:

Year	Amount (Rs. in Lakhs)
1	290
2	320
3	360
4	390
5	270

The desired rate of return from the project is 14% and assets must be depreciated at 20% on a written down value basis. The scrap value at the end of the five-year period may be taken as Rs. 140 lakhs. The income tax applicable to the company is 20%. This is the only asset in the entire block. Capital gains tax is at 15% (for capital loss as well)

You are required to CALCULATE the net present value of the project and advise the management to take appropriate decisions. Also calculate the Internal Rate of Return and Desirability factor of the Project.

Year	14%	16%	20%
1	0.88	0.86	0.83
2	0.77	0.74	0.69
3	0.67	0.64	0.58
4	0.59	0.55	0.48
5	0.52	0.48	0.40

Solution 3

(A) Calculation of NPV

WN 1 : Calculation of Present Value of Cash Outflow (PV CO)

i. Initial Investment = Rs. 850 lakhs

ii. Working capital outlay = Rs. 150 lakhs Therefore, total PV CO = Rs. 1000 lakhs

WN 2 : Calculation of Present Value of Cash Inflows (PV CI)

Cash flows before tax are given i.e. nothing but NPBDT

Amount (Rs. in lakhs)

Year	1	2	3	4	5
NPBDT	290.00	320.00	360.00	390.00	270.00
(-) Dep	170.00	136.00	108.80	87.04	69.63
NPBT	120.00	184.00	251.20	302.96	200.37
(-) Tax	24.00	36.80	50.24	60.59	40.07
NPAT	96.00	147.20	200.96	242.37	160.29
(+) Dep	170.00	136.00	108.80	87.04	69.63
CFAT	266.00	283.20	309.76	329.41	229.93
(+) Working Capital Release					150.00
(+) Scrap					140.00
PV Factor @ 14%	0.88	0.77	0.67	0.59	0.52
PV CI	**234.08**	**218.06**	**207.54**	**194.35**	**270.36**

(i) Total PV CI = Rs. 1124.40 Lakhs

WN 3 : Calculation of Present Value of tax savings on short term Capital loss

	Rs. in Lakhs
WDV at end of 5th year	278.53
(-) Sale value	140.00
Loss on sale	138.53
Tax savings on above @ 15%	20.78

PV of tax savings on short term capital loss (STCL) = Tax saving x PV factor (14%, 5th year)

= 20.78 x 0.52

= Rs. 10.81 lakhs

NPV = PV CI + PV of tax savings on STCL - PV CO

= 1124.40 + 10.81 - 1000

NPV = Rs. 135.20 lakhs

Advise: Since the NPV of the project is positive, project should be accepted

(B) Calculation of IRR

IRR is that discounting rate where NPV = 0 (point where PV of all CI = PV Co)

We know that @ 14%, NPV is Rs. 135.20, so by trial-and-error method we need to calculate that rate where NPV equals 0.

When Discounting rate is 16%

	1	2	3	4	5
CFAT	266.00	283.20	309.76	329.41	229.93
(+) Working Capital Release					150.00
(+) Scrap					140.00
PV Factor @ 14%	0.86	0.74	0.64	0.55	0.48
PV CI	**228.76**	**209.57**	**198.25**	**181.17**	**249.56**

PV CI = 1067.31

(+) PV of tax savings on STCL = 9.97 {20.78 x 0.48}

(-) PV CO = (1000)

NPV = Rs. 77.29

Since NPV is positive at 16% as well, we need to go for Trial II at 20%

When Discounting rate is 20%

	1	2	3	4	5
CFAT	266.00	283.20	309.76	329.41	229.93
(+) Working Capital Release					150.00
(+) Scrap					140.00
PV Factor @ 14%	0.83	0.69	0.58	0.48	0.4
PV CI	220.78	195.41	179.66	158.12	207.97

PV CI = 961.94

(+) PV of tax savings on STCL = 8.31 {20.78 x 0.40}

(-) PV CO = (1000)

NPV = Rs. (29.75)

Since NPV is negative at 20%, IRR lies somewhere between 16% and 20%

$$IRR = \frac{LR + NPV \text{ at } LR}{NPV \text{ at } LR - NPV \text{ at } HR} \times (HR-LR)$$

LR = Lower Rate (16% here) HR = Higher Rate (20% here)

$$IRR = 16 + \frac{77.29}{77.29 - (-29.75)} \times (20-16)$$

IRR = 18.89%

(c) Calculation of Desirability Factory (Profitability Index)

PI = TOTAL PV CI / PV CO

PI = 1135.21 / 1000 PI = 1.13521

Question 4

RTP Jan 2025

Do the profitability index and the NPV criterion of evaluating investment proposals lead to the same acceptance-rejection and ranking decisions? In what SITUATIONS will they give conflicting results?

Solution 4

In the most of the situations the Net Present Value Method (NPV) and Profitability Index (PI) yield same accept or reject decision. In general items, under PI method a project is acceptable if profitability index value is greater than 1 and rejected if it less than 1. Under NPV method a project is acceptable if Net present value of a project is positive and rejected if it is negative. Clearly a project offering a profitability index greater than 1 must also offer a net present value which is positive. But a conflict may arise between two methods if a choice between mutually exclusive projects has to be made. Consider the following example:

	Project A	Project B
PV of Cash inflows	3,00,000	80,000
Initial cash outflows	1,00,000	40,000
Net present value	2,00,000	40,000
P.I	$\frac{3,00,000}{1,00,000} = 3$	$\frac{80,000}{40,000} = 2$

According to NPV method, project A would be preferred, whereas according to profitability index method project B would be preferred.

This is because Net present value gives ranking on the basis of absolute value of rupees, whereas, profitability index gives ranking on the basis of ratio. Although PI method is based on NPV, it is a better evaluation technique than NPV in a situation of capital rationing.

Question 5

MTP July 2024

Parmarth Limited is a manufacturer of computers. Owing to recent developments in Artificial Intelligence (AI), it is planning to introduce AI in its computer process. This would result into an estimated annual savings as follows:

i. Savings of Rs. 3,50,000 in production delays caused by inventory problem.
ii. Savings in Salaries of 5 employees with an annual pay of Rs. 4,20,000 per annum
iii. Reduction in Lost sales of Rs. 1,75,000
iv. Gain due to timely billing is Rs. 3,25,000

The project would result in annual maintenance and operating costs as follows, which are to be paid in advance (at the beginning)

YEAR	1	2	3	4	5
COST	1,80,000	2,00,000	1,20,000	1,10,000	1,30,000

Furthermore, the new system would need 2 AI specialists' professional drawing salaries of Rs. 6,50,000 per annum per person. The purchase price of the new system for installing AI into computers would involve an outlay of Rs. 21,50,000 and installation cost of Rs. 1,50,000.

75% of the total value for depreciable value would be paid in the year of purchase and the balance would be paid at the end of the 1st year. The new system will be sold for Rs. 1,90,000. This is the only asset in the block for Income tax purpose.

The life of the system would be 5 years with the hurdle rate of 12%. Depreciation will be charged at 40% on WDV basis, corporate tax rate is 25% and capital gains tax rate is at 20%. CALCULATE NPV and advise the management on the acceptability of the proposal. Also calculate ARR & PI.

Solution 5

Calculation of Present value of cash inflows (PVCI)

	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5
Savings in cost due to Production Delays	-	3,50,000	3,50,000	3,50,000	3,50,000	3,50,000
Savings in Salaries	-	21,00,000	21,00,000	21,00,000	21,00,000	21,00,000
Reduction in lost sales	-	1,75,000	1,75,000	1,75,000	1,75,000	1,75,000
Gain due to timely billing	-	3,25,000	3,25,000	3,25,000	3,25,000	3,25,000
	-	29,50,000	29,50,000	29,50,000	29,50,000	29,50,000
Less:						
Salary of AI specialists	-	13,00,000	13,00,000	13,00,000	13,00,000	13,00,000
Annual Maint. & Op Cost	-	1,80,000	2,00,000	1,20,000	1,10,000	1,30,000
NPBDT	-	14,70,000	14,50,000	15,30,000	15,40,000	15,20,000
(-) Depreciation	-	9,20,000	5,52,000	3,31,200	1,98,720	1,19,232
NPBT	-	5,50,000	8,98,000	11,98,800	13,41,280	14,00,768
(-) Tax @ 25%	-	1,37,500	2,24,500	2,99,700	3,35,320	3,50,192
NPAT	-	4,12,500	6,73,500	8,99,100	10,05,960	10,50,576
(+) Depreciation	-	9,20,000	5,52,000	3,31,200	1,98,720	1,19,232
(+) Annual Maint. & Op Cost	-	1,80,000	2,00,000	1,20,000	1,10,000	1,30,000

	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5
Gross Cash Inflows	-	15,12,500	14,25,500	13,50,300	13,14,680	12,99,808
(-) Annual Maint. & Op Cost actually paid	1,80,000	2,00,000	1,20,000	1,10,000	1,30,000	-
Net Cash Inflows	-1,80,000	13,12,500	13,05,500	12,40,300	11,84,680	12,99,808
(+) Sale Value at the end of life	-	-	-	-	-	1,90,000
	-1,80,000	13,12,500	13,05,500	12,40,300	11,84,680	14,89,808
PV Factor @ 12%	1	0.8929	0.7Rs.972	0.7118	0.6355	0.5674
PV of Cash Inflows	-1,80,000	11,71,875	10,40,737	8,82,821	7,52,886	8,45,357
Total PV of Cash Inflows	45,13,675					

Calculation of Present value of cash outflows (PVCO)

As mentioned in the question, 75% of the depreciable value will be paid at the beginning. Depreciable value means purchase price plus the installation cost.

	Year 0	Year 1
Purchase Price & Installation Cost	17,25,000	5,75,000
PV Factor @ 12%	1	0.8929
PVCO	17,25,000	5,13,418

(2) Total PVCO = 22,38,418

(3) PV of Tax on Capital Gains (Only asset in the block) - 5th Year end

Capital Gains = Sale Price (-) Closing WDV at 5th year

= 1,90,000 (-) 1,78,848

= 11,152

Tax @ 20% on above = 2230.40

PV = 2,230.40 x 0.5674 = 1,266

Net PVCI = PVCI - PV of Tax on Capital Gains

= 45,13,675 - 1,266 = 45,12,409

NPC = Net PVCI – PVCO

= 45,12,409 - 22,38,418 = 22,73,991

(II) PI = PVCI / PVCO = 45,12,409/ 22,38,418 = 2.0158

(III) ARR = Average NPAT / Initial Investment

= 8,08,327.2/23,00,000 x 100 = 35.145%

Note – ARR is calculated based on Initial Investment, similarly it can be calculated based on Average Investment

Question 6

MTP August 24

Mr. Anand is thinking of buying a Share at Rs. 500 whose Face Value per share is Rs. 100. He is expecting a bonus at the ratio 1 : 5 at the end of the fourth year. Annual expected dividend is 20% and the same rate is expected to be maintained on the expanded capital base. He intends to sell the Shares at the end of seventh year at an expected price of Rs. 900 each. Incidental Expenses for purchase and sale of Shares are estimated to be 5% of the Market Price. Assuming a Discount rate of 12% per annum, COMPUTE the Net Present Value from the acquisition of the shares.

Solution 6

(b) Computation of PV of Future Cash Flows

Year	Nature	Cash Flow	DF @ 12%	DCF
1	Dividends (Rs. 100 × 20%)	20	0.893	17.86
2	Dividends (Rs. 100 × 20%)	20	0.797	15.94
3	Dividends (Rs. 100 × 20%)	20	0.712	14.24
4	Dividends (Rs. 100 × 20%)	20	0.636	12.72
5	Dividends (Rs. 100 × 1.2 × 20%)	24	0.567	13.61
6	Dividends (Rs. 100 × 1.2 × 20%)	24	0.507	12.17
7	Dividends (Rs. 100 × 1.2 × 20%)	24	0.452	10.85
7	Net Sale Proceeds (Rs. 900 × 1.2 – 5%)	1,026	0.452	463.75
	Present Value of Cash Inflows			561.14
0	Less: Initial Investment (Rs. 500 + 5%)	525	1	525.00
	Net Present Value			36.14

Question 7

MTP Nov 2024

Vyom Limited, an IT conglomerate, is planning to take over Aryayash Limited, a startup company incorporated 2 years ago but holding a lot of prospects. To determine the buyout consideration, Vyom Limited has approached you as a Finance controller to estimate the fair value of the startup company today based on future earnings estimates. Following details of the startup company are as below -

Expected Sales in the coming year are Rs. 25 lakhs with P/V ratio of 40%. The sales are expected to grow at a rate of 20% for the next 2 years, to 40% for another 2 years, 25% in the 6th year and thereafter cash flows will grow at a steady rate of 10%. Fixed cost for the upcoming year is expected to be 12 lakhs for the first two years, Rs. 10 lakhs thereafter. Loss in any year can be set-off only against the profits of the immediate next year.

Corporate taxes applicable are 25% & 20% to Vyom Limited & Aryayash Limited respectively.

Vyom Limited's desired rate of return is 15% & Cost of Capital of Aryayash Limited is 17%.

As a finance controller, CALCULATE the Fair value of Aryayash Limited.

Solution 7

(c) Fair Value of Company = Present Value all future cash flows discounted at the expected Rate of return of acquiring company.

WN 1 – Calculation of Cash flows Rs. in Lakhs

YEAR	1	2	3	4	5	6
Contribution (40% on sales)	10	12	14.4	20.16	28.22	35.28
(-) Fixed Cost	-12	-12	-10	-10	-10	-10
NPBT (A)	-2	0	4.4	10.16	18.22	25.28
(-) Losses Set Off	0	0	-2(Setoff)	0	0	0
Taxable Income	0	0	2.4	10.16	18.22	25.28
(-) Tax @ 25% (B)	0	0	0.6	2.54	4.55	6.32
Cash Flow (A – B)	**-2**	**0**	**3.8**	**7.62**	**13.66**	**18.96**
PV OF CASH FLOWS @ 15%	-1.740	0	2.50	4.35	6.79	8.19

Total PV of cash flows (yr 1 to 6) = 20.08 lakhs

(+) PV of cash flow at terminal value (end of Year 6) $= \frac{18.96 + 10\%}{0.15 - 0.10}$

= 417.12 Lakhs

Therefore, PV of above = 417.12 X PV factor (15%, 6th Year) = 180.20 lakhs

Total fair value of Aryayash limited = 20.08 + 180.20 = 200.28 Lakhs

Question 8

MTP Nov 2024

DEFINE Modified Internal Rate of Return method.

Solution 8

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 inflow to the zeroth year outflow is called the MIRR.

Question 9

MTP Dec 24

Hemsparsh Private Limited is globally recognized consultancy firm having its presence in various countries across the globe and is currently headquartered at Ahmedabad, India.

It plans to commence a new branch in the Australia owing to the untapped opportunities available there in the outsourcing business. The company hired a professional for the preparation of the Project report and the fee paid was Rs 2,00,000. The company also incurred Rs 5,00,000 in the form R&D costs. As per the project report, the Company will require an initial fund outlay of Rs 25 crores for buying property & setting up the other infrastructure. It will also require working capital amounting to Rs 5 crore. The company is planning to operate for a very long period of time, however for the sake of simplicity, calculations shall end at the end of the 10th year. The Earnings before tax but after deducting Interest Exp (EBT) estimated would be as follows –

YEAR	EBT (Amount in Rs)
1	2,00,00,000
2	2,50,00,000
3	4,00,00,000
4	4,75,00,000
5	6,00,00,000
6	6,40,00,000
7	6,15,00,000
8	5,25,00,000
9	3,80,00,000
10	2,90,00,000

The above amounts also include an allocated common cost of Rs 12,50,000. Company will distribute 10% dividends every year on post-tax earnings. Company intends to borrow funds of 3 crores at a post-tax Interest rate of 6.5% in India. As per the tax treaty between India & Australia (Tax Agreement between two nations), first 3 years are tax free and from 4th year 75% of corporate taxes are to be paid in the country where it is headquartered and balance in the other nation. Total Corporate tax rate applicable to the company is 30%. However, tax on capital gains is to be paid at 15%, only in the headquarters. Salvage value for depreciation purpose is estimated at Rs. 90,00,000. The assets would be disposed of in the market at Rs. 3,50,00,000 at the end. Hemsparsh Private Limited desires a premium of 3% to the current MCLR of 12% (Marginal Cost of Funds based Lending Rate). Assume no other assets in the block.

CALCULATE NPV for the project and advise only from Indian law perspective. If the company wishes to recoup its investment within 3.5 years, STATE any two measures that the company shall take.

Solution 3

Calculation of NPV (Amount in crores)

Year	1	2	3	4	5	6	7	8	9	10
EBT	2.000	2.500	4.000	4.750	6.000	6.400	6.150	5.250	3.800	2.900
Add: Interest	0.195	0.195	0.195	0.252	0.252	0.252	0.252	0.252	0.252	0.252
Add: Allocated Common Cost	0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125
Project Profit Before Tax	2.320	2.820	4.320	5.127	6.377	6.777	6.527	5.627	4.177	3.277
Less: Tax	-	-	-	1.154	1.435	1.525	1.469	1.266	0.940	0.737
Profit After Tax	2.320	2.820	4.320	3.973	4.942	5.252	5.058	4.361	3.237	2.539
Add: Depreciation	2.410	2.410	2.410	2.410	2.410	2.410	2.410	2.410	2.410	-
Cash Inflows	4.730	5.230	6.730	6.383	7.352	7.662	7.468	6.771	5.647	2.539
Add: Release Of Working Capital	-	-	-	-	-	-	-	-	-	5.000
Add: Net Cash Inflow from sale of asset (Net Of Tax) (WN-3)	-	-	-	-	-	-	-	-	-	3.471
Total Cash Inflows	4.730	5.230	6.730	6.383	7.352	7.662	7.468	6.771	5.647	11.010
DF @ 15%	0.870	0.756	0.658	0.572	0.497	0.432	0.376	0.327	0.284	0.247
PV Cash Inflow	4.113	3.955	4.425	3.650	3.655	3.312	2.808	2.213	1.605	2.722

TOTAL PV CI = 32.458 Crores

(-) TOTAL PVCO = 30.000 Crores (Initial Outlay + Working Capital)

NPV = 2.458 Crores

ADVISE - Since NPV is positive, company should go for the project.

1. Allocated common costs are to be excluded from cash inflows
2. Dividend distribution are deemed irrelevant for cash flow analysis
3. Discounting rate = MCLR + premium = 12 + 3 = 15%
4. Interest exp is to be excluded from the cash inflows as it is already getting covered in the discounting rate above
5. Professional fees paid for project report and R&D costs being sunk costs are irrelevant for decision making

WN 1 – Calculation of applicable taxes each year

For the first 3 years, tax will be zero and for the next 7 years tax rate applicable would 22.5% (30 x 0.75) as balance tax will be paid in Australia, so it will have no relevance under India perspective calculations.

WN – 2 Calculation of interest expense each year

Since post tax interest rate is given in the question, firstly it needs to be converted to pre-tax rate. However, for the first 3 years of the project, post- tax and pre-tax rate would be same owing to zero taxes

Interest Expense (first 3 years) = 3,00,00,000 X 6.5% = 19,50,000 or 0.195 crores

Interest Expense (next 7 years) = 3,00,00,000 x 8.39% = 25,17,000 or 0.2517 crores

$$\text{Pre-tax Interest Rate} = \frac{\text{Post tax Rate}}{1 - \text{India Tax Rate}}$$

$$= 6.5 / (1 - 0.225)$$

$$= 8.39\%$$

WN 3 – CALCULATION OF CAPITAL GAINS INCOME IN YEAR 10

Cost of Asset remaining in the block at the beginning of Year 10

= 3,31,00,000 (2,41,00,000 + 90,00,000)

(+) New Asset purchased during the year = 0

(-) Sale Value of the Asset = 3,50,00,000 Capital Gains Income before tax = 19,00,000

(-) Capital Gains tax = 19,00,000 x 15% = 2,85,000

Net Cash Inflow after tax = 3,50,00,000 - 2,85,000 = 3,47,15,000

B) Current Payback Period = 4 + 1.927 /7.352

= 4.262 years

Target Payback Period = 3.5 years

Some **key measures to reduce your Payback period** are as follows (Only illustrative):

i. Emphasizing on reduction of operational costs

ii. Improving marketing thereby resulting into higher sales

iii. Incorporate product-led growth strategies

iv. Judicious efforts in bringing down the overall cost of capital thereby reducing the discounting rate and in turn better Payback period.

v. Leveraging out the presence of the fixed cost

CA Inter – New Syllabus
Financial Management

CHAPTER 8

Compiled by
CA Mohnish Vora (MVSIR)

	RTP Jan 2025
2.	**The cost of capital of a firm is 12% & its expected earning per share at the end of the year is Rs. 20. its existing payout ratio is 25%. the company is planning to increase its payout ratio to 50% what will be the effect of this change on the market price of equity share (MPS) of the company as per Gordon model, if the reinvestment rate of the company is 15%?**

a) It will increase by Rs. 444.45
b) It will decrease by Rs. 444.45
c) It will increase by Rs. 222.22
d) It will decrease by Rs. 222.22

Question 1

PYQ May 24

Vista Limited's retained earnings per share for the year ending 31.03.2023 being 40% is Rs. 3.60 per share. Company is foreseeing a growth rate of 10% per annum in the next two years. After that the growth rate is expected to stabilize at 8% per annum. Company will maintain its existing pay-out ratio. If the investor's required rate of return is 15%, Calculate the intrinsic value per share as of date using Dividend Discount model.

Solution 1

As per Dividend discount model, the price of share is calculated as follows:

Retained earning per share = Rs. 3.60

Dividend per share, D0 = $\underset{40\%}{\text{Rs. 3.60}}$ x 60% = Rs. 5.40

$$P = \frac{D1}{(1+Ke)^1} + \frac{D2}{(1+Ke)^2} + \frac{D3}{(Ke-g)} + \frac{1}{(1+Ke)^2}$$

Where,

P = Price per share

Ke = Required rate of return on equity

g = Growth rate

$$P = \frac{5.4 \times 1.1}{(1+1.15)^1} + \frac{5.94 \times 1.1}{(1+0.15)^2} + \frac{6.534 \times 1.08}{(0.15-0.08)} \times \frac{1}{(1+0.15)^2}$$

P= 5.17 + 4.94 + 76.23 = Rs.86.33

Intrinsic value of share is Rs. 86.33

Question 2

List any four assumptions of Gorden's Model.

Solution 2

Gordon's model is based on the following assumptions:

- Firm is an all equity firm i.e. no debt.
- IRR will remain constant, because change in IRR will change the growth rate and consequently the value will be affected. Hence this assumption is necessary.
- Ke will remain constant, because change in discount rate will affect the present value.
- Retention ratio (b), once decide upon, is constant i.e. constant dividend payout ratio will be followed.
- Growth rate (g = br) is also constant, since retention ratio and IRR will remain unchanged and growth, which is the function of these two variable will remain unaffected.
- Ke> g, this assumption is necessary and based on the principles of series of sum of geometric progression for 'n' number of years.
- All investment proposals of the firm are to be financed through retained earnings only.

Question 3

RTP Sep 24

The following information is taken from Gamma 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

Solution 3

Market price per share by-

Gordon's Model:

Present market price per share (Po)* = $\frac{D_o(1+g)}{K_e - g}$

OR

Present market price per share (Po) = $\frac{D_1}{K_e - g}$

Where,

Po = Present market price per share.

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)

E = Earnings per share

$$P_o = \frac{0.75\,(1+0.165)}{0.18-0.165} = \frac{0.874}{0.015} = \textbf{Rs. 58.27 approx.}$$

(2) Walter's Model:

$$P = \frac{D+\frac{r}{K_e}(E-D)}{K_e}$$

$$= \frac{0.75+\frac{0.22}{0.18}(3-0.75)}{0.18} = \textbf{Rs. 19.44}$$

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/Rs. 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 (D0)

Particulars	
Earnings per share	Rs. 3
Retention Ratio (b)	75%
Dividend pay-out ratio (1-b)	25%
Dividend per share (Earnings per share x Dividend pay-out ratio)	Rs. 3 x 0.25 = **Rs. 0.75**

Question 4

RTP Jan 2025

The following information is supplied to you:

Particulars	Amount (Rs.)
Total Earnings	4,50,000
No of Equity Shares (of Rs. 100 each)	25,000 shares
Retention ratio	40%
MPS	198

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. Also calculate the MPS at such P/E ratio

iii. Will your decision change if the P/E ratio is 4.5? ANALYSE.

Solution 4

(i) As per Walter,

If ROI > Ke, firm should retain everything and distribute nothing to maximize the share price. On the contrary, if ROI < Ke, firm should distribute everything and retain nothing to maximize the wealth of the equity owners.

ROI = Total Earnings / Equity Share capital

= 4,50,000 / 25,00,000

ROI = 18%

$Ke = \frac{1}{PE}$

P.E Ratio = MPS / EPS = 198 /18 = 11

Therefor Ke = 1/11 = 9.091%

Since ROI > Ke, optimal dividend policy of the firm should be to retain everything and distribute nothing. However, the firm has retained 40% and distributed 60%, hence it is not having an optimal dividend policy as per Walter's model.

(ii) When ROI = Ke, dividend policy of the company will have no effect on the value of the share as per Walter's model

Therefore, in that case, Ke should be equal to 18%

$P.E\ Ratio = \frac{1}{Ke} = \frac{1}{0.18}$

P.E Ratio = 5.56 times

MPS at the above P.E Ratio = 18 x 5.56 = Rs. 100.08

(iii) If P.E Ratio is 4.5,

Ke = $\frac{1}{4.5}$ = 22.22%

Since, ROI < Ke, optimal dividend policy of the firm should be to distribute everything and retain nothing, as the value of share would be maximum at that point thereby maximizing the wealth of the shareholder

Question 5

MTP July 2024

The following information is given for QB Ltd.

Earnings per share	Rs. 180
Dividend per share	Rs. 45
Cost of capital	17%
Internal Rate of Return on investment	20%

CALCULATE the market price per share using -

(a) Gordon's formula

(b) Walter's formula

Solution 5

(a) As per Gordon's Model, Price per share is computed using the formula:

$$Po = \frac{E1\ (1 - b)}{Ke - br}$$

Where,

P0 = Price per share

E1 = Earnings per share Payout ratio = 45/180 = 25%

b = Retention ratio; (1 - b = Pay-out ratio) = 1-0.25 = 0.75 Ke = Cost of capital

r = IRR

br = Growth rate (g)

Applying the above formula, price per share

$$Po = \frac{180(1 - 0.75)}{0.17 - 0.75 \times 0.2} = \frac{45}{0.02} = \textbf{Rs. 2,250}$$

(b) As per Walter's Model, Price per share is computed using the formula:

$$Price\ (P) = \frac{D + r/Ke\ (E - D)}{Ke}$$

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

$$P = \frac{45 + 0.20/0.17\ (180 - 45)}{0.17}$$

OR , P = $\frac{45 + 158.82}{0.17}$ **= Rs. 1,200 (approx..)**

Question 6

MTP July 2024

DISCUSS the parameters of Lintner's Model.

Solution 6

Lintner's model has two parameters:

i. The target payout ratio,

ii. The spread at which current dividends adjust to the target.

Question 7

MTP Nov 2024

Paras TMT Ltd. is a TMT manufacturing company with a face value of Rs. 10 per share.

The following information is given about the company:

- The company is expected to grow @ 10% p.a. for next four years then 5% for an indefinite period.
- Rate of return expected by the shareholders on their share investments is 15%.
- Company paid Rs. 4 as dividend per share for the current Financial Year.

FIND out the intrinsic value per share

Solution 7

As per Dividend discount model, the price of share is calculated as follows:

$$P = \frac{D1}{(1+Ke)^1} + \frac{D2}{(1+Ke)^2} + \frac{D3}{(1+Ke)^3} + \frac{D4}{(1+Ke)^4} + \frac{D5}{(1-Ke)} \times \frac{1}{(1+Ke)^4}$$

Where,

P = Price per share

Ke = Required rate of return on equity

g = Growth rate

Calculation PV of Dividends

Year	Dividend per share	PVF @ 15%	PV
1	4.4	0.870	3.828
2	4.84	0.756	3.660
3	5.324	0.658	3.503
4	5.856	0.572	3.350
Total			14.341

PV of Terminal Value = $\frac{\text{Rs. } 5.856 \times 1.05}{(0.15 - 0.05)} \times \frac{1}{(1 + 0.15)^4}$ = 61.488 x .572 = 35.171

Intrinsic value of share = PV of Dividends + PV of terminal value

= 14.341 + 35.171 = Rs. 49.512

Question 8

MTP Dec 24

Return on Equity (ROE) is Satva Limited is 15% and the capitalization rate applicable to the company is at 20%. Satva Limited's Book Value per share (BVPS) is Rs 125. Calculate the intrinsic value of the share today using Gordon's model and Walter's model if the company's policy is to retain 65% of the earning.

Solution 8

EPS = ROE x BVPS (WN 1)

EPS = 0.15 x 125 = Rs. 18.75

Growth = ROE x Retention Ratio

= 0.15 x 0.65

= 9.75%

D1 = Do (1 + g)

= (18.75 x 35%)(1 + 0.0975)

= Rs. 7.20

Intrinsic Value of share today - Gordon's Formula

$$Po = \frac{D1}{Ke - g}$$

$$= \frac{7.20}{0.20 - 0.0975}$$

Po = Rs. 70.24

Intrinsic Value of share today - Walter's Model

$$Po = \frac{D + \frac{r}{K_e}(E - D)}{K_e}$$

Here D = Do assuming it would remain constant through infinity

$$Po = \frac{6.5625 + \frac{0.15}{0.20}(18.75 - 6.5625)}{0.20}$$

Po = Rs 78.51

WN 1 - Relationship between ROE-EPS-BVPS

$$ROE = \frac{\text{Earnings for Equity Shareholders}}{\text{Equity shareholders funds}}$$

If we divide the numerator and denominator with "No of equity shares"

$$ROE = \frac{\text{Earnings for Equity Shareholders / No of equity shares}}{\text{Equity shareholders funds / No of equity shares}}$$

Therefore, ROE = EPS / BVPS

Question 9

MTP Dec 24

MENTION any one advantage of stock dividend – to the company as well as to the investor

Solution 9

Advantage to the Company - Stock dividends are suitable in the situation of cash crunch and deficiency faced by the company and suitable when restrictions are imposed by lenders to pay the cash dividend

Advantage to the investor – Improves liquidity in the hands of the investors as bonus shares leads to breaking down of higher priced shares into lower priced shares and hence give a choice to shareholders to sell some of the lower priced shares and get some liquidity

CA Inter – New Syllabus
Financial Management

CHAPTER 9

Compiled by
CA Mohnish Vora (MVSIR)

	RTP Sep 24
2	KT Ltd.'s opening stock was Rs. 2,50,000 and the closing stock was Rs. 3,75,000. Sales during the year were Rs. 13,00,000 and the gross profit ratio was 25% on sales. Average accounts payable are Rs. 80,000. Creditors Turnover Ratio =?

a) 13.33
b) 14.33
c) 14.44
d) 13.75

Question 1

PYQ May 24

Following is the sales information in respect of Bright Ltd:

Annual Sales (90 % on credit)	*Rs. 7,50,00,000*
Credit period	*45 days*
Average Collection period	*70 days*
Bad debts	*0.75%*
Credit administration cost (out of which 2/5th is avoidable)	*Rs. 18,60,000*

A factor firm has offered to manage the company's debtors on a non recourse basis at a service charge of 2%.

Factor agrees to grant advance against debtors at in interest rate of 14% after withholding 20% as reserve.

Payment period guaranteed by factor is 45 days.

The cost of capital of the company is 12.5%.

One time redundancy payment of Rs. 50,000 is required to be made to factor.

Calculate the effective cost of factoring to the company.

(Assume 360 days in a year)

Solution 1

Evaluation of Factoring Proposal

	Particulars	Rs.	Rs.
A.	**Savings due to factoring**		
	Bad Debts saved	0.75% x 7.5 crores x 90%	Rs.5,06,250
	Administration cost saved	18.6 lakhs x 2/5	Rs.7,44,000
	Interest saved due to reduction in average collection period	7.5 crores x 90% x (70-45)/ 360 x 12.5%	Rs.5,85,937.5
	Total		Rs.**18,36,187.5**
B.	**Costs of factoring:**		
	Service charge	7.5 crores x 90% x 2%	Rs.13,50,000
	Interest cost	Rs.1,15,171.875 x 360/45	Rs.9,21,375
	Redundancy Payment		Rs.50,000
	Total		Rs.**23.21,375**
C.	**Net Annual cost to the Firm: (A-B)**		**Rs. 4,85,187.5**
	Rate of effective cost of factoring	Rs.4,85,187.5/ Rs.64,66,078.125 x 100	**7.504%**

Advice: Since the rate of effective cost of factoring is less than the existing cost of capital, therefore, the proposal is acceptable.

Credit Sales = Rs.7.5 crores x 90%	= Rs.6,75,00,000
Average level of receivables = Rs.6.75 crores x 45/360	= Rs.84,37,500
Service charge = 2% of Rs.84,37,500	Rs. 1,68,750
Reserve = 20% of Rs.84,37,500	Rs. 16,87,500
Total (i)	Rs.18,56,250
Thus, the amount available for advance is	
Average level of receivables	Rs.84,37,500
Less: Total (i) from above	Rs.18,56,250
(ii)	Rs.65,81,250
Less: Interest @ 14% p.a. for 45 days	Rs. 1,15,171.875
Net Amount of Advance available.	Rs.64,66,078.125

Note: Alternatively, if redundancy cost is taken as irrelevant for decision making, then Net Annual cost to the Firm will be Rs. 4,35,187.5 and Rate of effective cost of factoring will be Rs. 4,35,187.5/Rs. 64,66,078.125 x 100 = 6.730%

If average level of receivables is considered for 70 days then the calculation can be done in following way:

Evaluation of Factoring Proposal

Credit Sales = Rs. 7.5 crores X 90%	= Rs.6,75,00,000
Average level of receivables = Rs. 6.75 crores x 70/360	= Rs. 1,31,25,000
Service charge = 2% of Rs. 1,31,25,000	Rs. 2,62,500
Reserve = 20% of Rs. 1,31,25,000	Rs. 26,25,000
Total (i)	Rs. 28,87,500
Thus, the amount available for advance is	
Average level of receivables	Rs. 1,31,25,000
Less: Total (i) from above	Rs. 28,87,500
(ii)	Rs. 1,02,37,500
Less: Interest @ 14% p.a. for 45 days	Rs. 1,79,156.25
Net Amount of Advance available.	Rs. 1,00,58,343.75

Note 1: Accordingly, interest cost will be Rs. 14,33,250 cost of factoring will be Rs. 28,33,250. Therefore, Rate of effective cost of factoring is 9.913%

Note 2: Alternatively, if redundancy cost is taken as irrelevant for decision making, then Net Annual cost to the Firm will be Rs. 9,47,062.5 and Rate of effective cost of factoring will be Rs. 9,47,062.5/ Rs. 1,00,58,343.75 x 100 = 9.416%.

Advice: Since the rate of effective cost of factoring is less than the existing cost of capital, therefore, the proposal is acceptable.

Question 2

PYQ SEP 24

The following information is available for SK Limited for the year ended on 31st March, 2024:

Particulars	(Rs.)
Cost of production	15,48,000
Cost of goods sold	14,61,000
Average stock of work in progress	94,600
Average stock of finished goods	2,43,500
Aadministration and selling expenses	4,14,000
Receivables Collection period	36 days
Raw Material Storage period	65 days
Creditors payment period	63 days

You are required to calculate the working capital requirement by operating cycle method. Assume a 360 days year.

Solution 2

Operating Cycle = R + W + F + D – C

Where,

R = Raw material storage period = 65 days

W = Work-in-progress inventory* holding period

F = Finished goods storage period

D = Receivables (Debtors) collection period = 36 days

C = Credit period allowed by suppliers (Creditors) = 63 days

Work-in-progress inventory holding period (W)

$$= \frac{\text{Average Work-in-progress inventory}}{\text{Average Cost of Production per day}}$$

$$= \frac{\text{Rs. 94,600}}{\text{Rs.15, 48,000} \div 360\text{days}} = \textbf{22 days}$$

Finished Goods storage period (F)

$$= \frac{\text{Average stock of finished goods}}{\text{Average Cost of Goods Sold per day}}$$

$$= \frac{\text{Rs.2, 43,500}}{\text{Rs.14,61,000} \div 360\text{days}} = \textbf{60 days}$$

Net Operating Cycle = 65+22+60+36-63 = **120 days**

Number of Operating Cycles in a year

$$= \frac{\text{No. of days in a year}}{\text{Operating Cycle period}}$$

$$= \frac{360 \text{ days}}{120 \text{ days}} = \textbf{3 times}$$

Amount of Working Capital Required

$$= \frac{\text{Annual Operating Cost}}{\text{Number of Operating Cycles}} = \frac{\text{Rs. 14,61,000 + Rs. 4,14,0}}{3} = \textbf{Rs. 6,25,000}$$

Question 3

PYQ Sep 24

AB Enterprises deals in hardware materials having current turnover ₹30 Lakhs per annum. All sales are on credit and average collection period is 30 days with zero bad debts. The customers are requesting to increase the credit period. As a result of increase in credit period sales will also increase. Other information is as under:

Credit policy	Increase in collection period (days)	Increase in sales (Rs.)	Bad debts anticipated
A	15	3,00,000	1%
B	30	5,00,000	3.5%

The Selling price is Rs. 100/- per unit. Variable cost per unit is Rs. 50/- and fixed cost is Rs. 5,00,000. Required rate of return on additional investment is 20%. **Creditors for variable cost are ready to give 15 days extra credit for the additional cost incurred.**

Assume a 360 days year. You are required to analyse the present and proposed credit policies using the "Total Approach" method and recommend the credit policy to be adopted.

Solution 3

A. Statement showing the Evaluation of Credit Policies (Total Approach)

Particulars		Present Credit Policy	Proposed Credit Policy	
			A	B
	Credit Period (in days)	30	45	60
	Units sold	30,000	33,000	35,000
		Rs.	Rs.	Rs.
A	**Expected Profit:**			
	(a) Credit Sales @ Rs. 100 per unit	30,00,000	33,00,000	35,00,000
	(b) Total Cost other than Bad Debts			
	(i) Variable Costs @ Rs. 50 per unit	15,00,000	16,50,000	17,50,000
	(ii) Fixed Costs	5,00,000	5,00,000	5,00,000
		20,00,000	21,50,000	22,50,000
	(c) Bad Debts	-	33,000	1,22,500
	(d) Expected Profit [(a) – (b) – (c)]	**10,00,000**	**11,17,000**	**11,27,500**

B	Opportunity Cost of Investments in Receivables (i)-(ii)	33,333	52,500	72,917
C	Net Benefits (A – B)	9,66,667	10,64,500	10,54,583

Recommendation: The Proposed Policy A (i.e. increase in collection period by 15 days or total 45 days) should be adopted since the net benefits under this policy are higher as compared to other policies.

Working Notes:

(i) Calculation of Opportunity Cost of Average Investment in Receivables

Particulars		Present Credit Policy	Proposed Credit Policy	
			A	B
	Credit Period (in days)	30	45	60
		Rs.	Rs.	Rs.
(a)	Cost of Sales (Variable Cost + Fixed Cost)	20,00,000	21,50,000	22,50,000
(b)	Average Debtors = Cost of Sales × (Credit period) / 360	1,66,667	2,68,750	3,75,000
(c)	Average Creditors for extra variable cost [(Additional Variable Cost) x 15/360]	-	6,250	10,417
(d)	**Average Investment in Receivables or Net Working Capital = (b) – (c)**	1,66,667	2,62,500	3,64,583
(e)	**Opportunity Cost @20% of average Investments in Receivables**	33,333	52,500	72,917

Question 4

TMT Limited is commencing a new project for manufacture of electric toys. The following cost information has been ascertained for annual production of 60,000 units at full capacity:

		Amount per unit (Rs.)
Raw materials		20
Direct labour		15
Manufacturing overheads:		
	Rs.	
Variable	15	
Fixed	10	25
Selling and Distribution overheads:		
	Rs.	
Variable	3	
Fixed	1	4
Total cost		64
Profit		16
Selling price		80

In the first year of operations expected production and sales are 40,000 units and 35,000 units respectively. To assess the need of working capital, the following additional information is available:

i. Stock of Raw materials 3 months consumption.

ii. Credit allowable for debtors $1\frac{1}{2}$ months.

iii. Credit allowable by creditors 4 months.

iv. Lag in payment of wages 1 month.

v. Lag in payment of overheads $\frac{1}{2}$ month.

vi. Cash in hand and Bank is expected to be Rs. 60,000.

vii. Provision for contingencies is required @ 10% of working capital requirement including that provision.

You are required to PREPARE a projected statement of working capital requirement for the first year of operations. Debtors are taken at cost.

Solution 4

Statement Showing Cost and Sales for the First Year

Annual Production Capacity	60,000 units
Production	40,000 units
Sales	35,000 units

Particulars	**Rs.**
Sales Revenue (Rs. 80 × 35,000)	28,00,000
Cost of Production:	
Materials @ Rs. 20 per unit	8,00,000
Direct Labour @ Rs. 15 per unit	6,00,000
Manufacturing Overheads	
Variable @ Rs. 15 per unit	6,00,000
Fixed (based on production capacity 60,000 units × Rs. 10)	6,00,000
Cost of Production	26,00,000
Less: Closing Stock (40,000 – 35,000 = 5,000 units)	
$\frac{26,00,000}{\text{Rs. } 40,000} \times 5,000$ units	3,25,000
Cost of Goods Sold	22,75,000
Add: Selling & Distribution Overheads	
Variable @ Rs. 3 × 35,000 units = 1,05,000	
Fixed (Re. 1 × 60,000 units) = 60,000	1,65,000
Cost of Sales	24,40,000
Profit	3,60,000

Statement Showing Working Capital Requirement

			Rs.
A.	**Current Assets**		
	Stock of Raw Materials	(Rs. 8,00,000 × 3/12)	2,00,000
	Stock of Finished Goods		3,25,000
	Debtors at Cost	(Rs. 24,40,000 × 3/24)	3,05,000
	Cash and Bank		60,000
	Total (A)		8,90,000
B.	**Current Liabilities**		
	Creditors for Materials	(Rs. 10,00,000 × 4/12)	3,33,333
	Creditors for Expenses	(Rs. 13,65,000 × 1/24)	56,875
	Outstanding Wages	(Rs. 6,00,000 × 1/12)	50,000
	Total (B)		4,40,208
	Working Capital Requirement before Contingencies **(A – B)**		4,49,792
	Add: Provision for Contingencies (Rs. 4,49,792 × 1/9)		49,977
	Estimated Working Capital Requirement		4,99,769

Workings Notes:

Purchase of Raw Material during the first year Rs.

Raw Material consumed during the year	8,00,000
Add: Closing Stock of Raw Materials (3 months consumption)	2,00,000
	10,00,000
Less: Opening Stock of Raw Material	Nil
Purchases during the year	10,00,000

Question 5

Banu Limited is considering relaxing its present credit policy and is in the process of evaluating two proposed policies. 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. Policy option II requires a manager to manage the receivables with salary of Rs. 50,000 per month. The company's variable costs are 60% of the selling price. Given the following information, 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

Solution 5

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 other than manager salary	135.00	165.00	210.00
	(c) Salary of Manager	-	-	6
	(d) Bad Debts	7.50	22.50	47.50
	(e) Expected Profit [(a)-(b)-(c)-(d)]	82.50	87.50	86.50
B	Opportunity Cost of Investment in Receivables*	5.40	8.25	14.40
C	Net Benefits [A-B]	77.10	79.25	72.10

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

$$\text{Opportunity Cost} = \text{Total Cost} \times \frac{\text{Period Collection}}{12} \times \frac{\text{Rate of Return}}{100}$$

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. 216 lakhs × 4/12 × 20% = Rs. 14.40 lakhs

Question 6

RTP Jan 2025

Nirmoh Limited wants to avail short-term loan from the bank. However, bank grants short term loan by keeping the collateral in the form of accounts receivable. A bank is analyzing the receivables of Nirmoh Limited to identify acceptable collateral for a short-term loan.

The current policy of the company is 3/10 net 40. Bank will lend only to the extent of 90% of acceptable receivables at an interest rate of 12% only if both the conditions mentioned below are fulfilled. Bank will keep a reserve of 5% for cash discount & returns

a) Customers are not currently overdue for more than 5 days to the net period

b) Average aging (payment period) of the customer should not exceed 15 days past the net period.

If any of the above conditions are not fulfilled, the bank will lend 65% of the receivables subject to a reserve of 15% and the interest rate will be charged at 15% on such accounts. The corporate tax rate applicable is 25%.

On the scrutiny of all the receivables, following are the acceptable receivables considered for lending-

Accounts	Amount (Rs.)	Outstanding in Days since invoiced	Average Aging (payment period) in Days
DR 01	50,000	37	40
DR 02	25,000	25	48
DR 03	1,20,000	47	49
DR 04	72,000	10	56
DR 05	45,000	30	30
DR 06	1,75,000	39	50
DR 07	19,000	55	25
DR 08	54,000	44	54
DR 09	1,05,000	15	25
DR 10	37,000	22	75

You are required to CALCULATE:

a) Total amount lend by the bank

b) Effective Interest cost (%) to the company

Solution 6

Condition (a) says that accounts shouldn't be overdue for more than 5 days to the net period. In other words, it means those accounts who are overdue by 45 days (40 days + 5 additional days), will not fulfill condition a) and thus will not be eligible for 90% lending.

Therefore, from the above, we can see that Accounts DR 03 & DR 07 are overdue for more than 45 days and hence will not be eligible for 90% lending.

Condition (b) says that average receivables ageing (payment period) should not exceed 15 days to the net period i.e. it should not exceed 55 days (40 days + 15 days = 55 days). Therefore, from the above, we can see that Accounts DR 04 & DR 10 has an ageing of more than 55 days. Hence, they would also not be eligible for 90% lending.

Amount of Bank Lending:

Accounts	Bank Lending at 90%	Bank Lending at 65%
DR 01	50,000	-
DR 02	25,000	-
DR 03	-	1,20,000
DR 04	-	72,000
DR 05	45,000	-
DR 06	1,75,000	-
DR 07	-	19,000
DR 08	54,000	-
DR 09	1,05,000	-
DR 10	-	37,000
Total	**4,54,000**	**2,48,000**
(-) Reserve	22,700 {4,54,000 x 5%}	37,200 {2,48,000 x 15%}
Net	**4,31,300**	**2,10,800**
Loan	**3,88,170**	**1,37,020**

Total short-term loan granted by the bank = Rs. 5,25,190

(B) Calculation of the Effective Interest Cost

Interest at 12% (On 90% lending) = 3,88,170 x 0.12 = 46,580.4

Interest at 15% (On 65% lending) = 1,37,020 x 0.15 = 20,553 Total Interest = Rs. 67,133.4

Effective Interest Cost (%) = Interest (1-t) / Total Short-term Loan

= 67,133.4 (1-0.25) / 5,25,190

Effective Interest Cost (%) = 9.59%

Question 7

MTP July 2024

The financial statements of Gurunath Ltd is furnished below –

Balance Sheet as at 31st March

Particulars as at 31st March		Note	Rs.
I	**EQUITY AND LIABILITIES:**		
(1)	Shareholders' Funds:		10,00,000
(2)	Non-Current Liabilities: 10% Debt		6,00,000
(3)	Current Liabilities		1,56,000
	Total		17,56,000
II	**ASSETS**		
(1)	Non-Current Assets		16,56,000
(2)	Current Assets – Trade Receivables		1,00,000
	Total		17,56,000

Additional Information:

1. 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.
2. 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.
3. Credit period allowed by the supplier is 60 days. Generally, operating expenses are paid 2 months in arrears. Total Variable expenses of the company constitute Purchases of stock in trade and operating expenses only.
4. Opportunity cost of investment in receivables is 15%. 50% and 80% of customers in terms of sales revenue are expected to avail cash discount under existing and liberalization scheme respectively. The tax rate is 30%.
5. The Company considers only the relevant or variable costs for calculating the opportunity costs on the funds blocked in receivables. Assume 360 days in a year and 30 days in a month.

Should the company change its credit terms?

Solution 7

Particulars	Result
Current liabilities	1,56,000
Total Variable expenses = Purchases & Operating Expenses	1,56,000 ÷ 60 × 360 = 9,36,000
Variable expenses % of Sales	9,36,000 ÷ 12,00,000 × 100 = 78%

Particulars	Present	Proposed
1. Sales	1 Lakh ÷ 30 × 360 = 12,00,000	12 Lakhs + 1/3rd = 16,00,000
2. Variable Cost at 78%	9,36,000	12,48,000
3. Cash Discount	12 Lakh × 50% × 1% = 6,000	16 Lakh × 80% × 2% = 25,600
4. Bad debts	12 Lakh × 1.5% = 18,000	16 Lakh × 2% = 32,000
5. Profit before Tax	2,40,000	2,94,400
6. Tax @ 30%	72,000	88,320
7. Profit after Tax	1,68,000	2,06,080
8. Opportunity Cost of Invest. in Debtors	9,36,000 × 30/360 × 70% ×15% = 8,190	12,48,000 × 20/360 × 70% × 15% = 7,280
9. **Net Benefit**	**1,59,810**	**1,98,800**

Advise: Proposed policy should be adopted since the net benefit is increased by (Rs. 1,98,800 - 1,59,810) = Rs. 38,990.

Question 8

MTP July 2024

DISCUSS the Costs of Availing Trade Credit

Solution 8

Normally it is considered that the trade credit does not carry any cost. However, it carries the following costs:

i. **Price:** There is often a discount on the price that the firm undergoes when it uses trade credit, since it can take advantage of the discount only if it pays immediately. This discount can translate into a high implicit cost.

ii. **Loss of goodwill:** If the credit is overstepped, suppliers may discriminate against delinquent customers if supplies become short. As with the effect of any loss of goodwill, it depends very much on the relative market strengths of the parties involved.

iii. **Cost of managing:** Management of creditors involves administrative and accounting costs that would otherwise be incurred.

iv. **Conditions:** Sometimes most of the suppliers insist that for availing the credit facility the order should be of some minimum size or even on regular basis.

Question 9

MTP Aug 2024

Sukrut Limited has annual credit sales of Rs. 75,00,000/-. Actual credit terms are 30 days, but its management of receivables has been poor, and the average collection period is about 60 days. Bad debt is 1 per cent of total sales.

A factor has offered to take over the task of debt administration and credit checking, at an annual fee of 1.5 per cent of credit sales.

Sukrut Limited estimates that it would save Rs. 45,000 per year in administration costs as a result. Due to the efficiency of the factor, the average collection period would come back to the original credit offered of 30 days and bad debts would come to 0.5% on recourse basis.

The factor would pay net advance of 80 percent to the company at an annual interest rate of 12 per cent after withholding a reserve of 10%. Sukrut Limited is currently financing its receivables from an overdraft costing 10 per cent per year and will continue to finance the balance fund needed (which is not financed by factor) through the overdraft facility.

If occurrence of credit sales is throughout the year, COMPUTE whether the factor's services should be accepted or rejected. Assume 360 days in a year.

Solution 9

Evaluation of Factoring Proposal -

	PARTICULARS	Rs.	Rs.
(A)	**Savings (Benefit) to the firm**		
	Administration Cost	45,000	45,000
	Bad Debts Cost (On Recourse basis) In House – 75 lakhs X 1% Factoring – 75 lakhs X 0.5% **Net Savings in bad debts cost**	(75 lakhs X 0.5%)	37,500
	Cost of Carrying Debtors Cost	**(WN – 1)**	1,06,750
	TOTAL		**1,89,250**
(B)	**Cost to the Firm:**		
	Factor Commission [Annual credit Sales × % of Commission]	75 lakhs X 1.5%	1,12,500
	Interest Cost on Net advances	**(See WN – 1)**	53,100
	TOTAL		**1,65,600**
(C)	**Net Benefits to the Firm (A – B)**		**23,650**

Advice: Since the savings to the firm exceed the cost due to factoring, the proposal is acceptable.

WN-1 : Calculation of Savings in Interest Cost of Carrying Debtors

(i) In house Management:

Interest Cost = Credit Sales X Avg Collection Period / 360 X Interest (%) p.a

= 75,00,000 x 60/360 x 10%

= 1,25,000

(ii) If Factoring services availed: If factoring services are availed, then Sukrut Limited must raise the funds blocked in receivables to the extent which is not funded by the factor (i.e amount of factor reserve (+) amount of factor commission for 30 days (+) 20% of net advances)

Calculation of Net Advances to the firm -

Debtors = 75 lakhs x 30/360 = 6,25,000

(-) Factor Reserve = 10% of above = (62,500)

(-) Factor Commission = 1.5% of Debtors = (9,375)

Net Advance = 5,53,125

Advance from Factor = 5,53,125 x 80% = 4,42,500

Int cost on Advance from Factor = 4,42,500 x 12% = 53,100

Now, the amount that is not funded by the factor (6,25,000 - 4,42,500) needs to be funded by Sukrut Limited from overdraft facility at 10%

Therefore, Int cost on Overdraft (Cost of carrying debtors)

= 1,82,500 x 10% = 18,250

Net Savings in Interest Cost of Carrying Debtors = 1,25,000 (-) 18,250 = 1,06,750

Question 10

MTP Aug 2024

Determining the amount to be invested in current assets as working capital is a crucial policy decision for any entity. What FACTORS should a company consider when deciding the level of investment in working capital?

Solution 10

Level of investment depends on the various factors listed below:

a) **Nature of Industry:** Construction companies, breweries etc. requires large investment in working capital due long gestation period.

b) **Types of products:** Consumer durable has large inventory as compared to perishable products.

c) **Manufacturing Vs Trading Vs Service:** A manufacturing entity has to maintain three levels of inventory i.e. raw material, work-in- process and finished goods whereas a trading and a service entity has to maintain inventory only in the form of trading stock and consumables respectively.

d) **Volume of sales:** Where the sales are high, there is a possibility of high receivables as well.

e) **Credit policy:** An entity whose credit policy is liberal has not only high level of receivables but may require more capital to fund raw material purchases as that will depend on credit period allowed by suppliers.

Question 11

MTP Nov 2024

Zomo Ltd. currently has a turnover of ₹ 120 lakhs, 75% of which is on credit. The variable cost ratio is 80%, and the credit terms offered are 2/10, net 30. On the current sales volume, the bad debts are 1%, and the company spends ₹ 1,20,000 annually on administering its credit sales, including staff salaries for credit checking and collection. These costs are avoidable.

In addition:

- 60% of customers avail of the 2% cash discount, and the remaining customers take 60 days on average to pay after the date of sale.
- The book debts are financed by a mix of bank borrowings and owned funds in a 1:1 ratio, with annual costs of 15% and 14%, respectively.

However, Zomo Ltd. is also considering dynamic discounting for its cash customers, which might incentivize more customers to pay earlier by increasing the discount rate. This could lead to a potential reduction in bad debts to 0.8% but may also increase the cost of the discount offered to 2.5%.

A factoring firm has proposed a deal with the following terms: (i) Factor reserve: 12% (ii) Guaranteed payment: 25 days (iii) Interest charges: 15% (iv) Commission: 4% of receivables.

In addition, the company also has the option to extend the credit period for its remaining customers (who do not avail of the discount) to 75 days, which might increase sales by 10% but could result in an increase in bad debts to 1.5%.

Given:

- The cost of funds is expected to rise to 16% next year.
- Zomo Ltd. plans to introduce late payment penalties (for customers who take more than 60 days) at 5% of outstanding receivables after 60 days.

Assume a 360-day year.

Required:

- SHOULD Zomo Ltd. opt for dynamic discounting or the factoring firm's offer?
- ANALYZE the impact of extending the credit period on the company's finances.

COMPARE all options and RECOMMEND whether to continue with in-house management, dynamic discounting, or accept the factoring firm's offer.

Solution 11

1. In-House Management of Receivables (With Dynamic Discounting) Particulars:

1. Cash Discount Cost:

- Revised discount rate: 2.5%
- 60% of customers avail discount.
- Cost of Discount: Rs. 90,00,000 × 60% × 2.5% = Rs. 1,35,000

2. Bad Debts (Reduced to 0.8% due to dynamic discounting):

- Rs. 90,00,000 × 0.8% = Rs. 72,000

3. Administration Cost: Rs. 1,20,000

4. Cost of Financing Receivables:

- Working Note 1 (Average Collection Period): (10 days × 60%) + (60 days × 40%) = 30 days
- Working Note 2 (Average Receivables): Rs. 90,00,000 × (30/360) = Rs. 7,50,000
- Working Note 3 (Cost of Financing):
  - Cost of Bank Funds: Rs. 7,50,000 × 1/2 × 15% = Rs. 56,250
  - Cost of Owned Funds: Rs. 7,50,000 × 1/2 × 14% = Rs. 52,500
  - Total Cost of Financing Receivables: Rs. 1,08,750

Total Cost with In-House Receivables Management and Dynamic Discounting:

Particulars	Amount (Rs.)
Cash Discount (Rs. 90,00,000 × 60% × 2.5%)	1,35,000
Bad Debts (Rs. 90,00,000 × 0.8%)	72,000
Admin Cost	1,20,000
Cost of Financing Receivables	1,08,750
Total Cost (In-House with Dynamic Discounting):	**4,35,750**

2. Factoring Firm's Offer:

Particulars:

i. Factoring Commission: Rs. 90,00,000 × 4% = Rs. 3,60,000

ii. Interest Charges on Receivables: Factor Reserve: 12%, so financing on 88% of receivables. Interest for 25 days: (Rs. 90,00,000- 3,60,000) × 88% × 15% × (25/360) = Rs. 79,200

iii. Cost of Owned Funds (Receivables not factored): Rs. 13,96,800 × 14% × (25/360) = Rs. 13580

Owned Funds: (Rs. 90,00,000-3,60,000) × 12% + 3,60,000 = Rs. 13,96,800

Total Cost with Factoring Firm:

Particulars	Amount (Rs.)
Factoring Commission (Rs. 90,00,000 × 4%)	3,60,000
Interest Charges on Receivables	79,200
Cost of Owned Funds	13,580
Total Cost with Factoring:	**4,52,780**

3. Impact of Extending Credit Period:

If Zomo Ltd. extends the credit period to 75 days:

- Sales increase: 10% of Rs. 120,00,000 = Rs. 12,00,000
- New total turnover = Rs. 120,00,000 + Rs. 12,00,000 = Rs. 1,32,00,000 Credit Sales (75%) = Rs. 99,00,000
- Increased Bad Debts (1.5%): Rs. 99,00,000 × 1.5% = Rs. 1,48,500
- Late Payment Penalty: Customers delaying beyond 60 days (40%):

  Rs. 99,00,000 × 40% × 5% = Rs. 1,98,000

A. Cash Discount Cost:

- Discount rate: 2% (since there's no mention of dynamic discounting in this case)
- Percentage of customers availing discount: 60%
- Calculation: Rs. 99,00,000 × 60% × 2% = Rs. 1,18,800

B. Bad Debts (Increased to 1.5%):

- Calculation: Rs. 99,00,000 × 1.5% = Rs. 1,48,500

C. Administration Costs (Remains the same):

- The administration cost stays fixed at Rs. 1,20,000, as no change in admin structure is mentioned.

D. Cost of Financing Receivables (Based on the new extended credit period):

- Working Note 1 (Average Collection Period): Credit period has been extended to 75 days for customers who don't take the discount (40% of customers).
  - Revised Average Collection Period: (10 days × 60%) + (75 days × 40%) = 36 days
- Working Note 2 (Average Receivables): Rs. 99,00,000 × (36/360) = Rs. 9,90,000
- Working Note 3 (Cost of Financing Receivables):
  - Cost of Bank Funds (15%): Rs. 9,90,000× 1/2 × 15%= Rs. 74,250
  - Cost of Owned Funds (14%): Rs. 9,90,000 × 1/2 × 14%= Rs. 69,300
  - Total Cost of Financing Receivables: Rs. 74,250 +Rs. 69,300 = Rs. 1,43,550

Revised Bad Debts after Penalty:

- Bad debts before penalty: Rs. 1,48,500
- Penalty earned: Rs. 1,98,000
- Net effect on bad debts: Rs. 1,48,500 - Rs. 1,98,000 = (-Rs. 49,500) (Zomo Ltd. would effectively earn Rs. 49,500 from penalties, reducing bad debt cost.

4. Total Cost Calculation:

Now, summing up all the components:

Particulars	Amount (Rs.)
Cash Discount (Rs. 99,00,000 × 60% × 2%)	1,18,800
Net Bad Debts after Penalty (-Rs. 49,500)	-49,500
Administration Costs	1,20,000
Cost of Financing Receivables	1,43,550
Total Cost (In-House with Extended Credit Period)	**Rs. 3,32,850**

5. Final Decision:

Option	Total Cost (Rs)
In-House with Dynamic Discounting	4,35,750
Factoring Firm's Offer	4,52,780
In-House with Extended Credit Period	**3,32,850**

Recommendation: Zomo Ltd. should extend the credit period and continue in-house management. This option will not only reduce costs (due to lower bad debts offset by penalties) but also increase sales by 10%. Factoring is the least beneficial due to its high commission charges, and dynamic discounting offers only marginal savings compared to the credit extension option.

Question 12

MTP Dec 24

ABC 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.

Raw Material Cost	Rs 40 per unit
Direct Wages Cost	Rs 25 per Unit
Overhead	Rs 40 per Unit (Incl Rs 10 of Depreciation)
Selling Price	Rs 150 per unit
GP Ratio (Cash Cost)	30%
Net Profit Ratio	25% (On Total cost)
Raw Material in Stock	Avg of 30 days consumption
Work in Progress Stock at 30% of FG Produced Units	****Valued at Prime Cost** Material – 90% into process
	Relevant Conversion Cost – 60% completed
Finished Goods Stock	2,500 units
Credit Allowed by the supplier	30 Days
Credit Allowed to Purchasers	45 Days
Direct Wages [Lag in payment]	15 Days
Expected Cash Balance	1,25,000

Safety margin is to be kept at 15% of the net working capital required inclusive of the margin amount. 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.

Solution 12

Problem mentions that the company has applied to the Private Bank for financing its working capital needs. Ideally, banks would not finance for Depreciation cost being a non-cash cost and it would also not finance the profit for you. So, problem needs to be solved using Cash Cost Basis.

Estimation of working capital required (cash cost basis)

	Particulars		Amount
	A) Current Assets		
	A1) Stock of RM	15,84,960 x 30/360	1,32,080.00
	A2) Stock of WIP	(From Cost Statement)	4,77,360.00
	A3) Stock of FG	(From Cost Statement)	2,37,500.00
	A4) Debtors	32,74,686 x 45/360	4,09,335.75
	A5) Cash & Cash Equivalents	(Given)	1,25,000.00

	Gross Working Capital		**13,81,275.75**
Less:	**B) Current Liabilites**		
	B1) Creditors	17,17,040 x 30/360	1,43,086.67
	B2) Lag in Wages Payment	9,20,400 x 15/360	38,350.00
	Excess of Current Assets Over Current Liabilites	(A) - (B)	**11,99,839.08**
Add:	Safety Margin @ 15% Of Net Working Capital		
			2,11,736.31
	Net Working Capital		**14,11,575.39**

WN -1: Calculation of Profit

Profit = 25% of total cost i.e 20% of sales price

= {(31,200-2,500) x 150} x 20% = Rs. 8,61,000

WN – 2:

	Completed Units	WIP Units
	31,200	9,360
Raw Mat. Consumed	12,48,000	3,36,960
Direct Wages	7,80,000	1,40,400
Overheads	9,36,000	1,68,480
	29,64,000	6,45,840
Gross Factory Cost	**36,09,840**	

Add: Op WIP	-
Less: Cl. WIP **(At Prime Cost)**	4,77,360
Cost of Production	**31,32,480**
Add: Op FG Stock	-
Less: Cl. FG Stock	2,37,500
Cash Cost of Goods Sold	**28,94,980**
Add: Selling & Distribution Expenses (Bal. Figure)	3,79,706
Cost Of Sales	**32,74,686**
Profit*	8,61,000
Sales	**41,35,686**

*It is assumed that profit is unchanged

WN 3 - Calculation of WIP stock (units) and WIP stock amount

WIP UNITS = 30% of FG produced units i.e 30% of 31,200 units = 9,360 units

WIP amount (at prime cost)

Raw materials = 9,360 x 40 x 90% = 3,36,960

Direct wages = 9,360 x 25 x 60% = 1,40,400

WN 4 - Calculation of purchases from suppliers

Raw Materials Consumed	= OP RM Stock + Purchases - Closing RM Stock
15,84,960	= 0 + Purchases – 1,32,080
Purchases	= 17,17,040

WN 5 – Calculation of safety margin

Safety Margin = 15% Of Net Working Capital Needs

Excess Of CA Less CL	85	11,99,839.08
Safety Margin	15	2,11,736.31
Net Working Capital	100	1411575.388

Question 13

MTP Dec 24

EXPLAIN the difference between factoring and forfaiting

Solution 13

Particulars	Factoring	Forfaiting
A) Meaning	**Factoring** involves sales of receivables to the financial institution called factor in exchange for immediate cash payment	**Forfaiting** is a form of export financing where the exporter sells the rights to trade receivables to a forfaiter and receives instant cash
B) Recourse or non-recourse	May be on Recourse or Non-recourse basis	Always non-recourse
C) Amount paid	Firms are generally paid 80% to 90% upfront	100% on the value of exported goods is paid
D) Type of receivables	Receivables may either domestic or international	Receivables are international
E) Cost	Factoring cost in the form of factor commission or fees is to be borne by the seller	Overseas Buyer bears the forfaiting cost, if any
F) Secondary market	Factoring does not involve a secondary market for the receivables, meaning that the transaction is complete once the receivables are sold to the factor.	Forfaiting has a Secondary market where the receivables can be traded, enhancing liquidit and providing additional opportunities for investors

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