CA INTERMEDIATE

FINANCIAL MANAGEMENT

VOLUME I

By

CA. Namit Arora Sir

This book is dedicated to my Mother

'MRS. RAMAN ARORA'

ABOUT THE AUTHOR

Mr. Namit Arora is a First class commerce graduate and member of The Institute of Chartered Accountants of India (ICAI). He has cleared both groups of PCC examination and final examination in his first attempt.

He has vast experience of teaching even at such young age. He has taught large number of students of various professional courses such as CA, CS, CMA and also of undergraduate and post graduate course for university examinations. He is also author of Taxmann.

His specialized knowledge helps the students to understand the topic easily and his expert advice makes the revision very easy and fast.

He gives practical examples that help students to visualize the concepts and his teaching style is very famous among the students.

PREFACE TO THIS EDITION

This is a comprehensive book having thoroughly explained concepts with lucid and systematic presentation of the subject matter. All attempts are made in this book to keep concept easier to understand and remember.

A special attention is given to presentation keeping in mind the examination needs to the student. The book is primarily written for CA – INTERMEDIATE exams.

For any suggestion please mail me at ***canamitarora@gmail.com***

A word to the students

My dear student, hard work is the key to success. Though smart work is publicized in today's world but to be smart, you have to work hard. So always be attentive in class and have thorough revision after the class. It is also important to be motivated and inspired for working hard. The key for success is:

"Work hard in class, be attentive and grab the concepts
&
Work smart during revision, select important questions for next revision."

ALL THE BEST
CA. NAMIT ARORA

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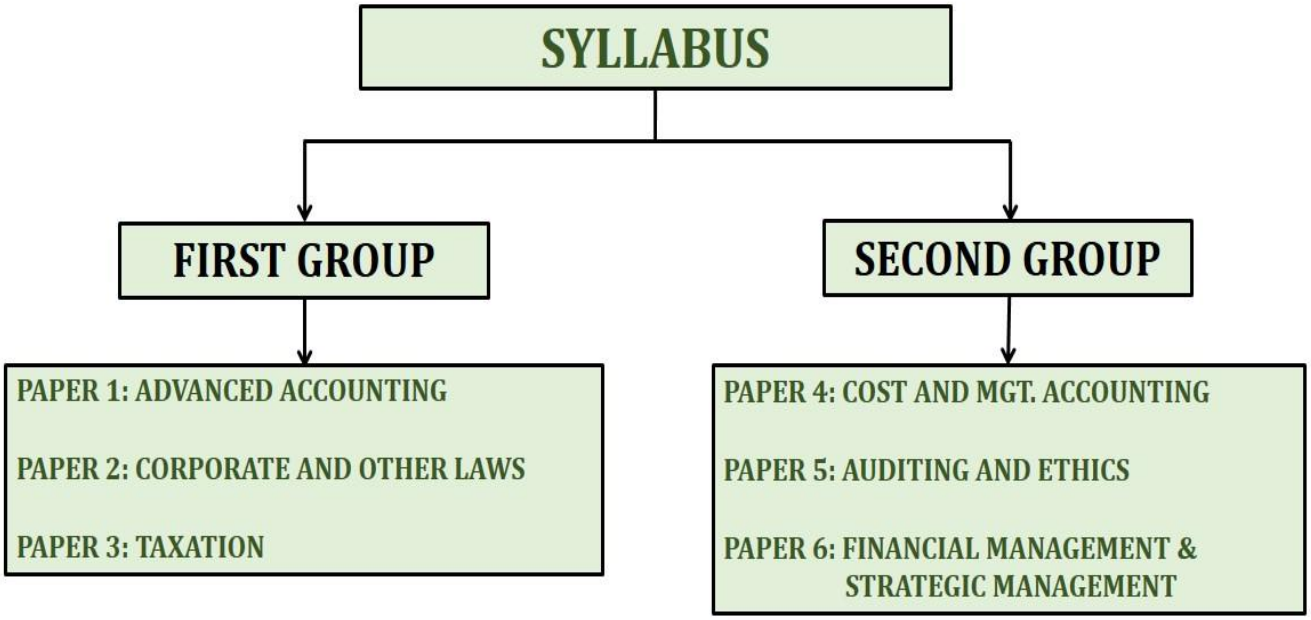
INTRODUCTION

1. CA Intermediate Syllabus:



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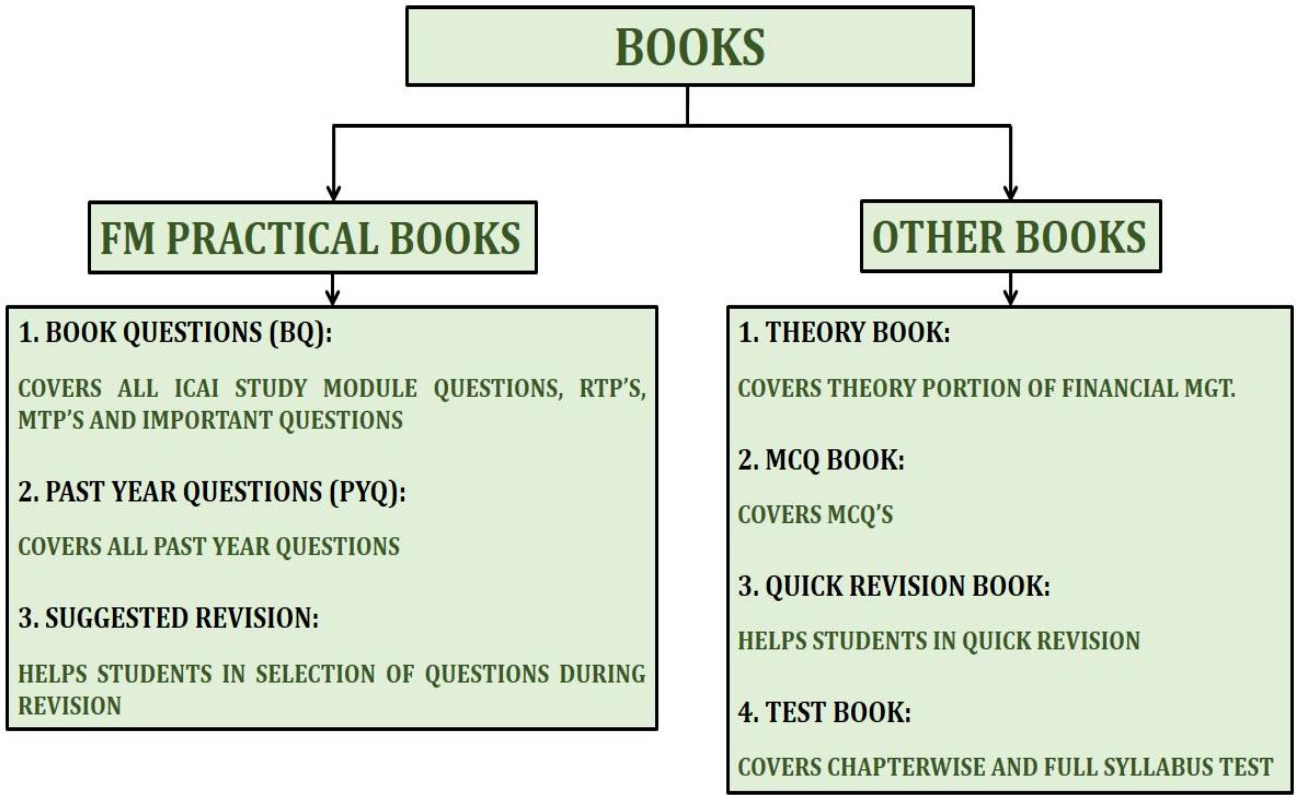
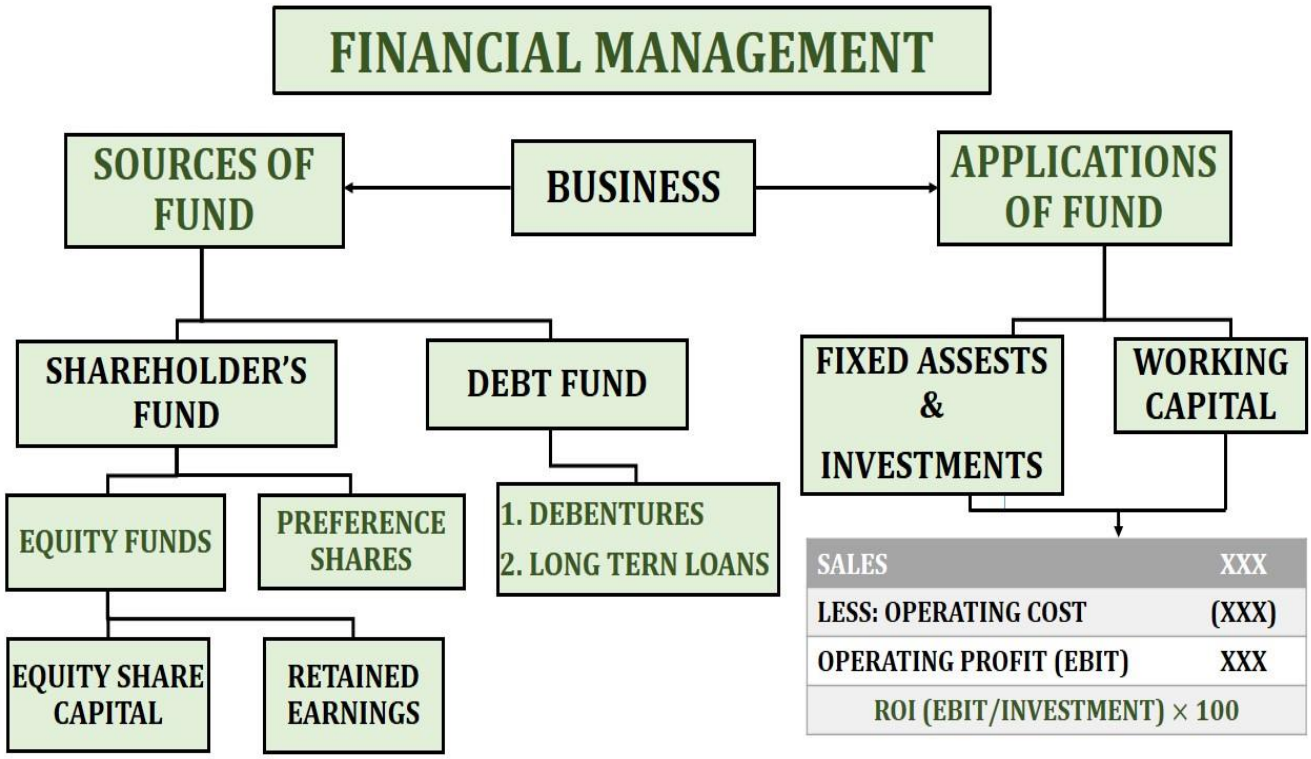


3. Financial Management:

Financial management refers to that managerial activity which is concerned with the arrangement of funds from various sources with consideration of cost, control and risk involved with such sources and application of these funds in an effective manner to maximize shareholders earning and wealth (EPS and MPS).



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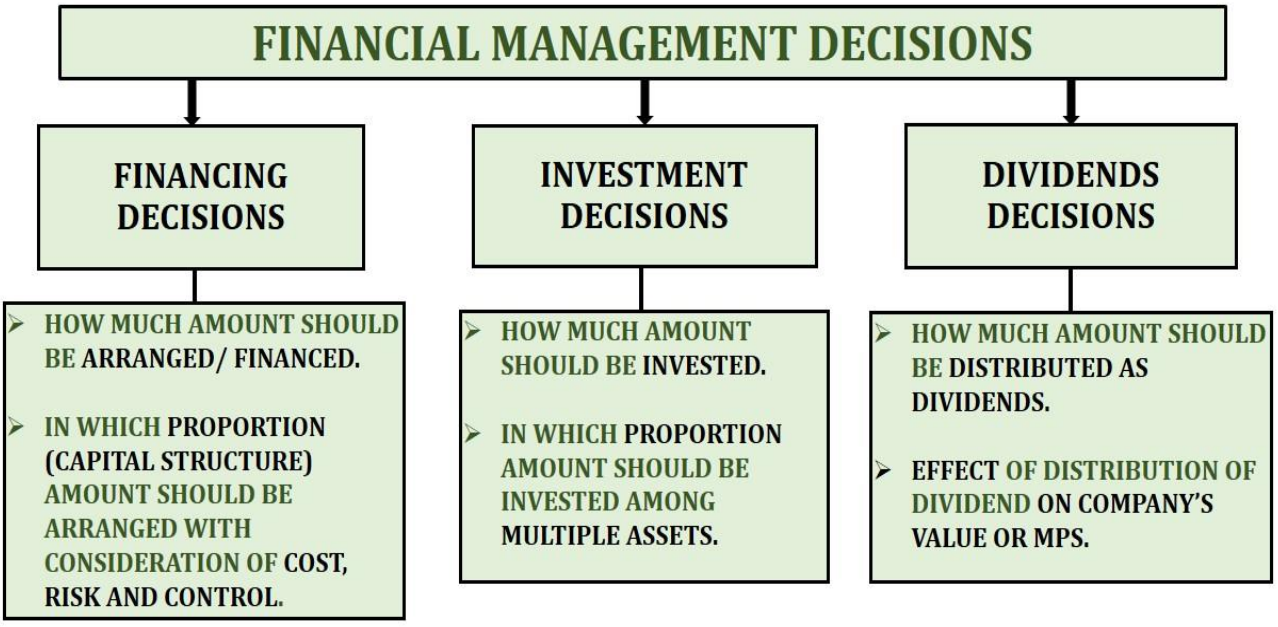

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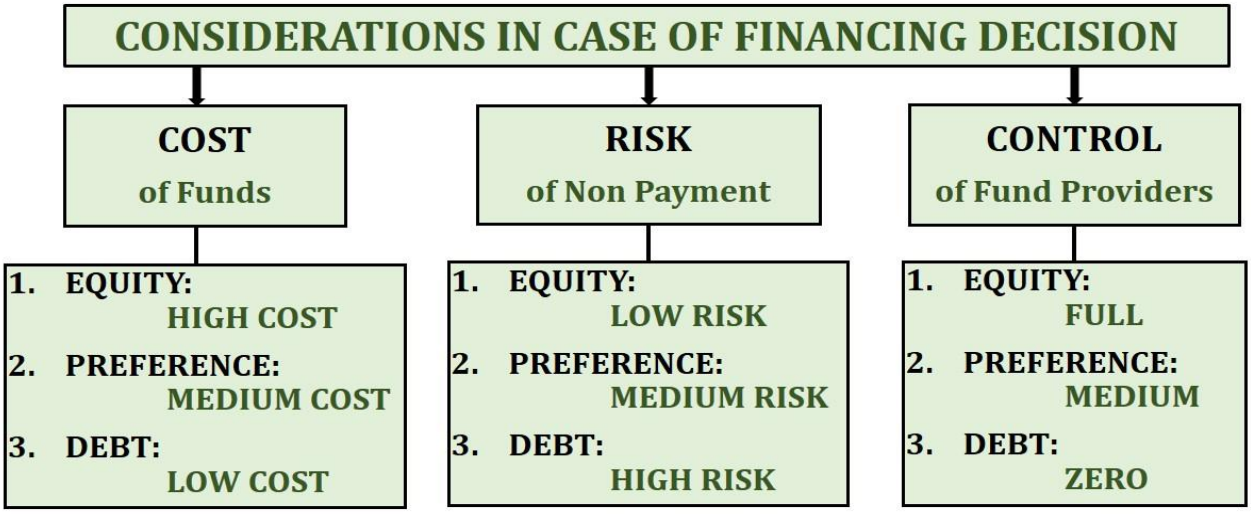

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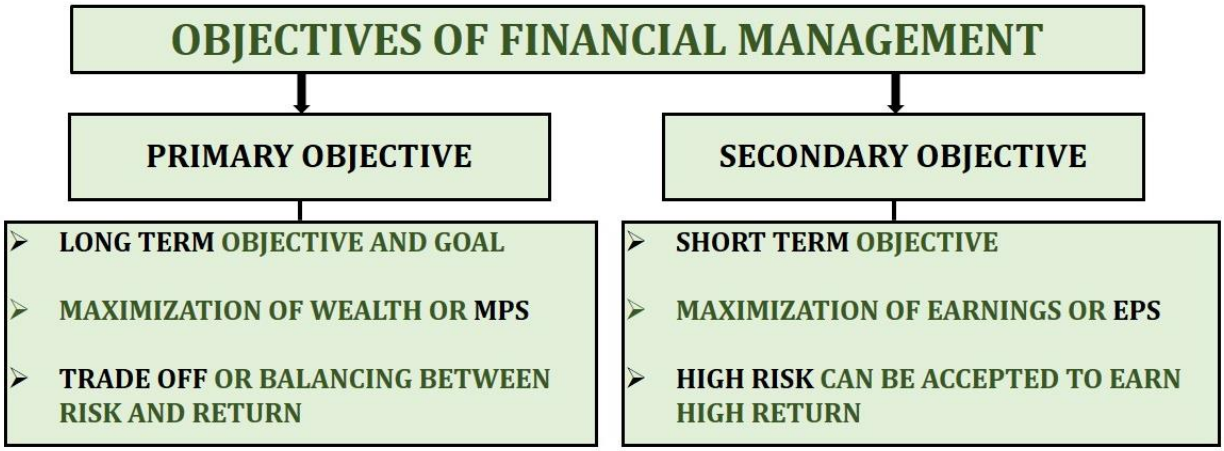

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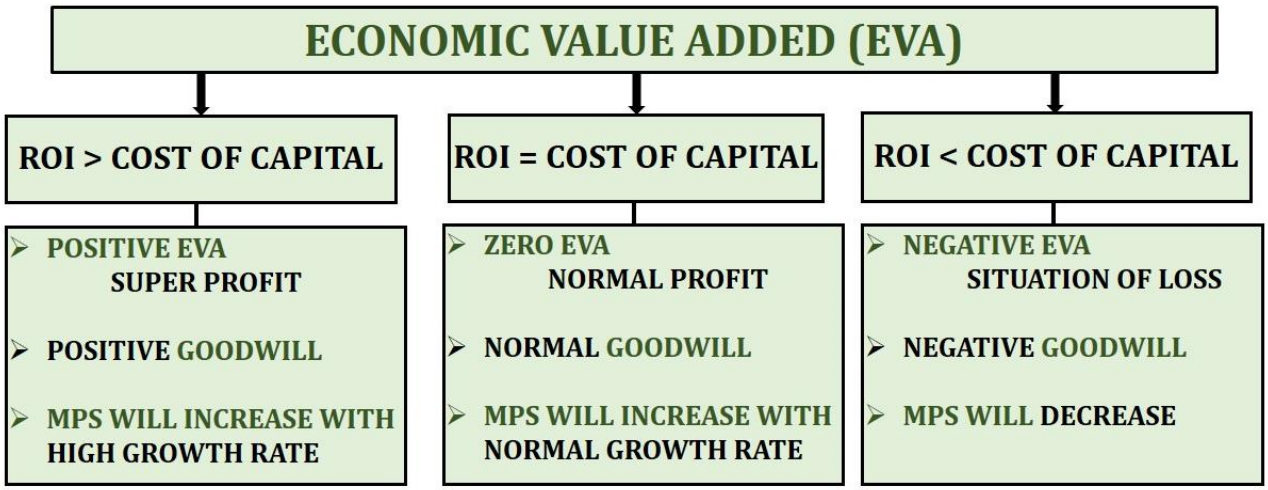

CHAPTER – 1

CAPITAL STRUCTURE EBIT & EPS ANALYSIS

LEARNING OBJECTIVES

After studying this chapter you will be able to:

- ***Understand relationship between EBIT and EPS.***
- ***Understand basis of selection of best capital structure out of various options.***
- ***Understand how to calculate and interpret indifference point between two different capital structures?***
- ***Calculate a firm's financial break-even point.***
- ***Understand EBIT and EPS graph and it's application in decision making or selection of proper alternative of financing.***

EARNING PER SHARE (EPS) AND MARKET PRICE OF SHARE (MPS)

BQ 1

Harper Ltd. has earned a profit before interest and tax of ₹6,00,000 for the year ended 31st March, 2023.

Calculate its profit after tax and EPS in the following situations:

(i) The company has entirely financed its project through issue of 3,00,000 equity shares of ₹10 each.

(ii) The company has financed its project through issue of 1,00,000 equity shares of ₹10 each and 20,000 14% Debentures of ₹100 each.

The company's applicable corporate tax rate is 40%.

Answer

Statement of PAT and EPS

Particulars	Situation I	Situation II
Profit before interest and tax	6,00,000	6,00,000
Less: Interest charges	-	2,80,000
Profit before tax	6,00,000	3,20,000
Less: Tax @ 40%	2,40,000	1,28,000
Profit after tax	***3,60,000***	***1,92,000***
÷ No. of Equity shares	3,00,000	1,00,000
EPS	***₹1.20***	***₹1.92***

W.N.

Capital Structure	Situation I	Situation II
Equity Share Capital	30,00,000	10,00,000
14% Debenture	-	20,00,000
	30,00,000	30,00,000

BQ 2

Paramount Produces Ltd. wants to raise ₹100 lakhs for a diversification project. Current estimate of earnings before interest and taxes (EBIT) from the new projects is ₹22 lakhs per annum.

Cost of debt will be 15% for amounts up to and including ₹40 lakhs, 16% for additional amounts up to and including ₹50 lakhs and 18% for additional amounts above ₹50 lakhs.

The equity shares (face value ₹10) of the company have a current market value of ₹40. This is expected to fall to ₹32 if debts exceeding ₹50 lakhs are raised. The following options are under consideration of the company:

Options	Equity	Debt
I	50%	50%
II	60%	40%
III	40%	60%

Determine the earning per share (EPS) for each option and state which option the company should exercise. Tax rate applicable to the company is 50%.

[(I) ₹5.76 (II) ₹5.33 (III) ₹5.04]

BQ 3

A company needs ₹12,00,000 for the installation of a new factory which would yield an annual EBIT of ₹2,00,000. The company has the objective of maximising the earnings per share.

It is considering the possibility of issuing equity shares plus raising a debt of ₹2,00,000, ₹6,00,000 or ₹10,00,000.

The current market price per share is ₹40 which is expected to drop to ₹25 per share if the market borrowings were to exceed ₹7,50,000. Cost of borrowings is indicated as under:

Upto ₹2,50,000	10% p.a.
Between ₹2,50,001 and ₹6,25,000	14% p.a.
Between ₹6,25,001 and ₹10,00,000	16% p.a.

Assuming the tax rate to be 50%, work out the EPS and the scheme which would meet the objective of the management.

[(I) EPS ₹3.60 (II) EPS ₹4.20 (III) EPS ₹3.91; Alternative II should be selected]

BQ 4

A firm has an all equity capital structure consisting of 1,00,000 ordinary shares of ₹10 per share. The firm wants to raise ₹250,000 to finance its investments and is considering three alternative methods of financing ***(i)*** to issue 25,000 ordinary shares at ₹10 each, ***(ii)*** to borrow ₹2,50,000 at 8 per cent rate of interest, ***(iii)*** to issue 2,500 preference shares of ₹100 each at an 8 per cent rate of dividend. The expected firm's earnings before interest and taxes after additional investment is ₹3,12,500 and the tax rate is 50 per cent.

Calculate EPS under all three alternatives.

Answer

Statement of Earnings Per Share (EPS)

Particulars	*Equity*	*Debt*	*Preference*
EBIT	3,12,500	3,12,500	3,12,500
Less: Interest @ 8% of ₹2,50,000	-	20,000	-
PBT	3,12,500	2,92,500	3,12,500
Less: Tax @ 50%	1,56,250	1,46,250	1,56,250
PAT	1,56,250	1,46,250	1,56,250
Less: Preference Dividend @ 8% of ₹2,50,000	-	-	20,000
Earnings Available for Equity Shareholders	1,56,250	1,46,250	1,36,250
÷ No. of Equity shares:			
Existing	1,00,000	1,00,000	1,00,000
New	25,000	-	-
EPS	*₹1.25*	*₹1.4625*	*₹1.3625*

BQ 5

A company's capital structure consists of the following:

Equity shares of ₹100 each	20,00,000
Retained earnings	10,00,000
9% Preference shares	12,00,000
7% Debentures	8,00,000
Total	50,00,000

Its return on capital employed which is likely to remain unchanged after expansion is 12%. The expansion involves additional finances of ₹25 lakhs for which following alternatives are available to it:

(i) Issue of 20,000 equity shares at a premium of ₹25 per share.
(ii) Issue of 10% preference shares.
(iii) Issue of 8% debentures.

It is estimated that P/E ratio in the case of equity shares, preference shares and debentures financing would be 21.4, 17 and 15.7 respectively.

Which of these alternatives of financing would you recommend and why? The income tax rate is 50%.

[(i) EPS ₹7.85, MV ₹167.99 (ii) EPS ₹3.20, MV ₹54.40 (iii) EPS ₹10.70, MV ₹167.99; Debenture alternative should be selected]

BQ 6

A company desires to take up a capital project under its expansion programme involving an outlay or investment of ₹10,00,000. If it is financed through issue of Debentures (Debt) carrying 14% interest rate, the Price Earning Ratio will be 6 times. However, if it is financed through Equity Capital issued at premium of ₹15, then the Price Earning Ratio is to be 7 times.

This expansion programme is likely to enhance firm's sales by ₹6,00,000 a year with a net return of 15% on these additional sales before interest and tax. Firm's current financial position is given as below:

Total Debts @ 10%	₹4,00,000
Equity Share Capital (₹10 each)	₹10,00,000
Retained Earnings	₹6,00,000
Total Capital employed	***₹20,00,000***
Present Sales	₹60,00,000
Less: Total Expenses/Costs	(53,60,000)
EBIT	₹6,40,000
Interest on Debts	(40,000)
EBT	₹6,00,000
Less: Tax @ 40%	(2,40,000)
EAT	***₹3,60,000***

Calculate market value of shares in each case.

Answer

Statement of Market Value Per Share (MPS)

Particulars	***Debt Plan***	***Equity Plan***
EBIT: Existing	6,40,000	6,40,000
Additional (15% of ₹6,00,000)	90,000	90,000
	7,30,000	7,30,000
Less: Interest: Existing	40,000	40,000
New (14% of ₹10,00,000)	1,40,000	-
EBT	5,50,000	6,90,000
Less: Tax @ 40%	2,20,000	2,76,000
PAT	3,30,000	4,14,000
÷ No. of Equity shares	1,00,000	1,40,000
EPS	₹3.30	₹2.96
× PE Ratio	6 Times	7 Times
MPS	***₹19.80***	***₹20.70***

Recommendation: Company should select Equity plan having higher MPS per share instead of Debt plan having higher EPS.

BQ 7

Best of Luck Ltd., a profit making company, has a paid-up capital of ₹100 lakhs consisting of 10 lakhs ordinary shares of ₹10 each. Currently, it is earning an annual pre-tax profit of ₹60 lakhs. The company's shares are listed and are quoted in the range of ₹50 to ₹80. The management wants to diversify production and has approved a project which will cost ₹50 lakhs and which is expected to yield a pre-tax income of ₹40 lakhs per annum.

To raise this additional capital, the following options are under consideration of the management:

(a) To issue equity share capital for the entire additional amount. It is expected that the new shares (face value of ₹10) can be sold at a premium of ₹15.

(b) To issue 16% non-convertible debentures of ₹100 each for the entire amount.

(c) To issue equity capital for ₹25 lakhs (face value of ₹10) and 16% non-convertible debentures for the balance amount. In this case, the company can issue shares at a premium of ₹40 each.

You are required to advise the management as to how the additional capital can be raised, keeping in mind that the management wants to ***maximise the earnings per share*** to maintain its goodwill. The company is paying income tax at 50%.

Answer

Statement of EPS

Particulars	Alternatives		
	Option I	Option II	Option III
Earnings before interest and tax	1,00,00,000	1,00,00,000	1,00,00,000
Less: Interest @ 16% on ₹50 Lakhs/₹25 Lakhs	-	8,00,000	4,00,000
EBT	1,00,00,000	92,00,000	96,00,000
Less: Tax @ 50%	50,00,000	46,00,000	48,00,000
EAT	50,00,000	46,00,000	48,00,000
÷ No. of Equity shares	12,00,000	10,00,000	10,50,000
EPS	***₹4.17***	***₹4.60***	***₹4.57***

Advise: Option II i.e. issue of 16% Debentures is most suitable to maximize the earnings per share.

BQ 8

Akash Limited provides you the following information:

Particulars	₹
Earnings before interest and tax	2,80,000
Less: Debenture interest @ 10%	40,000
Earnings before tax	2,40,000
Less: Income tax @ 50%	1,20,000
Earnings after tax	1,20,000
No. of Equity Shares (₹10 each)	30,000
Earning per share (EPS)	₹4.00
Price Earning (PE) Ratio	10

The company has reserves and surplus of ₹7,00,000 lakhs and required ₹4,00,000 further for modernisation. Return on Capital Employed (ROCE) is constant. Debt (Debt/Debt + Equity) Ratio higher than 40% will bring the P/E Ratio down to 8 and increase the interest rate on additional debts to 12%. You are required to ascertain the probable price on the share.

(1) If the additional capital are raised as debt and

(2) If the amount is raised by issuing equity shares at ruling market price.

Answer

Statement of Market Value Per Share (MPS)

Particulars	Debt Plan	Equity Plan
EBIT @ 20% of 18,00,000 (14,00,000 + 4,00,000)	3,60,000	3,60,000
Less: Interest: Existing	40,000	40,000
New (12% of ₹4,00,000)	48,000	-
EBT	2,72,000	3,20,000
Less: Tax @ 50%	1,36,000	1,60,000
PAT	1,36,000	1,60,000
÷ No. of Equity shares	30,000	40,000
EPS	₹4.53	₹4.00
× PE Ratio	8 Times	10 Times
MPS	***₹36.24***	***₹40.00***

Working notes:

1. Calculation of capital employed before expansion plan:

Equity share capital (30,000 shares × ₹10)	₹3,00,000
Retained earnings	₹7,00,000
Debentures (40,000/10%)	₹4,00,000
Total capital employed	***₹14,00,000***

2. Return on Capital Employed (ROCE):

$$\text{ROCE} = \frac{\text{EBIT}}{\text{Capital Employed}} \times 100 = \frac{2,80,000}{14,00,000} \times 100 = 20\%$$

3. Debt Ratio if ₹4,00,000 is raised as debt:

$$= \frac{8,00,000\ (4,00,000 + 4,00,000)}{18,00,000\ (14,00,000 + 4,00,000)} \times 100 = 44.44\%$$

As the debt ratio is more than 40% the P/E ratio will be brought down to 8 in Plan 1

4. Debt Equity Ratio if ₹4,00,000 is raised as Equity:

$$= \frac{4,00,000}{18,00,000} \times 100 = 22.22\%$$

As the debt ratio is less than 40% the P/E ratio in this case will remain at 10 times in Plan 2.

5. Number of Equity Shares to be issued in Plan 2: $= \frac{4,00,000}{40} =$ **10,000 shares**

BQ 9

The following data are presented in respect of Quality Automation Ltd.:

Particulars	₹
Profit before interest and tax	52,00,000
Less: Debenture interest @ 12%	12,00,000
Profit before tax	40,00,000
Less: Income tax @ 50%	20,00,000
Profit after tax	20,00,000
No. of Equity Shares (₹10 each)	8,00,000
Earning per share (EPS)	₹2.50
Price Earning (PE) Ratio,	10
Market Price Per Share	₹25.00

The company is planning to start a new project requiring a total capital outlay of ₹40,00,000. You are informed that a debt equity ratio (D/D+E) higher than 35% push the Ke up to 12.5% means reduce PE ratio to 8 and rises the interest rate on additional amount borrowed at 14%.

Find out the probable price of share if:

(1) The additional funds are raised as a loan.
(2) The amount is raised by issuing equity shares.

(Note: Retained earnings of the company is ₹1.2 crore)

Answer

Statement of Market Value Per Share (MPS)

Particulars	Debt Plan	Equity Plan
EBIT @ 17.⅓% of 3,40,00,000 (3,00,00,000 + 40,00,000)	58,93,333	58,93,333
Less: Interest: Existing	12,00,000	12,00,000
New (14% of ₹40,00,000)	5,60,000	-
EBT	41,33,333	46,93,333
Less: Tax @ 50%	20,66,667	23,46,667
PAT	20,66,666	23,46,666
÷ No. of Equity shares	8,00,000	9,60,000
EPS	₹2.583	₹2.444
× PE Ratio	8 Times	10 Times
MPS	₹20.66	₹24.44

Note: In this question EBIT after proposed extension is not given. Therefore, we can assume that existing return on capital employed will be maintained.

Working notes:

1. Calculation of capital employed before expansion plan:

Equity share capital (8,00,000 shares × ₹10)	₹80,00,000
Retained earnings	₹1,20,00,000
Debentures (12,00,000/12%)	₹1,00,00,000
Total capital employed	***₹3,00,00,000***

2. Return on Capital Employed (ROCE):

$$\text{ROCE} = \frac{\text{EBIT}}{\text{Capital Employed}} \times 100 = \frac{52,00,000}{3,00,00,000} \times 100 = \textbf{17.⅓\%}$$

3. Debt Equity Ratio if ₹40,00,000 is raised as Debt:

$$= \frac{1,40,00,000\ (1,00,00,000 + 40,00,000)}{3,40,00,000\ (3,00,00,000 + 40,00,000)} \times 100 = \textbf{41.18\%}$$

As the debt equity ratio is more than 35% the P/E ratio will be brought down to 8 in Plan 1

4. Debt Equity Ratio if ₹40,00,000 is raised as Equity:

$$= \frac{1,00,00,000}{3,40,00,000} \times 100 = \textbf{29.41\%}$$

As the debt equity ratio is less than 35% the P/E ratio in this case will remain at 10 times in Plan 2.

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

$$= \frac{40,00,000}{25} = \textbf{1,60,000 shares}$$

Decision: Though loan option has higher EPS but equity option has higher MPS therefore company should raise additional fund through equity option.

BQ 10

The following figures of Krish Ltd. are presented to you:

Particulars	***₹***
Earnings before interest and tax	23,00,000
Less: Debenture interest @ 8%	80,000
Less: Long term loan interest @ 11%	2,20,000
Earnings before tax	20,00,000
Less: Income tax	10,00,000
Earnings after tax	10,00,000

No. of Equity shares of ₹10 each	5,00,000
E.P.S.	₹2
Market price of Share	₹20
P/E ratio	10 times

The company has undistributed reserves and surplus of ₹20 lakhs. It is in need of ₹30 lakhs to payoff debentures and modernise its plants. It seeks your advice on the following alternative modes of raising finance.

Alternative 1: Raising entire amount as term loan from banks @ 12%.
Alternative 2: Raising part of the funds by issue of 1,00,000 shares of ₹10 each issued at ₹20 and the rest by term loan at 12%.

The company expects to improve its rate of return by 2% as a result of modernization, but P/E ratio is likely to go down to 8 if the entire amount is raised as term loan.

(i) Advise the company on the financial plan to be selected
(ii) If it is assumed that there will be no change in the P/E ratio if either of the two alternatives are adopted, would your advice still hold good?

[(i) Alternative 1: EPS ₹2.42, MV ₹19.36 and Alternative 2: EPS ₹2.217, MV₹22.17; Alternative 2 should be selected (ii) Alternative 1: MV ₹24.42 and Alternative 2: MV₹22.17; Alternative 1 should be selected]

INDIFFERENCE POINT

BQ 11

Ganesha Ltd. is setting up a project with a capital outlay of ₹60,00,000. It has the following two alternatives in financing the project cost.

Alternative 1	:	100% Equity finance by issuing equity shares of ₹10 each
Alternative 2	:	Debt-Equity ratio 2:1 (equity shares will be of ₹10 each)

The rate of interest payable on the debt is 18% p.a. The corporate rate of tax is 40%.

Calculate the indifference point between two alternative methods of financing.

[₹10,80,000]

BQ 12

Aaina Ltd. is considering a new project which requires a capital investment of ₹9 crores. Interest on term loan is 12% and Corporate Tax rate is 30%. Calculate the point of indifference for the project considering the Debt Equity ratio insisted by the financing agencies being 2 : 1.

Answer

The capital investment can be financed in two ways i.e.

(i) By issuing equity shares only worth ₹9 crores or
(ii) By raising capital through taking a term loan of ₹6 crores and ₹3 crores through issuing equity shares (as the company has to comply with the 2 : 1 Debt Equity ratio insisted by financing agencies).

Calculation of point of Indifference:

$$\frac{(EBIT-I)\,(1-T)}{N_1} = \frac{(EBIT-I)\,(1-T)}{N_2}$$

$$\frac{(EBIT-Nil)\,(1-0.30)}{90,00,000} = \frac{(EBIT-12\%\text{ of }6,00,00,000)\,(1-0.30)}{30,00,000}$$

$$EBIT = 3 \times (EBIT - 72,00,000)$$

$$EBIT = 2,16,00,0000 \div 2 = \textbf{1,08,00,000}$$

Note: The face value of the equity shares is assumed as ₹10 per share.

BQ 13

M.C. Ltd. is planning an expansion programme which will require ₹30 crores and can be funded through one of the three following options:

(a) Issue further equity shares of ₹100 each at par,
(b) Raise loans at 15% interest,
(c) Issue preference shares at 12%.

Present paid up capital is ₹60 crores and average annual EBIT is ₹12 crores. Assume Income-tax rate at 50%. After the expansion, EBIT is expected to be ₹15 crores p.a.

Calculate EPS under the three financing options indicating the alternative giving the highest return to the equity shareholders also determine the point of indifference between Equity Share Capital and Debt [i.e. option (a) and (b) above].

Answer

(a) Statement of Earnings Per Share (EPS)

Particulars	Equity	Loan	Preference
EBIT: Existing	15,00,00,000	15,00,00,000	15,00,00,000
Less: Interest @ 15% of ₹30 Cr.	-	4,50,00,000	-
PBT	15,00,00,000	10,50,00,000	15,00,00,000
Less: Tax @ 50%	7,50,00,000	5,25,00,000	7,50,00,000
PAT	7,50,00,000	5,25,00,000	7,50,00,000
Less: Preference Dividend @ 12% of ₹30 Cr.	-	-	3,60,00,000
Earnings Available for Equity Shareholders	7,50,00,000	5,25,00,000	3,90,00,000
÷ No. of Equity shares:			
Existing	60,00,000	60,00,000	60,00,000
New	30,00,000	-	-
EPS	**₹8.33**	**₹8.75**	**₹6.50**

Analysis: Financing Option (b) i.e. raising of loans @ 15% interest give the highest EPS of ₹8.75.

(b) Calculation of Indifference point between Equity Share Capital and Debt:

$$\frac{(EBIT - NIL)(1-0.50)}{90,00,000} = \frac{(EBIT - 4,50,00,000)(1-0.50)}{60,00,000}$$

$$EBIT = ₹13,50,00,000$$

BQ 14

A new project under consideration requires a capital outlay of ₹300 lakhs. The required funds can be raised either fully by equity shares of ₹100 each or by equity shares of the value of ₹200 lakhs and by loan of ₹100 lakhs at 15% interest. Assuming a tax rate of 50%.

Calculate the figure of profit before interest and tax that would keep the equity investors indifferent to the two options. Verify your answer by calculating the EPS.

Answer

Calculation of Indifference point:

$$\frac{(EBIT - I)(1-T)}{N_1} = \frac{(EBIT - I)(1-T)}{N_2}$$

$$\frac{(EBIT - NIL)(1-0.50)}{3,00,000} = \frac{(EBIT - 15,00,000)(1-0.50)}{2,00,000}$$

$$EBIT = ₹45,00,000$$

Verification: ***Statement of EPS***

Particulars	Situation I	Situation II
Profit before interest and tax	45,00,000	45,00,000
Less: Interest charges	-	15,00,000
Profit before tax	45,00,000	30,00,000
Less: Tax @ 50%	22,50,000	15,00,000
Profit after tax	22,50,000	15,00,000
÷ No. of Equity shares	3,00,000	2,00,000
EPS	**₹7.50**	**₹7.50**

BQ 15

PCB Corporation has plans for expansion which calls for 50% increase in assets. The alternatives before the Corporation are issued of equity shares or debt at 14%. Its balance sheet and profit and loss accounts are as given below:

Balance Sheet as at 31st March, 2023

Liabilities	₹	Assets	₹
Ordinary Shares (10,00,000 Shares @ ₹10 each)	1,00,00,000	Total Assets	2,00,00,000
12% Debentures	25,00,000		
General Reserve	75,00,000		
Total	**2,00,00,000**	**Total**	**2,00,00,000**

Profit and Loss Account for the year ending 31st March, 2023

Particulars	₹
Sales	7,50,00,000
Less: total cost excluding interest	6,75,00,000
EBIT	75,00,000
Less: Interest @ 12% of ₹25,00,000	3,00,000
EBT	72,00,000
Less: Tax @ 50%	36,00,000
EAT	36,00,000
÷ No. of Equity shares:	10,00,000
EPS	₹3.60
Price Earning Ratio	5 Times
Market Price Per Share	**₹18.00**

If the PCB Corporation finances the expansion with debt, the incremental financing charges will be at 14% and P/E ratio is expected to be at 4 times. If the expansion is through equity, the P/E ratio will remain at 5 times. The company expects that its new issues will be subscribed to at a premium of 25%.

With the above information determine the following:

(i) If EBIT is 10% of sales, calculate EPS and MPS at sales levels of ₹4 crores, ₹8 crores and ₹10 crores.

(ii) After expansion determine at what level of EBIT, EPS would remain the same, whether new funds are raised by equity or debt.

Answer

(i) Statement of EPS and MPS

Particulars	Sales 4 Crores		Sales 8 Crores		Sales 10 Crores	
	Equity	Debt	Equity	Debt	Equity	Debt
EBIT @ 10% of Sales	40,00,000	40,00,000	80,00,000	80,00,000	1,00,00,000	1,00,00,000
Less: Interest:						
Existing	3,00,000	3,00,000	3,00,000	3,00,000	3,00,000	3,00,000
New @ 14% of ₹1 cr.	-	14,00,000	-	14,00,000	-	14,00,000
EBT	37,00,000	23,00,000	77,00,000	63,00,000	97,00,000	83,00,000
Less: Tax @ 50%	18,50,000	11,50,000	38,50,000	31,50,000	48,50,000	41,50,000
PAT	18,50,000	11,50,000	38,50,000	31,50,000	48,50,000	41,50,000
÷ No. of Equity shares						
Existing	10,00,000	10,00,000	10,00,000	10,00,000	10,00,000	10,00,000
New	8,00,000	-	8,00,000	-	8,00,000	-
EPS	***₹1.03***	***₹1.15***	***₹2.14***	***₹3.15***	***₹2.69***	***₹4.15***
× P/E Ratio	5 Times	4 Times	5 Times	4 Times	5 Times	4 Times
MPS	***₹5.15***	***₹4.60***	***₹10.70***	***₹12.60***	***₹13.45***	***₹16.60***

(ii) Indifference point between two alternatives of financing:

$$\frac{(EBIT - I)(1 - T)}{N_1} = \frac{(EBIT - I)(1 - T)}{N_2}$$

$$\frac{(EBIT - 3,00,000)(1 - 0.50)}{18,00,000} = \frac{(EBIT - 17,00,000)(1 - 0.50)}{10,00,000}$$

EBIT = ***₹34,50,000***

BQ 16

DMC Corporation currently has 1,00,000 shares of common stock outstanding with a market price of ₹50 per share. It also has ₹2 million (₹20 lacs) in 7% bonds currently selling at par. The company is considering a ₹4 million (₹40 lacs) expansion program that it can finance with either ***(I)*** all common stock at ₹50 per share, or ***(II)*** all bonds at 9%. The company estimates that if the expansion program is undertaken, it can attain in the near future ₹1 million (₹10 lacs) in EBIT. The company's tax rate is 40%.

Required:

(a) Calculate the EPS for each plan.
(b) What is indifference point between the alternatives?
(c) Calculate financial break even point of both plans.
(d) Draw the EBIT - EPS graph.
(e) Suggest a course of action.

[(a) EPS: Plan 1: ₹2.87, Plan 2: ₹3.00 (b) ₹9,50,000 (c) Plan 1: ₹1,40,000; Plan 2: ₹5,00,000]

BQ 17

Yoyo Limited presently has ₹36,00,000 in debt outstanding bearing an interest rate of 10 per cent. It wishes to finance a ₹40,00,000 expansion programme and is considering three alternatives: additional debt at 12 per cent interest, preference shares with an 11 per cent dividend, and the issue of equity shares at ₹16 per share. The company presently has 8,00,000 shares outstanding and is in a 40 per cent tax bracket.

(a) If earnings before interest and taxes are presently ₹15,00,000, what would be earnings per share for the three alternatives, assuming no immediate increase in profitability?

(b) Analyse which alternative do you prefer? Compute how much would EBIT need to increase before the next alternative would be best?

Answer

(a) Statement of EPS

Particulars	***Alternatives***		
	Debt	***Preference***	***Equity***
Earnings before interest and tax	15,00,000	15,00,000	15,00,000
Less: Interest:			
Existing @ 10% on ₹36,00,000	3,60,000	3,60,000	3,60,000
New 12% on ₹40,00,000	4,80,000	-	-
EBT	6,60,000	11,40,000	11,40,000
Less: Tax @ 40%	2,64,000	4,56,000	4,56,000
EAT	3,96,000	6,84,000	6,84,000
Less: Preference Dividend	-	4,40,000	-
Earnings Available for Equity Shareholders	3,96,000	2,44,000	6,84,000
÷ No. of Equity shares	8,00,000	8,00,000	10,50,000
EPS	***₹0.495***	***₹0.305***	***₹0.651***

(b) For the present EBIT level, equity share is clearly preferable. EBIT would need to increase by ₹8,76,000 (₹23,76,000 – ₹15,00,000) before next alternative i.e. debt would be best.

Working Note:

Indifference point between Equity (best option) and Debt (second best option) of financing:

$$\frac{(EBIT - I)(1 - T)}{N_1} = \frac{(EBIT - I)(1 - T)}{N_2}$$

$$\frac{(EBIT - 3,60,000)(1 - 0.40)}{1,05,000} = \frac{(EBIT - 8,40,000)(1 - 0.40)}{80,000}$$

EBIT = ***₹23,76,000***

BQ 18

Ganapati Limited is considering three financing plans. The key information is as follows:

(a) Total investment to be raised ₹2,00,000.
(b) Financing proportion of Plans:

Plans	Equity	Debt	Preference Shares
A	100%	-	-
B	50%	50%	-
C	50%	-	50%

(c) Cost of debt is 8%
Cost of preference shares is 8%
(d) Tax rate 50%
(e) Equity shares of the face value of ₹10 each will be issued at a premium of ₹10 per share
(f) Expected EBIT is ₹80,000.

You are required to determine for each plan:

(1) Earnings per share
(2) Financial break-even-point
(3) Indicate if any of the plans dominate and compute the EBIT range among the plans for indifference.

Answer

(1) Statement of EPS

Particulars	Alternatives		
	A	B	C
Earnings before interest and tax	80,000	80,000	80,000
Less: Interest @ 8% on ₹1,00,000	-	8,000	-
EBT	80,000	72,000	80,000
Less: Tax @ 50%	40,000	36,000	40,000
EAT	40,000	36,000	40,000
Less: Preference Dividend @ 8% on ₹1,00,000	-	-	8,000
Earning Available for Equity Shareholders	40,000	36,000	32,000
÷ No. of Equity shares (Issue price ₹20)	10,000	5,000	5,000
EPS	**₹4.00**	**₹7.20**	**₹6.40**

(2) Financial Break Even Point (EBIT equals to fixed financial cost):

Proposal A Financial B.E.P. = No Fixed Financial Cost = **Zero**

Proposal B Financial B.E.P. = Interest on Debt = **8,000**

Proposal C Financial B.E.P. = $\frac{\text{Preference Dividend}}{(1-t)}$

= $\frac{8,000}{1-0.50}$ = **16,000**

(3) Indifference Point:

Between Proposal A & B:

$$\frac{(EBIT-I)(1-T)}{N_A} = \frac{(EBIT-I)(1-T)}{N_B}$$

$$\frac{(EBIT-0)(1-0.50)}{10,000} = \frac{(EBIT-8,000)(1-0.50)}{5,000}$$

EBIT = **₹16,000**

Between Proposal A & C:

$$\frac{(EBIT-I)(1-T)}{N_A} = \frac{\{(EBIT-I)(1-T)-PD\}}{N_C}$$

$$\frac{(EBIT-0)(1-0.50)}{10,000} = \frac{\{(EBIT-0)(1-0.50)-8,000\}}{5,000}$$

EBIT = ₹32,000

Between Proposal B & C:

$$\frac{(EBIT-I)(1-T)}{N_B} = \frac{\{(EBIT-I)(1-T)-PD\}}{N_C}$$

$$\frac{(EBIT-8,000)(1-0.50)}{5,000} = \frac{\{(EBIT-0)(1-0.50)-8,000\}}{5,000}$$

0.5 EBIT – 4,000 ≠ 0.5 EBIT – 8,000

There is no indifference point between the financial plans B and C. It can be seen that Financial Plan B dominates Plan C. Since, the financial break-even point of the former is only ₹8,000 but in case of latter it is ₹16,000.

BQ 19

Xylo Ltd. is considering the following two alternative financing plans:

Particulars	*Plan A*	*Plan B*
Equity Shares of ₹10 each	8,00,000	8,00,000
12% Debentures	4,00,000	-
Preference Shares of ₹100 each	-	4,00,000
	12,00,000	***12,00,000***

The indifference point between the plans is ₹4,80,000. Corporate tax rate 30%.

Calculate the rate of dividend on preference shares.

Answer

$$\text{Rate of dividend} = \frac{\text{Preference Dividend}}{\text{Preference Share Capital}} \times 100 = \frac{33,600}{4,00,000} \times 100 = 8.40\%$$

Working Notes:

Calculation of preference dividend:

$$\frac{(EBIT-I)(1-T)}{N_1} = \frac{[(EBIT-I)(1-T)]-PD}{N_2}$$

$$\frac{(4,80,000-48,000)(1-0.30)}{80,000} = \frac{[(4,80,000-Nil)(1-0.30)]-PD}{80,000}$$

$$3,02,400 = 3,36,000 - PD$$

Preference dividend (PD) = ₹33,600

BQ 20

Stylo Ltd. is considering the following two alternative financing plans:

Particulars	*Plan A*	*Plan B*
Equity Shares of ₹10 each	8,00,000	8,00,000
Debentures	4,00,000	-
8.40% Preference Shares of ₹100 each	-	4,00,000
	12,00,000	***12,00,000***

The indifference point between the plans is ₹4,80,000. Corporate tax rate 30%.

Calculate the rate of interest on debentures.

Answer

$$\textbf{Rate of Interest} = \frac{\text{Interest}}{\text{Amount of Debentures}} \times 100 = \frac{48,000}{4,00,000} \times 100 = \textbf{12\%}$$

Working Notes:

Calculation of Interest on debentures:

$$\frac{(EBIT - I)(1 - T)}{N_1} = \frac{[(EBIT - I)(1 - T)] - PD}{N_2}$$

$$\frac{(4,80,000 - I)(1 - 0.30)}{80,000} = \frac{[(4,80,000 - Nil)(1 - 0.30)] - 33,600}{80,000}$$

$$3,36,000 - 0.7I = 3,02,400$$

$$0.7I = 33,600$$

Interest on debentures (I) = 33,600 ÷ 0.7 = ***₹48,000***

BQ 21

Current Capital Structure of XYZ Ltd is as follows:

Equity Share Capital	:	7 lakh shares of face value ₹20 each
Reserves	:	₹10,00,000
9% bonds	:	₹3,00,00,000
11% preference capital	:	3,00,000 shares of face value ₹50 each
Additional Funds required	:	₹5,00,00,000

XYZ Ltd is evaluating the following alternatives:

(1) Proposed alternative I: Raise the funds via 25% equity capital and 75% debt at 10%. PE ratio in such scenario would be 12.

(2) Proposed alternative II: Raise the funds via 50% equity capital and rest from 12% Preference capital. PE ratio in such scenario would be 11.

Any new equity capital would be issued at a face value of ₹20 each. Any new preferential capital would be issued at a face value of ₹20 each. Tax rate is 34%

Determine the indifference point under both the alternatives.

Answer

Calculation of Indifference point between Proposal I & Proposal II:

Let the indifference point be X

$$\frac{[(EBIT - I)(1 - T)] - PD}{N_1} = \frac{[(EBIT - I)(1 - T)] - PD}{N_2}$$

$$\frac{(X - 64,50,000)(1 - 0.34) - 16,50,000}{13,25,000} = \frac{(X - 27,00,000)(1 - 0.34) - 46,50,000}{19,50,000}$$

$$\frac{.66X - 42,57,000 - 16,50,000}{1,325} = \frac{.66X - 17,82,000 - 46,50,000}{1,950}$$

$$\frac{.66X - 59,07,000}{53} = \frac{.66X - 64,32,0000}{78}$$

$$51.48X - 46,07,46,000 = 34.98X - 34,08,96,000$$

$$16.5\ X = 11,98,50,000$$

$$X = ₹72,63,636.36$$

Working Notes:

(1) Calculation of number of Equity shares:

Under Proposal I = 7,00,000 Existing shares + $\frac{5,00,00,000 \times 25\%}{20}$ New shares

= 7,00,000 + 6,25,000 = 13,25,000 shares

Under Proposal II = 7,00,000 Existing shares + $\frac{5,00,00,000 \times 50\%}{20}$ New shares

= 7,00,000 + 13,50,000 = 19,50,000 shares

(2) Calculation of Interest:

Under Proposal I = 3,00,00,000 × 9% + (5,00,00,000 × 75%) × 10%
= 64,50,000

Under Proposal II = 3,00,00,000 × 9% = 27,00,000

(3) Calculation of Preference Dividend:

Under Proposal I = (3,00,000 × 50) × 11% = 16,50,000

Under Proposal II = 16,50,000 + (5,00,00,000 × 50%) × 12%
= 46,50,000

PAST YEARS QUESTIONS

PYQ 1

The Modern Chemicals Ltd. requires ₹25,00,000 for a new plant. This plant is expected to yield earnings before interest and taxes of ₹5,00,000. While deciding about the financial plan, the company considers the objective of maximizing earnings per share.

It has three alternatives to finance the projects by raising debt of ₹2,50,000 or ₹10,00,000 or ₹15,00,000 and the balance in each case, by issuing equity shares. The company's share is currently selling at ₹150, but is expected to decline to ₹125 in case the funds are borrowed in excess of ₹10,00,000. The funds can be borrowed at the rate of 10% up to ₹2,50,000 at 15% over ₹2,50,000 and upto ₹10,00,000 and at 20% over ₹10,00,000. The tax rate applicable to the company is 50%.

Which form of financing should the company choose?

[(7 Marks) Nov 1999]

Answer

Statement of EPS

Particulars	Alternatives		
	1	2	3
Earnings before interest and tax	5,00,000	5,00,000	5,00,000
Less: Interest:			
@ 10% on first ₹2,50,000	25,000	25,000	25,000
@ 15% on ₹2,50,001 to ₹10,00,000	-	1,12,500	1,12,500
@ 20% on above ₹10,00,000	-	-	1,00,000
EBT	4,75,000	3,62,500	2,62,500
Less: Tax @ 50%	2,37,500	1,81,250	1,31,250
EAT	2,37,500	1,81,250	1,31,250
÷ No. of Equity shares	15,000	10,000	8,000
	(22,50,000/150)	(15,00,000/150)	(10,00,000/125)
EPS	***₹15.833***	***₹18.125***	***₹16.406***

Decision: The earning per share is higher in alternative II i.e. if the company finance the project by raising debt of ₹10,00,000 & issue equity shares of ₹15,00,000. Therefore, the company should choose this alternative to finance the project.

PYQ 2

A Company earns a profit of ₹3,00,000 per annum after meeting its interest liability of ₹1,20,000 on 12% debentures. The Tax rate is 50%. The number of Equity Shares of ₹10 each are 80,000 and the retained earnings amount to ₹12,00,000. The company proposes to take up an expansion scheme for which a sum of ₹4,00,000 is required.

It is anticipated that after expansion, the company will be able to achieve the same return on investment as at present. The funds required for expansion can be raised either through debt at the rate of 12% or by issuing Equity Shares at par.

Required:

(i) Compute the Earnings Per Share (EPS), if:

- ***(a)*** The additional funds were raised as debt
- ***(b)*** The additional funds were raised by issue of equity shares.

(ii) Advise the company as to which source of finance is preferable.

[(6 Marks) Nov 2002]

Answer

(i) Statement of EPS

Particulars	Alternatives	
	Debt Plan	Equity Plan
Earnings before interest and tax @ 14% of ₹34,00,000	4,76,000	4,76,000
Less: Interest:		
Existing	1,20,000	1,20,000
New (12% on ₹4,00,000)	48,000	-
EBT	3,08,000	3,56,000
Less: Tax @ 50%	1,54,000	1,78,000
EAT	1,54,000	1,78,000
÷ No. of Equity shares		
Existing	80,000	80,000
New	-	40,000
EPS	***₹1.925***	***₹1.483***

(ii) Advise to the company: Since EPS is greater in the case when company arranges additional funds as debt. Therefore, the company should finance the expansion scheme by raising debt.

Working notes:

1. Calculation of capital employed before expansion plan:

Equity share capital	₹8,00,000
Retained earnings	₹12,00,000
Debentures (1,20,000/12%)	₹10,00,000
Total capital employed	***₹30,00,000***

2. Earnings before the payment of Interest and tax (EBIT):

Profit before tax	₹3,00,000
Interest	₹1,20,000
EBIT	***₹4,20,000***

3. Return on Capital Employed (ROCE):

$$\text{ROCE} = \frac{\text{EBIT}}{\text{Capital Employed}} \times 100 = \frac{4,20,000}{30,00,000} \times 100 =$$

14%

4. After expansion capital employed = ₹34,00,000 (₹30,00,000 + ₹4,00,000)

PYQ 3

Calculate the level of earnings before interest and tax (EBIT) at which the EPS indifference point between following financing alternatives will occur:

(i) Equity share capital of ₹6,00,000 and 12% debentures of ₹4,00,000 Or
(ii) Equity share capital of ₹4,00,000, 14% preference share capital of ₹2,00,000 and 12% debenture ₹4,00,000.

Assume the corporate tax rate is 35% and par value of equity share is ₹10 in each case.

[(5 Marks) May 2003]

Answer

Calculation of Indifference point:

$$\frac{(\text{EBIT} - \text{I})(1 - \text{T})}{N_1} = \frac{[(\text{EBIT} - \text{I})(1 - \text{T})] - \text{PD}}{N_2}$$

$$\frac{(\text{EBIT} - 48,000)(1 - 0.35)}{60,000} = \frac{[(\text{EBIT} - 48,000)(1 - 0.35)] - 28,000}{40,000}$$

EBIT = ₹1,77,231 approximately

PYQ 4

A Company needs ₹31,25,000 for the construction of new plant. The following three plans are feasible:

(I) The Company may issue 3,12,500 equity shares at ₹10 per share.

(II) The Company may issue 1,56,250 ordinary equity shares at ₹10 per share and 15,625 debentures of ₹100 denomination bearing 8% rate of interest.

(III) The Company may issue 1,56,250 equity shares at ₹10 per share and 15,625 preference shares at ₹100 per share bearing a 8% rate of dividend.

Required:

(i) If the Company's earnings before interest and taxes are ₹62,500, ₹1,25,000, ₹2,50,000, ₹3,75,000 and ₹6,25,000, what are the earnings per share under each of three financial plans? Assume a Corporate Income-tax rate of 40%.

(ii) Which alternative would you recommend and why?

(iii) Determine the EBIT-EPS indifference points by formula between Financing Plan I and Plan II and Plan I and Plan III.

[(10 Marks) Nov 2005]

Answer

(i) Statement showing EPS with respect to various plans & different EBIT:

a. Equity Financing

Particulars	₹	₹	₹	₹	₹
EBIT	62,500	1,25,000	2,50,000	3,75,000	6,25,000
Less: Interest	0	0	0	0	0
EBT	62,500	1,25,000	2,50,000	3,75,000	6,25,000
Less: Tax @ 40%	(25,000)	(50,000)	(1,00,000)	(1,50,000)	(2,50,000)
EAT	37,500	75,000	1,50,000	2,25,000	3,75,000
÷ No. of Equity Shares	÷ 3,12,500	÷ 3,12,500	÷ 3,12,500	÷ 3,12,500	÷ 3,12,500
EPS	**₹0.12**	**₹0.24**	**₹0.48**	**₹0.72**	**₹1.20**

b. Debt - Equity Mix

Particulars	₹	₹	₹	₹	₹
EBIT	62,500	1,25,000	2,50,000	3,75,000	6,25,000
Less: Interest	(1,25,000)	(1,25,000)	(1,25,000)	(1,25,000)	(1,25,000)
EBT	(62,500)	0	1,25,000	2,50,000	5,00,000
Less: Tax @ 40%	*25,000	0	(50,000)	(1,00,000)	(2,00,000)
EAT	(37,500)	0	75,000	1,50,000	3,00,000
÷ No. of Equity Shares	÷ 1,56,250	÷ 1,56,250	÷ 1,56,250	÷ 1,56,250	÷ 1,56,250
EPS	**(₹0.24)**	**₹0.00**	**₹0.48**	**₹0.96**	**₹1.92**

*25,000 is the tax saving in case of loss.

c. Preference Share - Equity Mix

Particulars	₹	₹	₹	₹	₹
EBIT	62,500	1,25,000	2,50,000	3,75,000	6,25,000
Less: Interest	0	0	0	0	0
EBT	62,500	1,25,000	2,50,000	3,75,000	6,25,000
Less: Tax @ 40%	(25,000)	(50,000)	(1,00,000)	(1,50,000)	(2,50,000)
EAT	37,500	75,000	1,50,000	2,25,000	3,75,000
Less: Preferential Dividend	**(1,25,000)	**(1,25,000)	(1,25,000)	(1,25,000)	(1,25,000)
EAT after Pref. Dividend	(87,500)	(50,000)	25,000	1,00,000	2,50,000
÷ No. of Equity Shares	÷ 1,56,250	÷ 1,56,250	÷ 1,56,250	÷ 1,56,250	÷ 1,56,250
EPS	**(₹0.56)**	**(₹0.32)**	**₹0.16**	**₹0.64**	**₹1.60**

**In case of cumulative preference shares, the company has to pay cumulative dividend to preference shareholders, when company earns sufficient profits, so deducted here even in case of insufficient profit to reach right decision.

(ii) Recommendation:

(a)	If expected EBIT is less than ₹2,50,000	:	Equity Finance (Alternative 1)
(b)	If expected EBIT is equal to ₹2,50,000	:	Equity or Debt - Equity Mix (Alternative 1 or 2)
(c)	If expected EBIT is more than ₹2,50,000	:	Debt – Equity Mix (Alternative 2)

(iii) Computation of EBIT – EPS indifference points:

Between financing Plan I & Plan II:

$$\frac{(EBIT - I)(1 - T)}{N_1} = \frac{(EBIT - I)(1 - T)}{N_2}$$

$$\frac{(EBIT - Nil)(1 - 0.40)}{3,12,500} = \frac{(EBIT - 1,25,000)(1 - 0.40)}{1,56,250}$$

$$EBIT = 2,50,000$$

Between financing Plan I & Plan III:

$$\frac{(EBIT - I)(1 - T)}{N_1} = \frac{[(EBIT - I)(1 - T)] - PD}{N_3}$$

$$\frac{(EBIT - Nil)(1 - 0.40)}{3,12,500} = \frac{[(EBIT - Nil)(1 - 0.40)] - 1,25,000}{1,56,250}$$

$$EBIT = 4,16,667 \text{ approx}$$

PYQ 5

The management of Z Company Ltd. wants to raise its funds from market to meet out the financial demands of its long-term projects. The company has various combinations of proposals to raise its funds. You are given the following proposals of the company:

(i)

Proposals	*Equity Shares (%)*	*Debts (%)*	*Preference shares (%)*
P	100	-	-
Q	50	50	-
R	50	-	50

(ii) Cost of debt and preference shares is 10% each.
(iii) Tax rate 50%.
(iv) Equity shares of the face value of ₹10 each will be issued at a premium of ₹10 per share.
(v) Total investment to be raised ₹40,00,000.
(vi) Expected earnings before interest and tax ₹18,00,000.

From the above proposals the management wants to take advice from you for appropriate plan after computing the following:

(1) Earnings per share
(2) Financial break-even-point
(3) Compute the EBIT range among the plans for indifference. Also indicate if any of the plans dominate.

[(12 Marks) May 2011]

Answer

(i) Statement of EPS

Particulars	*Alternatives*		
	P	*Q*	*R*
Earnings before interest and tax	18,00,000	18,00,000	18,00,000
Less: Interest @ 10% on ₹20,00,000	-	2,00,000	-
EBT	18,00,000	16,00,000	18,00,000
Less: Tax @ 50%	9,00,000	8,00,000	9,00,000

EAT	9,00,000	8,00,000	9,00,000
Less: Preference Dividend	-	-	2,00,000
Earning Available for Equity Shareholders	9,00,000	8,00,000	7,00,000
÷ No. of Equity shares (Issue price ₹20)	2,00,000	1,00,000	1,00,000
EPS	***₹4.50***	***₹8.00***	***₹7.00***

Recommendation: Company should select debt option having highest EPS among different plans.

(ii) Financial Break Even Point (EBIT equals to fixed financial cost):

Proposal P Financial B.E.P. = No Fixed Financial Cost = ***Zero***

Proposal Q Financial B.E.P. = Interest on Debt = ***2,00,000***

Proposal R Financial B.E.P. $= \frac{\text{Preference Dividend}}{(1-t)}$

$= \frac{2,00,000}{(1-0.50)}$ = ***4,00,000***

(iii) Indifference Point:

Between Proposal P & Q:

$$\frac{(EBIT-I)(1-T)}{N_1} = \frac{(EBIT-I)(1-T)}{N_2}$$

$$\frac{(EBIT-Nil)(1-0.50)}{2,00,000} = \frac{(EBIT-2,00,000)(1-0.50)}{1,00,000}$$

EBIT = ***₹4,00,000***

Between Proposal P & R:

$$\frac{(EBIT-I)(1-T)}{N_1} = \frac{[(EBIT-I)(1-T)]-PD}{N_3}$$

$$\frac{(EBIT-Nil)(1-0.50)}{2,00,000} = \frac{[(EBIT-Nil)(1-0.50)]-2,00,000}{1,00,000}$$

EBIT = ***₹8,00,000***

Between Proposal Q & R:

$$\frac{(EBIT-I)(1-T)}{N_2} = \frac{[(EBIT-I)(1-T)]-PD}{N_3}$$

$$\frac{(EBIT-2,00,000)(1-0.50)}{1,00,000} = \frac{[(EBIT-Nil)(1-0.50)]-2,00,000}{1,00,000}$$

0.5 EBIT – 1,00,000 ≠ ***0.5 EBIT – 2,00,000***

There is no indifference point between proposal 'Q' and proposal 'R'. It can be seen that financial proposal 'Q' dominates proposal 'R', since the financial break-even-point of the former is only ₹2,00,000 but in case of latter, it is ₹4,00,000.

PYQ 6

X Ltd. is considering the following two alternative financing plans:

Particulars	***Plan I***	***Plan II***
Equity Shares of 10 each	4,00,000	4,00,000
12% Debentures	2,00,000	-
Preference Shares of 100 each	-	2,00,000
	6,00,000	***6,00,000***

The indifference point between the plans is 2,40,000. Corporate tax rate 30%.

Calculate the rate of dividend on preference shares. ***[(Marks 5) Nov 2013]***

Answer

$$\textbf{Rate of dividend} = \frac{\text{Preference Dividend}}{\text{Preference Share Capital}} \times 100 = \frac{16,800}{2,00,000} \times 100 = \textbf{8.40\%}$$

Working Notes:

Calculation of preference dividend:

$$\frac{(EBIT - I)(1 - T)}{N_1} = \frac{[(EBIT - I)(1 - T)] - PD}{N_2}$$

$$\frac{(2,40,000 - 24,000)(1 - 0.30)}{40,000} = \frac{[(2,40,000 - Nil)(1 - 0.30)] - PD}{40,000}$$

$$1,51,200 = 1,68,000 - PD$$

Preference dividend (PD) = 16,800

PYQ 7

Alpha Ltd. requires funds amounting to ₹80,00,000 for its new project. To raise the funds, the company has following two alternatives:

(1) To issue Equity Shares of ₹100 each (at par) amounting to ₹60,00,000 and borrow the balance amount at the interest of 12% p.a.; or

(2) To issue Equity Shares of ₹100 each (at par) and 12% Debentures in equal proportion.

Find out the point of indifference between two modes of financing and state which option will be beneficial in different situations assuming tax rate 30%.

[(Marks 5) Nov 2014]

Answer

Calculation of Indifference two modes of financing:

$$\frac{(EBIT - I)(1 - T)}{N_1} = \frac{(EBIT - I)(1 - T)}{N_2}$$

$$\frac{(EBIT - 12\% \text{ of } 20 \text{ lakhs})(1 - 0.30)}{60,000} = \frac{(EBIT - 12\% \text{ of } 40 \text{ lakhs})(1 - 0.30)}{40,000}$$

EBIT = ₹9,60,000

Course of action:

(a)	If expected EBIT is less than ₹9,60,000	:	Alternate 1
(b)	If expected EBIT is equal to ₹9,60,000	:	Alternate 1 or 2
(c)	If expected EBIT is more than ₹9,60,000	:	Alternate 2

PYQ 8

India Limited requires ₹50,00,000 for a New Plant. This Plant is expected to yield Earnings before Interest and Taxes of ₹10,00,000. While deciding about the Financial Plan, the Company considers the objective of maximizing Earnings per Share.

It has 3 alternatives to finance the Project: by raising Debt of ₹5,00,000 or ₹20,00,000 or ₹30,00,000 and the balance in each case, by issuing Equity Shares. The Company's Share is currently selling at ₹150, but it is expected to decline to ₹125 in case the funds are borrowed in excess of ₹20,00,000.

The Funds can be borrowed at the rate of 9% upto ₹5,00,000, at 14% over ₹5,00,000 and upto ₹20,00,000 and at 19% over ₹20,00,000. The Tax rate applicable to the Company is 40%.

Which form of financing should the Company choose? Show EPS Amount upto two decimal points.

[(Marks 8) Nov 2016]

Answer

Statement of EPS

Particulars	Alternatives		
	1	2	3
Earnings before interest and tax	10,00,000	10,00,000	10,00,000
Less: Interest:			
@ 9% on first ₹5,00,000	45,000	45,000	45,000
@ 14% on ₹5,00,001 to ₹20,00,000	-	2,10,000	2,10,000
@ 19% on above ₹20,00,000	-	-	1,90,000
EBT	9,55,000	7,45,000	5,55,000
Less: Tax @ 40%	3,82,000	2,98,000	2,22,000
EAT	5,73,000	4,47,000	3,33,000
÷ No. of Equity shares	30,000	20,000	16,000
	(45,00,000/150)	(30,00,000/150)	(20,00,000/125)
EPS	***₹19.10***	***₹22.35***	***₹20.8125***

Decision: The earning per share is higher in alternative II i.e. if the company finance the project by raising debt of ₹20,00,000 & issue equity shares of ₹30,00,000. Therefore, the company should choose this alternative to finance the project.

PYQ 9

The X Ltd. Is willing to raise funds for its new project which requires an investment of ₹84,00,000. The company has two options:

Option 1: To issue Equity Shares (₹10 each) only.

Option 2: 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 ratio of 2 : 1.

Find out the point of indifference for the project if corporate tax rate is 30%.

[(Marks 5) Nov 2017]

Answer

Calculation of point of Indifference:

$$\frac{(EBIT - I)(1-T)}{N_1} = \frac{(EBIT - I)(1-T)}{N_2}$$

$$\frac{(EBIT - Nil)(1-0.30)}{8,40,000} = \frac{(EBIT - 12\% \text{ of } 56,00,000)(1-0.30)}{2,80,000}$$

EBIT = ***₹10,08,000***

Calculation of amount of Debt and Equity in option 2:

Debt amount	=	84,00,000 × 2/3	=	56,00,000
Equity amount	=	84,00,000 × 1/3	=	28,00,000

PYQ 10

Sun Ltd. is considering two financing plans. Details of which are as under:

(a) Funds requirement is ₹100 Lakhs.

(b) Financial plans:

Plan	Equity	Debts
I	100%	-
II	25%	75%

(c) Cost of debt is 12% p.a.

(d) Tax rate is 30%

(e) Equity shares ₹10 each, issued at a premium of ₹15 per share

(f) Expected earnings before interest and tax (EBIT) ₹40,00,000

You are required to compute:

(1) EPS in each of them plan

(2) The Financial break-even-point

(3) Indifference point between I and II ***[(5 Marks) May 2018]***

Answer

(1) Statement of EPS

Particulars	*Alternatives*	
	Plan I	*Plan II*
Earnings before interest and tax	40,00,000	40,00,000
Less: Interest @ 12% on ₹75,00,000	-	9,00,000
EBT	40,00,000	31,00,000
Less: Tax @ 30%	12,00,000	9,30,000
EAT	28,00,000	21,70,000
÷ No. of Equity shares (Issue price ₹25)	÷ 4,00,000	÷1,00,000
EPS	*₹7.00*	*₹21.70*

Calculation of amount of number of Equity shares:

Under Plan I	=	1,00,00,000 ÷ 25 (10 + 15)	=	4,00,000
Under Plan I	=	25,00,000 ÷ 25 (10 + 15)	=	1,00,000

(2) Financial Break Even Point (EBIT equals to fixed financial cost):

Plan I	Financial B.E.P.	=	No Fixed Financial Cost	= ***Zero***
Plan II	Financial B.E.P.	=	Interest on Debt	= ***9,00,000***

(3) Indifference Point:

$$\frac{(EBIT - I)(1 - t)}{N_1} = \frac{(EBIT - I)(1 - t)}{N_1}$$

$$\frac{(EBIT - Nil)(1 - 0.30)}{4,00,000} = \frac{(EBIT - 9,00,000)(1 - 0.30)}{1,00,000}$$

EBIT = ***₹12,00,000***

PYQ 11

Y Limited requires ₹50,00,000 for a new project. This project is expected to yield earnings before interest and taxes of ₹10,00,000. While deciding about the financial plan, the company considers the objective of maximizing earnings per share.

It has two alternatives to finance the project - by raising debt of ₹5,00,000 or ₹20,00,000 and the balance, in each case, by issuing equity shares. The company's share is currently selling at ₹300, but is expected to decline to ₹250 in case the funds are borrowed in excess of ₹20,00,000. The funds can be borrowed at the rate of 12% upto ₹5,00,000 and at 10% over ₹5,00,000. The tax rate applicable to the company is 25%.

Which form of financing should the company choose? ***[(5 Marks) Nov 2018]***

Answer

Statement of EPS

Particulars	*Alternatives*	
	1	*2*
Earnings before interest and tax	10,00,000	10,00,000
Less: Interest:		
@ 12% on first ₹5,00,000	60,000	60,000
@ 10% on ₹5,00,001 to ₹20,00,000	-	1,50,000
EBT	9,40,000	7,90,000
Less: Tax @ 25%	2,35,000	1,97,500
EAT	7,05,000	5,92,500

÷ No. of Equity shares	15,000 (45,00,000/300)	10,000 (30,00,000/300)
EPS	***₹47.00***	***₹59.25***

Decision: The earning per share is higher in alternative II i.e. if the company finance the project by raising debt of ₹20,00,000 & issue equity shares of ₹30,00,000. Therefore, the company should choose this alternative to finance the project.

PYQ 12

RM Steels Limited requires ₹10,00,000 for the construction of new plant. It is considering three financial plans:

(1) The Company may issue 1,00,000 ordinary shares at ₹10 per share.
(2) The Company may issue 50,000 ordinary shares at ₹10 per share and 5,000 debentures of ₹100 denomination bearing 8% rate of interest.
(3) The Company may issue 50,000 ordinary shares at ₹10 per share and 5,000 preference shares at ₹100 per share bearing a 8% rate of dividend.

If RM Steels Limited's earnings before interest and taxes are ₹20,000, ₹40,000, ₹80,000, ₹1,20,000 and ₹2,00,000. Tax rate is 50%.

You are required to compute the earning per share under each of the three plans? Which alternative would you recommend for RM Steels and why?

[(10 Marks) May 2019]

Answer

1. Statement showing EPS with respect to various plans & different EBIT:

a. Equity Financing

Particulars	***₹***	***₹***	***₹***	***₹***	***₹***
EBIT	20,000	40,000	80,000	1,20,000	2,00,000
Less: Interest	0	0	0	0	0
EBT	20,000	40,000	80,000	1,20,000	2,00,000
Less: Tax @ 50%	(10,000)	(20,000)	(40,000)	(60,000)	(1,00,000)
EAT	10,000	20,000	40,000	60,000	1,00,000
÷ No. of Equity Shares	÷ 1,00,000	÷ 1,00,000	÷ 1,00,000	÷ 1,00,000	÷ 1,00,000
EPS	***₹0.10***	***₹0.20***	***₹0.40***	***₹0.60***	***₹1.00***

b. Debt - Equity Mix

Particulars	***₹***	***₹***	***₹***	***₹***	***₹***
EBIT	20,000	40,000	80,000	1,20,000	2,00,000
Less: Interest	(40,000)	(40,000)	(40,000)	(40,000)	(40,000)
EBT	(20,000)	0	40,000	80,000	1,60,000
Less: Tax @ 50%	*10,000	0	(20,000)	(40,000)	(80,000)
EAT	(10,000)	0	20,000	40,000	80,000
÷ No. of Equity Shares	÷ 50,000	÷ 50,000	÷ 50,000	÷ 50,000	÷ 50,000
EPS	***(₹0.20)***	***₹0.00***	***₹0.40***	***₹0.80***	***₹1.60***

*10,000 is the tax saving in case of loss.

c. Preference Share - Equity Mix

Particulars	***₹***	***₹***	***₹***	***₹***	***₹***
EBIT	20,000	40,000	80,000	1,20,000	2,00,000
Less: Interest	0	0	0	0	0
EBT	20,000	40,000	80,000	1,20,000	2,00,000
Less: Tax @ 50%	(10,000)	(20,000)	(40,000)	(60,000)	(1,00,000)
EAT	10,000	20,000	40,000	60,000	1,00,000
Less: Preferential Dividend	**(40,000)	**(40,000)	(40,000)	(40,000)	(40,000)
EAT after Pref. Dividend	(30,000)	(20,000)	0	20,000	60,000
÷ No. of Equity Shares	÷ 50,000	÷ 50,000	÷ 50,000	÷ 50,000	÷ 50,000

EPS	(₹0.60)	(₹0.40)	₹0.00	₹0.40	₹1.20

**In case of cumulative preference shares, the company has to pay cumulative dividend to preference shareholders, when company earns sufficient profits, so deducted here even in case of insufficient profit to reach right decision.

2. Recommendation:

(a) If expected EBIT is less than ₹80,000 : Equity Finance (Alternative 1)
(b) If expected EBIT is equal to ₹80,000 : Equity or Debt - Equity Mix (Alternative 1 or 2)
(c) If expected EBIT is more than ₹80,000 : Debt – Equity Mix (Alternative 2)

PYQ 13

J Limited is considering three financing plans. The key information is as follows:

(a) Total investment to be raised ₹4,00,000.
(b) Plans showing the Financing proportion:

Plans	Equity	Debt	Preference Shares
X	100%	-	-
Y	50%	50%	-
Z	50%	-	50%

(c) Cost of debt is 10%
Cost of preference shares is 10%
(d) Tax rate 50%
(e) Equity shares of the face value of ₹10 each will be issued at a premium of ₹10 per share.
(f) Expected EBIT is ₹1,00,000.

You are required to compute the following for each plan:

(1) Earnings per share (EPS)
(2) Financial break-even-point
(3) Indifference point between the plans and indicate if any of the plans dominate.

[(10 Marks) Nov 2020]

Answer

(1) Statement of EPS

Particulars	Alternatives		
	X	Y	Z
Earnings before interest and tax	1,00,000	1,00,000	1,00,000
Less: Interest @ 10% on ₹2,00,000	-	20,000	-
EBT	1,00,000	80,000	1,00,000
Less: Tax @ 50%	50,000	40,000	50,000
EAT	50,000	40,000	50,000
Less: Preference Dividend @ 10% on ₹2,00,000	-	-	20,000
Earning Available for Equity Shareholders	50,000	40,000	30,000
÷ No. of Equity shares (Issue price ₹20)	20,000	10,000	10,000
	(4,00,000 ÷ 20)	(2,00,000 ÷ 20)	(2,00,000 ÷ 20)
EPS	**₹2.50**	**₹4.00**	**₹3.00**

(2) Financial Break Even Point (EBIT equals to fixed financial cost):

Proposal X Financial B.E.P. = No Fixed Financial Cost = **Zero**

Proposal Y Financial B.E.P. = Interest on Debt = **20,000**

Proposal Z Financial B.E.P. = $\frac{\text{Preference Dividend}}{(1-t)}$

= $\frac{20,000}{1-0.50}$ = **40,000**

(3) Indifference Point:

Between Proposal X & Y:

$$\frac{(EBIT-I)(1-T)}{N_X} = \frac{(EBIT-I)(1-T)}{N_Y}$$

$$\frac{(EBIT-0)(1-0.50)}{20,000} = \frac{(EBIT-20,000)(1-0.50)}{10,000}$$

EBIT = ₹40,000

Between Proposal X & Z:

$$\frac{(EBIT-I)(1-T)}{N_X} = \frac{\{(EBIT-I)(1-T)-PD\}}{N_Z}$$

$$\frac{(EBIT-0)(1-0.50)}{20,000} = \frac{\{(EBIT-0)(1-0.50)-20,000\}}{10,000}$$

EBIT = ₹80,000

Between Proposal Y & Z:

$$\frac{(EBIT-I)(1-T)}{N_Y} = \frac{\{(EBIT-I)(1-T)-PD\}}{N_Z}$$

$$\frac{(EBIT-20,000)(1-0.50)}{10,000} = \frac{\{(EBIT-0)(1-0.50)-20,000\}}{10,000}$$

0.5 EBIT – 10,000 ≠ 0.5 EBIT – 20,000

There is no indifference point between the financial plans Y and Z. It can be seen that Financial Plan Y dominates Plan Z. Since, the financial break-even point of the former is only ₹20,000 but in case of latter it is ₹40,000.

PYQ 14

Earnings before interest and tax of a company are ₹4,50,000. Currently the company has 80,000 equity shares of ₹10 each, retained earnings of ₹12,00,000. It pays annual interest of ₹1,20,000 on 12% Debentures. The company proposes to take up an expansion scheme for which it needs additional fund of ₹6,00,000. It is anticipated that after expansion, the company will be able to achieve the same rate of return on investment as at present. It can raise fund either through debts at rate of 12% p.a. or by issuing Equity shares at par. Tax rate is 40%.

Compute the earning per share if:

(a) The additional funds were raised through debt.
(b) The additional funds were raised by issue of Equity shares.

Advise whether the company should go for expansion plan and which sources of finance should be preferred.

[(10 Marks) Dec 2021]

Answer

Statement of EPS

Particulars	*Alternatives*	
	Debt Plan (i)	*Equity Plan (ii)*
Earnings before interest and tax @ 15% of ₹36,00,000	5,40,000	5,40,000
Less: Interest:		
Existing	1,20,000	1,20,000
	72,000	-

New (12% on ₹6,00,000)	3,48,000	4,20,000
EBT	1,39,200	1,68,000
Less: Tax @ 40%	2,08,800	2,52,000
EAT		
÷ No. of Equity shares	80,000	80,000
Existing	-	60,000
New		
EPS	***₹2.61***	***₹1.80***

Advise to the company: Since EPS after expansion under debt plan is higher (₹2.61) than Existing EPS (₹2.475), company should go for expansion plan and choose debt source of finance.

EPS before expansion = $\frac{(EBIT - I)(1 - T)}{N} = \frac{(4,50,000 - 1,20,000)(1 - 0.4)}{80,000}$ = ***₹2.475***

Working notes:

1. Calculation of capital employed before expansion plan:

Equity share capital (80,000 shares × ₹10)	₹8,00,000
Retained earnings	₹12,00,000
Debentures (₹1,20,000/12%)	₹10,00,000
Total capital employed	***₹30,00,000***

2. Return on capital employed (ROCE) or Return on Investment:

ROCE = $\frac{EBIT}{Capital\ Employed} \times 100 = \frac{4,50,000}{30,00,000} \times 100$ = ***15%***

3. Capital employed after expansion = ***₹36,00,000 (₹30,00,000 + ₹6,00,000)***

PYQ 15

The particulars related to Raj Ltd. for the year ended 31st March, 2022 are given as follows:

Output (units at normal capacity)	1,00,000
Selling price per unit	₹40
Variable cost per unit	₹20
Fixed cost	₹10,00,000

The capital structure of the company as on 31st March, 2022 is as follows:

Particulars	***₹***
Equity Share Capital (1,00,000 shares of ₹10 each) Reserves and Surplus	10,00,000
	5,00,000
Current Liabilities	5,00,000
Total	***20,00,000***

Raj Ltd. has decided to undertake an expansion project to use the market potential that will involve ₹20,00,000. The company expects an increase in output by 50%. Fixed cost will be increased by ₹5,00,000 and variable cost per unit will be decreased by 15%. The additional output can be sold at the existing selling price without any adverse impact on the market.

The following alternative schemes for financing the proposed expansion program are planned:

Alternative	***Debt***	***Equity Shares***
1	₹5,00,000	Balance
2	₹10,00,000	Balance
3	₹14,00,000	Balance

Slab wise interest rate for fund borrowed is as given follows:

Fund Limit	Applicable Interest Rate
Upto ₹5,00,000	10%
Over ₹5,00,000 and upto ₹10,00,000	15%
Over ₹10,00,000	20%

Current market price per share is 200.

Find out which of the above mentioned alternatives would you recommend for raj Ltd. with reference to the EPS, assuming a corporate tax rate is 40%?

[(10 Marks) May 2022]

Answer

Statement of EPS

Particulars	Alternatives		
	1	2	3
Expected output in units (1,00,000 + 50%)	1,50,000	1,50,000	1,50,000
Sales @ ₹40 per unit	60,00,000	60,00,000	60,00,000
Less: Variable Cost @ ₹17 (₹20 - 15%) per unit	25,50,000	25,50,000	25,50,000
Contribution	34,50,000	34,50,000	34,50,000
Less: Fixed Cost (₹10,00,000 + ₹5,00,000)	15,00,000	15,00,000	15,00,000
Earnings before interest and tax	19,50,000	19,50,000	19,50,000
Less: Interest:			
@ 10% on first ₹5,00,000	50,000	50,000	50,000
@ 15% on ₹5,00,001 to ₹10,00,000	-	75,000	75,000
@ 20% on above ₹10,00,000	-	-	80,000
EBT	19,00,000	18,25,000	17,45,000
Less: Tax @ 40%	7,60,000	7,30,000	6,98,000
EAT	11,40,000	10,95,000	10,47,000
÷ No. of Equity shares			
Existing	1,00,000	1,00,000	1,00,000
New	7,500	5,000	3,000
	(15,00,000/200)	(10,00,000/200)	(6,00,000/200)
EPS	***₹10.60***	***₹10.43***	***₹10.17***

Decision: The earning per share is higher in alternative I i.e. if the company finance the project by raising debt of ₹5,00,000 & issue equity shares of ₹15,00,000. Therefore, the company should choose this alternative to finance the project.

PYQ 16

The following information pertains to CIZA Ltd.:

Capital Structure:	***₹***
Equity share capital (₹10 each)	8,00,000
Retained earnings	20,00,000
9% Preference share capital (₹100 each)	12,00,000
12% Long-term loan	10,00,000
Interest coverage ratio	8
Income tax rate	30%
Price- earnings ratio	25

The company is proposed to take up an expansion plan, which requires an additional investment of ₹34,50,000. Due to this proposed expansion, earnings before interest and taxes of the company will increase by ₹6,15,000 per annum. The additional fund can be raised in following manner:

(a) By issue of equity shares at present market price, or
(b) By borrowing 16% Long-term loans from bank.

You are informed that Debt-equity ratio (Debt/Shareholders' fund) in the range of 50% to 80% will bring down the price-earnings ratio to 22 whereas; Debt-equity ratio over 80% will bring down the price-earnings ratio to 18.

Advise which option is most suitable to raise additional capital so that the Market Price per Share (MPS) is maximized.

[(10 Marks) May 23]

Answer

Statement of Market Value Per Share (MPS)

Particulars	Equity Plan	Debt Plan
EBIT (9,60,000 + 6,15,000)	15,75,000	15,75,000
Less: Interest: Existing	1,20,000	1,20,000
New (16% of ₹34,50,000)	-	5,52,000
EBT	14,55,000	9,03,000
Less: Tax @ 30%	4,36,500	2,70,900
PAT	10,18,500	6,32,100
Less: Preference dividend (9% of ₹12,00,000)	1,08,000	1,08,000
Earning for Equity shareholders	9,10,500	5,24,100
÷ No. of Equity shares (Existing + New)	1,03,000	80,000
EPS	₹8.84	₹6.55
× PE Ratio	25 Times	18 Times
MPS	***₹221.00***	***₹117.90***

Advise: Company should raise additional capital through Equity plan to maximize MPS.

Working notes:

1. Debt Equity Ratio if ₹34,50,000 is raised as Equity:

$$= \frac{10,00,000}{74,50,000\ (8,00,000 + 34,50,000 + 20,00,000 + 12,00,000)} \times 100 = \textbf{13.42\%}$$

As the debt ratio is less than 50% the P/E ratio in this case will remain at 25 times in Plan 1.

2. Debt Ratio if ₹34,50,000 is raised as debt:

$$= \frac{10,00,000 + 34,50,000}{40,00,000\ (8,00,000 + 20,00,000 + 12,00,000)} \times 100 = \textbf{111.25\%}$$

As the debt ratio is more than 80% the P/E ratio will be brought down to 18 in Plan 2

3. Existing EBIT:

$$\text{Interest coverage ratio} = \frac{\text{EBIT}}{\text{Interest}} = \frac{\text{EBIT}}{1,20,000} = 8$$

Existing EBIT = ***9,60,000***

4. Existing EPS $= \frac{(EBIT - I)(1 - t) - PD}{N}$

$$= \frac{(9,60,000 - 1,20,000)\ (1 - 0.3) - 1,08,000}{80,000} = \textbf{₹6}$$

5. Present MPS = EPS × PE ratio = ₹6 × 25 = ***₹150***

6. Number of Equity Shares to be issued in Plan 1 $= \frac{34,50,000}{150} =$ ***23,000 shares***

SUGGESTED REVISION

Ques. No.	Observations or KEY Points (Note down during revisions)	Page No. of Practical Register	1st & 2nd Revision	3rd, 4th & 5th Revision	Revision during Exams
BQ (Book Questions covering Study Module of ICAI, PM, RTP's, MTP's and Important Questions)					
1			Y	-	-
2			Y	-	-
3			Y	-	-
4			Y	-	-
5			Y	Y	-
6			Y	Y	-
7			Y	Y	-
8			Y	Y	Y
9			Y	Y	Y
10			Y	Y	Y
11			Y	-	-
12			Y	Y	-
13			Y	-	-
14			Y	Y	-
15			Y	Y	Y
16			Y	Y	Y
17			Y	Y	Y
18			Y	Y	Y
19			Y	Y	Y
20			Y	Y	Y
21			Y	Y	Y
PYQ (Past Year Questions)					
1			Y	Y	-
2			Y	Y	Y
3			Y	-	-
4			Y	Y	Y
5			Y	Y	-
6			Y	-	-
7			Y	Y	Y
8			Y	Y	-
9			Y	-	-
10			Y	Y	-
11			Y	Y	Y
12			Y	-	-
13			Y	-	-
14			Y	Y	-
15			Y	Y	Y
16			Y	Y	Y

CHAPTER - 2

LEVERAGES

LEARNING OBJECTIVES

After studying this chapter you will be able to:

- ***Understand the concept of business risk and financial risk.***
- ***Discuss and interpret the types of leverages.***
- ***Discuss the relationship between operating leverage, Break - even analysis & Margin of Safety.***
- ***Discuss positive and negative Leverage.***
- ***Discuss Financial leverage as 'Trading on equity'.***
- ***Discuss Financial Leverage as 'Double Edged Sword'.***

OPERATING, FINANCIAL AND COMBINED LEVERAGES

BQ 1

Firm X and Firm Y manufacture the same product and their cost sheets are given below:

Particulars	Firm X	Firm Y
Units manufactured and sold	20,000	20,000
Selling price per unit	₹30	₹30
Direct material per unit	₹10	₹10
Direct labour per unit	₹5	₹5
Variable overheads per unit	₹5	₹5
Fixed cost	₹1,00,000	₹1,50,000

Calculate their net profit and operating leverage.

[Net Profit: X ₹1,00,000, Y ₹50,000; OL: X 2 times, Y 4 times]

BQ 2

Calculate the operating leverage for each of the four firms A, B, C and D from the following price and cost data:

Particulars	A (₹)	B (₹)	C (₹)	D (₹)
Sales price per unit	20	32	50	70
Variable cost per unit	6	16	20	50
Fixed operating cost	60,000	40,000	1,00,000	Nil
Units sold	5,000	5,000	5,000	5,000

Answer

Statement Showing Degree of Operating Leverage

Particulars	A (₹)	B (₹)	C (₹)	D (₹)
Sales (units)	5,000	5,000	5,000	5,000
Sales value	1,00,000	1,60,000	2,50,000	3,50,000
Less: Variable cost	30,000	80,000	1,00,000	2,50,000
Contribution	70,000	80,000	1,50,000	1,00,000
Less: Fixed operating cost	60,000	40,000	1,00,000	Nil
EBIT	10,000	40,000	50,000	1,00,000
OL (Contribution ÷ EBIT)	***7 times***	***2 times***	***3 times***	***1 time***

BQ 3

(a) Find the operating leverage from the following data:

Sales	₹50,000
Variable costs	60% of sales
Fixed costs	₹12,000

(b) Find the financial leverage from the following data:

Net Worth	₹25,00,000
Debt : Equity	3 : 1
Interest rate	12%
Operating profit	₹20,00,000

[(a) 2.5 times, (b) 1.82 times]

BQ 4

The following figures relate to two Companies:

Particulars	P Ltd	Q Ltd
Sales	500	1,000
Less: Variable cost	200	300
Contribution	***300***	***700***
Less: Fixed cost	150	400
Profit before interest and tax	***150***	***300***

Less: Interest	50	100
Profit before tax	***100***	***200***

You are required to calculate:

(1) Operating, Financial and Combined Leverages of the two Companies, and
(2) Comment on the relative position of the Companies in respect of the risk.

[(1) P Ltd: 2 times, 1.5 times, 3 times; Q Ltd: 2.33 times, 1.5 times, 3.5 times; (2) Q Ltd has higher business risk, financial risk is similar for both the companies and Q Ltd has higher overall risk]

BQ 5

A Company produces and sells 10,000 shirts. The selling price per shirt is ₹500. Variable cost is ₹200 per shirt and fixed operating cost is ₹25,00,000.

(a) Calculate operating leverage, ***(b)*** If sales are up by 10%, then what is the impact on EBIT?

Answer

(a) Statement of Profitability

Particulars	***₹***
Sales (10,000 × 500)	50,00,000
Less: Variable cost (10,000 × 200)	20,00,000
Contribution	***30,00,000***
Less: Fixed cost	25,00,000
Profit before interest and tax	***5,00,000***

$$\textit{Operating Leverage} = \frac{\text{Contribution}}{\text{EBIT}} = \frac{30,00,000}{5,00,000} = \textit{6 times}$$

(b) Impact on EBIT, if sales are go up by 10%:

$$\Delta \text{ EBIT (in \%)} = \Delta \text{ Sales} \times \text{DOL} = 10\% \times 6 \text{ times} = \textit{60\%}$$

$$\Delta \text{ EBIT (in amount)} = \text{Existing EBIT} \times 60\% = 5,00,000 \times 60\% = \textit{Increase by ₹3,00,000}$$

BQ 6

Consider the following information for Omega Ltd:

Earning Before Interest and Tax (EBIT)	₹15,750
Fixed cost	₹1,575
Earning Before Tax (EBT)	₹7,000

Calculate percentage change in earnings per share, if sales increase by 5%

Answer

$$\text{Combined Leverage} = \frac{\text{Contribution}}{\text{EBT}} = \frac{\text{EBIT} + \text{Fixed cost}}{\text{EBT}} = \frac{15,750 + 1,575}{7,000} = \textit{2.475 times}$$

$$\text{\% change in EPS} = \text{\% increase in sales} \times \text{CL} = 5\% \times 2.475 \text{ times} = \textit{12.375\%}$$

BQ 7

From the following information extracted from the books of accounts of Imax Ltd., Calculate percentage change in earnings per share, if sales increase by 10% and Fixed Operating cost is ₹1,57,500:

EBIT (Earnings before Interest and Tax)	₹31,50,000
Earnings before Tax (EBT)	₹14,00,000

Answer

Calculation of percentage change in Earnings per share:

Δ EPS (in %)	=	Δ Sales × CL	=	10% × 2.3625 times	=	***23.625%***

Working note:

$$\text{Combined Leverage} = \frac{\text{Contribution}}{\text{EBT}} = \frac{31,50,000 + 1,57,500}{14,00,000} = \textbf{2.3625}$$

BQ 8

Betatronics Ltd. has the following balance sheet and income statement information:

Balance Sheet as on 31st March, 2023

Liabilities	*₹*	*Assets*	*₹*
Equity Capital (₹10 per share)	8,00,000	Net Fixed Assets	10,00,000
Retained Earnings	3,50,000	Current Assets	9,00,000
10% Debentures	6,00,000		
Current Liabilities	1,50,000		
	19,00,000		***19,00,000***

Income Statement for the year ending 31st March, 2023

Particulars	*₹*
Sales	3,40,000
Less: Operating Expenses (including ₹60,000 depreciation)	1,20,000
EBIT	***2,20,000***
Less: Interest @ 10% of 6,00,000	60,000
EBT	***1,60,000***
Less: Taxes	56,000
EAT	***1,04,000***

(a) Determine the degree of operating, financial and combined leverages at the current sales level, if all operating expenses, other than depreciation, are variable costs.

(b) If total assets remain at the same level, but sales ***(i)*** increase by 20 percent and ***(ii)*** decrease by 20 percent, what will be the earnings per share at the new sales level?

Answer

(a) Calculation of Degree of Operating (DOL), Financial (DFL) and Combined leverages (DCL):

$$\text{Degree of Operating Leverage} = \frac{\text{Contribution}}{\text{EBIT}} = \frac{3,00,000 - 60,000}{2,20,000} = \textbf{1.27}$$

$$\text{Degree of Financial Leverage} = \frac{\text{EBIT}}{\text{EBT}} = \frac{2,20,000}{1,60,000} = \textbf{1.38}$$

$$\text{Degree Combined Leverage} = \text{DOL} \times \text{DFL} = 1.27 \times 1.38 = \textbf{1.75}$$

(b) Earnings per share at the new sales level:

EPS if sales level increases by 20%	=	Existing EPS + increase (% increase in sales × CL)			
	=	₹1.30 + 35% (20% × 1.75 times)	=	***₹1.755***	
EPS if sales level decreases by 20%	=	Existing EPS - decrease (% decrease in sales × CL)			
	=	₹1.30 - 35% (20% × 1.75 times)	=	***₹0.845***	

Working Notes:

(i) Variable Costs = ₹60,000 (total cost – depreciation)

(ii) Variable Costs at:

(a)	Sales level, ₹4,08,000	=	₹72,000 (increase by 20%)
(b)	Sales level, ₹2,72,000	=	₹48,000 (decrease by 20%)

BQ 9

The Sale revenue of TM excellence Ltd. @ ₹20 per unit of output is ₹20 lakhs and Contribution is ₹10 lakhs. At the present level of output the DOL of the company is 2.5. The company does not have any Preference Shares. The number of Equity Shares are 1 lakh. Applicable corporate income tax rate is 50% and the rate of interest on Debt Capital is 16% p.a.

What is the EPS (At sales revenue of ₹20 lakhs) and amount of Debt Capital of the company if a 25% decline in Sales will wipe out EPS.

Answer

(A) Earnings Per Share $= \frac{(EBIT - I)(1 - t)}{\text{Equity shares}} = \frac{(4,00,000 - 1,50,000)\ (1 - 0.50)}{1,00,000}$

$=$ ***₹1.25***

(B) Amount of DEBT = Interest ÷ Rate of interest

= 1,50,000 ÷ 16% = ***₹9,37,500***

Working Note:

(1) Calculation of Fixed Cost:

DOL $= \frac{\text{Contribution}}{\text{EBIT}} = \frac{10,00,000}{\text{EBIT}} =$ 2.5 times

EBIT = 10,00,000 ÷ 2.5 = ***₹4,00,000***

Fixed Cost = Contribution – EBIT = 10,00,000 – 4,00,000 = ***₹6,00,000***

(2) Calculation of Degree of Combined Leverage:

Question says that 25% change in sales will wipe out EPS, wipe out means it will reduce EPS by 100%.

DCL $= \frac{\%\ \text{Change in EPS}}{\%\ \text{Change in Sales}} = \frac{100\%}{25\%} =$ ***4 times***

(3) Calculation of EBT and Interest:

DCL $= \frac{\text{Contribution}}{\text{EBT}} = \frac{10,00,000}{\text{EBT}} =$ 4 times

EBT = 10,00,000 ÷ 4 = ***₹2,50,000***

Interest = EBIT – EBT = 4,00,000 – 2,50,000 = ***₹1,50,000***

BQ 10

If the combined leverage and operating leverage figures of a company are 2.5 and 1.25 respectively. Given that the equity dividend per share is ₹2, interest payable per year is ₹1,00,000, total fixed cost ₹50,000 and sales ₹10,00,000.

Find financial leverage and P/V ratio. ***[FL: 2 times and P/V Ratio: 25%]***

BQ 11

Consider the following information for Mega Ltd.:

Production level	2,500 units
Contribution per unit	150
Operating leverage	6
Combined leverage	24
Tax rate	30%

Compute its earnings after tax.

Answer

Earning after tax = EBT (1 - t)
= ₹15,625 (1 - 0.30) = ***₹10,937.50***

Working Notes:

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

24 times = $\frac{\text{Contribution}}{\text{EBT}} = \frac{2{,}500 \times 150}{\text{EBT}}$

∴ EBT = $\frac{3{,}75{,}000}{24}$ = ₹15,625

BQ 12

The balance sheet of Alpha Numeric Company is given below:

Liabilities	***₹***	***Assets***	***₹***
Equity Share Capital (₹10 per share)	90,000	Net Fixed Assets	2,25,000
		Current Assets	75,000
Retained Earning	30,000		
10% Long Term Debt	1,20,000		
Current Liabilities	60,000		
	3,00,000		***3,00,000***

The company's total assets turnover ratio is 3 times, its fixed operating cost is ₹1,50,000 and its variable operating cost ratio is 50%. The income tax rate is 50%.

You are required to:

(1) Calculate the different type of leverages for the company and EPS.
(2) Determine the likely level of EBIT if EPS is ***(a)*** ₹1.00, ***(b)*** ₹2.00 and ***(c)*** ₹Nil.

[(1) OL: 1.5 times, FL: 1.04 times, CL: 1.56 times; EPS : ₹16(2) EBIT: (a) ₹30,000 (b) ₹48,000 (c) ₹12,000]

BQ 13

Z Limited is considering the installation of a new project costing ₹80,00,000. Expected annual sales revenue from the project is ₹90,00,000 and its variable costs are 60 percent of sales. Expected annual fixed cost other than interest is ₹10,00,000. Corporate tax rate is 30 percent. The company wants to arrange the funds through issuing 4,00,000 equity shares of ₹10 each and 12 percent debentures of ₹40,00,000.

You are required to:

(i) Calculate the operating, financial and combined leverages and Earnings per Share (EPS).
(ii) Determine the likely level of EBIT, if EPS is ₹4, or ₹2, or Zero.

Answer

(i) Operating Leverage = $\frac{\text{Contribution}}{\text{EBIT}} = \frac{90 \text{ Lacs} - 60\%}{36 \text{ Lacs} - 10 \text{ Lacs}}$ = ***1.38***

Financial Leverage = $\frac{\text{EBIT}}{\text{EBT}} = \frac{26 \text{ Lacs}}{26 \text{ Lacs} - 12\% \text{ of } 40 \text{ Lacs}}$ = ***1.23***

Combined Leverage = OL × FL = 1.38 × 1.23 = ***1.70***

Earnings Per Share = $\frac{\text{PAT}}{\text{Equity shares}} = \frac{21{,}20{,}000\ (1 - .30)}{4{,}00{,}000}$ = ***₹3.71***

(ii) Calculation of likely level of EBIT:

$$\text{Earnings Per Share} = \frac{\text{PAT}}{\text{Equity shares}} = \frac{(\text{EBIT} - \text{I})(1-\text{t})}{\text{Equity shares}}$$

Case I: ***₹4.00*** $= \frac{(\text{EBIT} - 4{,}80{,}000)(1-0.30)}{4{,}00{,}000}$ or EBIT = ***₹27,65,714***

Case II: ***₹2.00*** $= \frac{(\text{EBIT} - 4{,}80{,}000)(1-0.30)}{4{,}00{,}000}$ or EBIT = ***₹16,22,857***

Case III: ***₹0.00*** $= \frac{(\text{EBIT} - 4{,}80{,}000)(1-0.30)}{4{,}00{,}000}$ or EBIT = ***₹4,80,000***

BQ 14

Calculate the operating leverage, financial leverage and combined leverage from the following data under situations I and II and financial plans A and B:

Installed capacity	4,000 units
Actual production and sales	75% of the Capacity
Selling price	₹30 per unit
Variable cost	₹15 per unit

Fixed cost:

Under situation I	₹15,000
Under situation II	₹20,000

Capital structure:

	Plan A	***Plan B***
Equity	₹10,000	₹15,000
Debt (rate of interest at 20%)	₹10,000	₹5,000
Capital Employed	***₹20,000***	***₹20,000***

Answer

Statement Showing OL, FL and CL

Particulars	***Situation I***		***Situation II***	
	Plan A	***Plan B***	***Plan A***	***Plan B***
Sales (3,000 × ₹30)	90,000	90,000	90,000	90,000
Less: Variable cost	45,000	45,000	45,000	45,000
Contribution	***45,000***	***45,000***	***45,000***	***45,000***
Less: Fixed Cost	15,000	15,000	20,000	20,000
EBIT	***30,000***	***30,000***	***25,000***	***25,000***
Less: Interest	2,000	1,000	2,000	1,000
EBT	***28,000***	***29,000***	***23,000***	***24,000***
OL (Contribution ÷ EBIT)	***1.5***	***1.5***	***1.8***	***1.8***
FL (EBIT ÷ EBT)	***1.07***	***1.03***	***1.09***	***1.04***
CL (Contribution ÷ EBT)	***1.61***	***1.55***	***1.96***	***1.88***

BQ 15

The capital structure of the Progressive Corporation consists of an ordinary share capital of ₹1,00,00,000 (share of ₹100 par value) and ₹10,00,000 of 10% debentures.

Sales increased by 20% from 1,00,000 units to 1,20,000 units, the selling price is ₹10 per unit; variable cost amounts to ₹6 per unit and fixed expenses amount to ₹2,00,000. The income tax rate is assumed to be 50%.

You are required to calculate the following:

(ii) The percentage increase in earnings per share;
(iii) The degree of operating leverage at 1,00,000 units and 1,20,000 units.
(iv) The degree of financial leverage at 1,00,000 units and 1,20,000 units.
(v) Comment on the behavior of operating and financial leverages in relation to increase in production from 1,00,000 units to 1,20,000 units.

Answer

(i) Calculation of % increase in EPS

Particulars	***1,00,000 units***	***1,20,000 units***
Sales @ ₹10 per unit	10,00,000	12,00,000
Less: Variable cost	6,00,000	7,20,000
Contribution	***4,00,000***	***4,80,000***
Less: Fixed cost	2,00,000	2,00,000
Profit before interest and tax	***2,00,000***	***2,80,000***
Less: Interest @ 10% of ₹10 lacs	1,00,000	1,00,000
Profit before tax	***1,00,000***	***1,80,000***
Less: Tax @ 50%	50,000	90,000
Profit after tax	***50,000***	***90,000***
÷ No. of shares	1,00,000	1,00,000
Earning per share	***₹0.50***	***₹0.90***
% increase in EPS [(0.90 – 0.50) ÷ 0.50] × 100	***-***	***+80%***

(ii) Degree of Operating Leverage $= \frac{\text{Contribution}}{\text{EBIT}}$

At 1,00,000 units $= \frac{4,00,000}{2,00,000} =$ ***2 times***

At 1,20,000 units $= \frac{4,80,000}{2,80,000} =$ ***1.71 times***

(iii) Degree of Financial Leverage $= \frac{\text{EBIT}}{\text{EBT}}$

At 1,00,000 units $= \frac{2,00,000}{1,00,000} =$ ***2 times***

At 1,20,000 units $= \frac{2,80,000}{1,80,000} =$ ***1.56 times***

(iv) Increase in production and sales will result in decrease in risk.

INCOME STATEMENT

BQ 16

The following details of A Ltd for the year ended 31.03.2023 are furnished:

Operating Leverage	3 : 1
Financial Leverage	2 : 1
Interest charges per annum	₹20,00,000
Corporate tax rate	50%
Variable cost	60% of sales

Prepare the Income statement of the Company.

[Profit After Tax: ₹10,00,000]

BQ 17

The following financial data have been furnished by A Ltd and B Ltd for the year ended 31.03.2023:

Particulars	A Ltd	B Ltd
Operating leverage	3 : 1	4 : 1
Financial leverage	2 : 1	3 : 1
Interest charges per annum	₹12,00,000	₹10,00,000
Corporate tax rate	40%	40%
Variable cost as % of sales	60%	50%

Prepare Income statements of the two companies. Also comment on the financial position and structure of the two companies.

[Profit After Tax: A Ltd ₹7,20,000 and B Ltd ₹3,00,000; Finance leverage for B Ltd is higher and indicates higher financial risk and a higher percentage of debt in the capital structure of B Ltd.]

BREAK EVEN POINT, MARGIN OF SAFETY AND OPERATING LEVERAGE

BQ 18

X Corporation has estimated that for a new product, its break even point is 2,000 units, if the item is sold for ₹14 per unit. The cost accounting department has currently identified variable cost of ₹9 per unit.

Calculate the operating leverage for sales volume of 2,500 units and 3,000 units. What do you infer from the operating leverage of the sales volumes of 2,500 units and 3,000 units and their difference, if any?

Answer

Statement Showing Operating Leverage

Particulars	2,500 units	3,000 units
Sales @ ₹14 per unit	35,000	42,000
Less: Variable cost @ ₹9 per unit	22,500	27,000
Contribution	***12,500***	***15,000***
Less: Fixed cost	10,000	10,000
Earning before interest and tax	***2,500***	***5,000***
Operating Leverage $\left(\frac{\text{Contribution}}{\text{EBIT}}\right)$	$\frac{12,500}{2,500}$ = ***5 times***	$\frac{15,000}{5,000}$ = ***3 times***

Difference between operating leverage at 2,500 units and 3,000 units = ***2 times (5 - 3)***

Working Notes:

Fixed cost = BEP in units × contribution per unit
= 2,000 units × ₹5 (14 - 9) = ***₹10,000***

Inference: Sales and risk have inverse relationship. Increase in sales would result in decrease in risk.

BQ 19

On the basis of following detail calculate Break-even point and Operating Leverage of Product X and Product Y and comment on relationship of Break-even point and Operating Leverage:

Particulars	Product X	Product Y
Number of Unit Sold	1,000	1,000
Sale Price per unit	₹40	₹20
Variable Cost per unit	₹20	₹12
Fixed Cost	₹15,000	₹5,000

Answer

Statement Showing Operating Leverage and Break-even Point

Particulars	Product X	Product Y
Sale	40,000	20,000

Less: Variable Cost per unit	20,000	12,000
Contribution	***20,000***	***8,000***
Less: Fixed cost	15,000	5,000
Earning before interest and tax	***5,000***	***3,000***
Operating Leverage $\left(\frac{\text{Contribution}}{\text{EBIT}}\right)$	$\frac{20,000}{5,000}$ = ***4 times***	$\frac{8,000}{3,000}$ = ***2.67 times***
Break-even point $\frac{\text{Fixed Cost}}{\text{Contribution Per Unit}}$	$\frac{15,000}{20}$ = ***750 units***	$\frac{5,000}{8}$ = ***625 units***

Relationship: Firm with high Operating Leverage has high Break-even point.

BQ 20

On the basis of following information calculate Operating leverage with the help of Margin of Safety:

Particulars	***Product X***
Number of Unit Sold	1,000
Sale Price per unit	₹50
Variable Cost per unit	₹30
Fixed Cost	₹15,000

Answer

Statement Showing Operating Leverage

Particulars	***Product X***
Sale	50,000
Less: Variable Cost per unit	30,000
Contribution	***20,000***
Less: Fixed cost	15,000
Earning before interest and tax	***5,000***
Break-even point (Fixed Cost ÷ Contribution per unit) or (15,000 ÷ 20)	750 units
Margin of Safety (1,000 units – 750 units)	250 units
Margin of Safety to Sales (250 units ÷ 1,000 units)	0.25
Operating Leverage (1 ÷ MOS to sales ratio) or (1 ÷ 0.25)	***4 times***

BQ 21

From the following information, prepare Income Statement of Company A & B:

Particulars	***Company A***	***Company B***
Margin of safety	0.20	0.25
Interest	₹3,000	₹2,000
Profit volume ratio	25%	33.33%
Financial Leverage	4	3
Tax rate	45%	45%

Answer

Income Statement

Particulars	***Company A***	***Company B***
Sales	80,000	36,000
Less: Variable cost (b.f.)	60,000	24,000
Contribution	20,000	12,000
Less: Fixed cost (b.f.)	16,000	9,000
Profit before interest and tax	4,000	3,000
Less: Interest	3,000	2,000
Profit before tax	1,000	1,000
Less: Tax @ 45%	450	450
Profit after tax	550	550

Working Notes (Company A):

(a) Company A:

Financial Leverage	=	EBIT/(EBIT - Interest)		
	=	EBIT/(EBIT – ₹3,000)	=	4 times
EBIT	=	4 EBIT – ₹12,000		
EBIT	=	***₹4,000***		

Company B:

Financial Leverage	=	EBIT/(EBIT - Interest)		
	=	EBIT/(EBIT – ₹2,000)	=	3 times
EBIT	=	3 EBIT – ₹6,000		
EBIT	=	***₹3,000***		

(b) Company A:

Operating Leverage	=	1/Margin of Safety	=	1/0.20	=	5 times
Operating Leverage	=	Contribution/EBIT				
	=	Contribution/₹4,000	=	5 times		
Contribution	=	***₹20,000***				

Company B:

Operating Leverage	=	1/Margin of Safety	=	1/0.25	=	4 times
Operating Leverage	=	Contribution/EBIT				
	=	Contribution/₹3,000	=	4 times		
Contribution	=	***₹12,000***				

(c) Company A:

Sales	=	Contribution/PV Ratio	=	₹20,000/0.25	=	***₹80,000***

Company B:

Sales	=	Contribution/PV Ratio	=	₹12,000/0.33	=	***₹36,000***

BQ 22

Company P and Q are having same earnings before tax. However, the margin of safety of Company P is 0.20 and, for Company Q, is 1.25 times than that of Company P. The interest expense of Company P is ₹1,50,000 and, for Company Q, is 1/3rd less than that of Company P. Further, the financial leverage of Company P is 4 and, for Company Q, is 75% of Company P. Other information is given as below:

Particulars	***Company P***	***Company Q***
Profit volume ratio	25%	33.33%
Tax rate	45%	45%

You are required to prepare Income Statement for both the companies.

Answer

Income Statement

Particulars	***Company P***	***Company Q***
Sales	40,00,000	18,00,000
Less: Variable cost	30,00,000	12,00,000
Contribution	10,00,000	6,00,000
Less: Fixed cost	8,00,000	4,50,000
Profit before interest and tax	2,00,000	1,50,000
Less: Interest	1,50,000	1,00,000
Profit before tax	50,000	50,000
Less: Tax @ 45%	22,500	22,500
Profit after tax	27,500	27,500

Working Notes:

(a) Margin of Safety:

For Company P	=	0.20		
For Company Q	=	0.20 × 1.25	=	***0.25***

(b) Interest Expenses:

For Company P	=	₹1,50,000		
For Company Q	=	₹1,50,000 - 1/3 of ₹1,50,000	=	***₹1,00,000***

(c) Financial Leverage:

For Company P	=	4		
For Company Q	=	4 × 75%	=	***3***

(d) EBIT:

For Company A

Financial Leverage	=	EBIT/(EBIT- Interest)
4	=	EBIT/(EBIT- ₹1,50,000)
4 EBIT – ₹6,00,000	=	EBIT
3 EBIT	=	₹6,00,000
EBIT	=	***₹2,00,000***

For Company B

Financial Leverage	=	EBIT/(EBIT - Interest)
3	=	EBIT/(EBIT – ₹1,00,000)
3 EBIT – ₹3,00,000	=	EBIT
2 EBIT	=	₹3,00,000
EBIT	=	***₹1,50,000***

(e) Contribution:

For Company A

Operating Leverage	=	1/Margin of Safety	=	1/0.20	=	5
Operating Leverage	=	Contribution/EBIT				
5	=	Contribution/₹2,00,000				
Contribution	=	***₹10,00,000***				

For Company B

Operating Leverage	=	1/Margin of Safety	=	1/0.25	=	4
Operating Leverage	=	Contribution/EBIT				
4	=	Contribution/₹1,50,000				
Contribution	=	***₹6,00,000***				

(f) Sales:

For Company A

Profit Volume Ratio	=	25%
Profit Volume Ratio	=	(Contribution/Sales) × 100
25%	=	₹10,00,000/Sales
Sales	=	₹10,00,000/25%
Sales	=	***₹40,00,000***

For Company B

Profit Volume Ratio	=	33.33%
Therefore, Sales	=	₹6,00,000/33.33%
Sales	=	***₹18,00,000***

PREFERENCE SHARE CAPITAL

BQ 23

The following is the income statement of XYZ Ltd for the year 2023:

Sales	₹50,00,000
Variable cost	₹10,00,000
Contribution	₹40,00,000
Fixed cost	₹20,00,000
EBIT	₹20,00,000
Interest	₹5,00,000
Profit before tax	₹15,00,000
Tax at 40%	₹6,00,000
Profit after tax	₹9,00,000
Preference dividend	₹1,00,000
Profit for equity share holders	₹8,00,000

The company has 4,00,000 equity shares issued to the shareholder.

Find out:

(1) Operating leverage,
(2) Financial leverage,
(3) Combined leverage,
(4) What would be the EPS if the sales level increases by 10% and the EPS if the sales level decreases by 20%.

Answer

(i) Operating Leverage $= \frac{\text{Contribution}}{\text{EBIT}} = \frac{40,00,000}{20,00,000} =$ ***2 times***

(ii) Financial Leverage $= \frac{\text{EBIT}}{\text{EBT} - \frac{\text{Preference Dividend}}{1 - \text{Tax}}}$

$= \frac{20,00,000}{15,00,000 - \frac{1,00,000}{1 - 0.40}} =$ ***1.50 times***

(iii) Combined Leverage $= \text{OL} \times \text{FL} = 2 \times 1.5 =$ ***3 times***

(iv) EPS if sales level increases by 10% = Existing EPS + increase (% increase in sales × CL)
= ₹2.00 + 30% (10% × 3 times) = ***₹2.60***

EPS if sales level decreases by 20% = Existing EPS - decrease (% decrease in sales × CL)
= ₹2.00 - 60% (20% × 3 times) = ***₹0.80***

BQ 24

The net sales of Apex Company are ₹15 crores. EBIT of the Company as a percentage of net sales is 12%. The capital employed comprises ₹5 crores of Equity Shares, ₹1 crores of Cumulative Redeemable Preference Shares bearing 13% rate of dividend and Debt Capital of ₹3 crores at an annual interest rate of 15%. Corporate Income Tax rate is 40%.

Required:

(i) Calculate the Return on Equity (ROE) for the Company and indicate its segments due to the presence of Preference Share Capital and Borrowing (Debentures).

(ii) Calculate the Operating Leverage of the Company given that its Combined Leverage is 3.

[(i) ROE: 13.60%; OL: 1.89 times]

MISCELLANEOUS

BQ 25

Calculate EPS (earning per share) of Solid Ltd and Sound Ltd assuming (a) 20% before tax and interest rate of return on assets (b) 10% before tax and interest rate of return on assets based on the following data:

Particulars	Solid Ltd	Sound Ltd
Total Assets	10,00,000	10,00,000
12% Debenture	Nil	5,00,000
Equity Share Capital (Share of ₹10 each)	10,00,000	5,00,000
	10,00,000	10,00,000

Assume a 50% Income tax in both cases. Give your comments on the financial leverage.

Answer

Statement Showing EPS

Particulars	Solid Ltd		Sound Ltd	
	20%	10%	20%	10%
EBIT	2,00,000	1,00,000	2,00,000	1,00,000
Less: Interest 12% on ₹5 lacs	Nil	Nil	60,000	60,000
EBT	***2,00,000***	***1,00,000***	***1,40,000***	***40,000***
Less: Tax @ 50%	1,00,000	50,000	70,000	20,000
EAT	***1,00,000***	***50,000***	***70,000***	***20,000***
÷ No. of shares	1,00,000	1,00,000	50,000	50,000
EPS	***₹1.00***	***₹0.50***	***₹1.40***	***₹0.40***

Analysis: When the rate of return on assets before tax is 20% (higher than the rate of interest 12%), Sound Ltd could get a higher EPS of ₹1.40 than Solid Ltd, Hence financial leverage is favourable and vice-versa in case of ROI is 10%.

BQ 26

Lovedove Ltd & Lovelee Ltd are both in the same business, having same capital employed. Their capital structures & extracts of Income Statement are as follows:

Particulars	Lovedove	Lovelee
Equity share capital of ₹10 each	16,00,000	6,00,000
12% Debentures	1,00,000	11,00,000
Net Capital employed	***17,00,000***	***17,00,000***
Earning before interest and tax (EBIT)	5,10,000	5,10,000
Less: Debenture interest	12,000	1,32,000
Earning before tax (EBT)	***4,98,000***	***3,78,000***
Less: Tax @ 35%	1,74,300	1,32,300
Profit after tax (PAT)	***3,23,700***	***2,45,700***
No. of shares	1,60,000	60,000

Show the impact of Trading on Equity by comparing EPS & DFL of the two companies.

Answer

Earning Per Share (EPS) = PAT ÷ No. of Equity Shares

Lovedove Ltd = $\frac{3,23,700}{1,60,000}$ = ***₹2.023***

Lovelee Ltd = $\frac{2,45,700}{60,000}$ = ***₹4.095***

Degree of Financial Leverage = $\frac{EBIT}{EBT}$

Lovedove Ltd = $\frac{5,10,000}{4,98,000}$ = ***1.024 times***

Lovelee Ltd = $\frac{5,10,000}{3,78,000}$ = ***1.349 times***

Lovelee Ltd's EPS is higher with high financial leverage, therefore 'Trading on equity' is now working in favour of the Lovelee Ltd.

BQ 27

Delta Ltd. currently has an equity share capital of ₹10,00,000 consisting of 1,00,000 Equity share of ₹10 each. The company is going through a major expansion plan requiring to raise funds to the tune of ₹6,00,000. To finance the expansion the management has following plans:

Plan I Issue 60,000 Equity shares of ₹10 each.
Plan II Issue 40,000 Equity shares of ₹10 each and the balance through long-term borrowing at 12% interest p.a.
Plan III Issue 30,000 Equity shares of ₹10 each and 3,000, 9% Debentures of ₹100 each.
Plan IV Issue 30,000 Equity shares of ₹10 each and the balance through 6% preference shares.

The EBIT of the company is expected to be ₹4,00,000 p.a. assume corporate tax rate of 40%.

Required:
(i) Calculate EPS in each of the above plans.
(ii) Ascertain financial leverage in each plan.

Answer

(i) Statement of EPS

Particulars	***I***	***II***	***III***	***IV***
Earnings before interest and tax	4,00,000	4,00,000	4,00,000	4,00,000
Less: Interest:				
@ 12% on ₹2 Lacs	-	24,000	-	-
@ 9% on ₹3 Lacs	-	-	27000	-
EBT	4,00,000	3,76,000	3,73,000	4,00,000
Less: Tax @ 40%	1,60,000	1,50,400	1,49,200	1,60,000
EAT	2,40,000	2,25,600	2,23,800	2,40,000
Less: Pref. Dividend @ 6 % on ₹3 Lacs	-	-	-	18,000
Earnings for Equity	2,40,000	2,25,600	2,23,800	2,22,000
÷ No. of Equity shares (₹10 each)	1,60,000	1,40,000	1,30,000	1,30,000
EPS	***₹1.50***	***₹1.61***	***₹1.72***	***₹1.71***

(ii) Statement of Financial Leverage

Particulars	***I***	***II***	***III***	***IV***
FL $\left(\frac{\text{EBIT}}{\text{EBT} - \frac{\text{Preference Dividend}}{1-\text{Tax}}}\right)$	$\left(\frac{4,00,000}{4,00,000}\right)$	$\left(\frac{4,00,000}{3,76,000}\right)$	$\left(\frac{4,00,000}{3,73,000}\right)$	$\left(\frac{4,00,000}{4,00,000 - \frac{18,000}{1-0.40}}\right)$
	1	***1.06***	***1.07***	***1.08***

Comments: Since the EPS is highest in plan III, the management could accept it.

BQ 28

The following particulars relating to Navya Ltd. for the year ended 31st March 2023 is given:

Output	1,00,000 units at normal capacity
Selling price per unit	₹40

Variable cost per unit	₹20
Fixed cost	₹10,00,000

The capital structure of the company as on 31st March, 2023 is as follows:

Particulars	₹
Equity share capital (1,00,000 shares of ₹10 each)	10,00,000
Reserves and surplus	5,00,000
7% Debentures	10,00,000
Current liabilities	5,00,000
Total	**30,00,000**

Navya Ltd. has decided to undertake an expansion project to use the market potential, that will involve ₹10 lakhs. The company expects an increase in output by 50%. Fixed cost will be increased by ₹5,00,000 and variable cost per unit will be decreased by 10%. The additional output can be sold at the existing selling price without any adverse impact on the market.

The following alternative schemes for financing the proposed expansion programme are planned:

(1) Entirely by equity shares of ₹10 each at par.
(2) ₹5 lakh by issue of equity shares of ₹10 each and the balance by issue of 6% debentures of ₹100 each at par.
(3) Entirely by 6% debentures of ₹100 each at par.

Find out which of the above-mentioned alternatives would you recommend for Navya Ltd. with reference to the risk and return involved, assuming a corporate tax of 40%.

Answer

Statement Showing Profitability of Alternative Schemes for Financing

Particulars	Existing	Alt 1	Alt 2	Alt 3
Production (in units)	1,00,000	1,50,000	1,50,000	1,50,000
Sales value @ ₹40 per unit	40,00,000	60,00,000	60,00,000	60,00,000
Less: Variable cost @ ₹20/ ₹18 per unit	20,00,000	27,00,000	27,00,000	27,00,000
Contribution	20,00,000	33,00,000	33,00,000	33,00,000
Less: Fixed cost	10,00,000	15,00,000	15,00,000	15,00,000
EBIT	10,00,000	18,00,000	18,00,000	18,00,000
Less: Interest on loan:		70,000	70,000	70,000
Existing @ 7% of ₹10,00,000	70,000	-	30,000	60,000
New @ 6% of ₹5/₹10 Lakh	-			
EBT	9,30,000	17,30,000	17,00,000	16,70,000
Less: Tax @ 40%	(3,72,000)	(6,92,000)	(6,80,000)	(6,68,000)
EAT	5,58,000	10,38,000	10,20,000	10,02,000
÷ Number of Equity Shares (Existing + New)	÷ 1,00,000	÷ 2,00,000	÷ 1,50,000	÷ 1,00,000
EPS	***₹5.58***	***₹5.19***	***₹6.80***	***₹10.02***
Operating leverage (Contribution ÷ EBIT)	2.00	1.83	1.83	1.83
Financial Leverage (EBIT ÷ EBT)	1.08	1.04	1.06	1.08
Combined Leverage (Contribution ÷ EBT)	2.15	1.91	1.94	1.98
Risk	***-***	***Lowest***	***Lower than Alt 3***	***Highest***
Return	***-***	***Lowest***	***Lower than Alt 3***	***Highest***

From the above figures, we can see that the Operating Leverage is same in all alternatives though Financial Leverage differs. Alternative (3) uses the maximum amount of debt and result into the highest degree of financial leverage, followed by alternative (2). Accordingly, risk of the company will be maximum in these options. Corresponding to this scheme, however, maximum EPS (i.e., ₹10.02 per share) will be also in option (3).

So, if Navya Ltd. is ready to take a high degree of risk, then alternative (3) is strongly recommended. In case of opting for less risk, alternative (2) is the next best option with a reduced EPS of ₹6.80 per share. In case of alternative (1), EPS is even lower than the existing option, hence not recommended.

BQ 29

A firm's details are as under:

Sales (@100 per unit)	₹24,00,000
Variable Cost	50%
Fixed Cost	₹10,00,000

It has borrowed ₹10,00,000 @ 10% p.a. and its equity share capital is ₹10,00,000 (₹100 each). Assuming tax rate 50%.

Calculate:

(1) Operating Leverage
(2) Financial Leverage
(3) Combined Leverage
(4) Return on Investment as ROE
(5) If the sales increases by ₹6,00,000; what will the new EBIT?

Answer

(1) Operating Leverage $= \frac{\text{Contribution}}{\text{EBIT}} = \frac{12,00,000}{2,00,000} =$ ***6 times***

(2) Financial Leverage $= \frac{\text{EBIT}}{\text{EBT}} = \frac{2,00,000}{1,00,000} =$ ***2 times***

(3) Combined Leverage $= \text{OL} \times \text{FL} = 6 \times 2 =$ ***12 times***

(4) ROI as ROE $= \frac{\text{Earnings for Equity}}{\text{Equity shareholder's fund}} \times 100$

$= \frac{50,000}{10,00,000} \times 100 =$ ***5%***

(5) New EBIT:

Δ EBIT (in %) = Δ Sales × DOL = 25% × 6 times
= ***150% or 1.5 times***

New EBIT = Existing EBIT + 150% = 2,00,000 + 150%
= ***₹5,00,000***

Calculation of EPS

Particulars	*₹*
Sales	24,00,000
Less: Variable cost @ of 50% of sales	12,00,000
Contribution	12,00,000
Less: Fixed cost	10,00,000
EBIT	2,00,000
Less: Interest @ 10% of 10,00,000	1,00,000
EBT	1,00,000
Less: Tax @ 50%	50,000
EAT	50,000

BQ 30

A firm has sales of ₹75,00,000 variable cost is 56% and fixed cost is ₹6,00,000. It has a debt of ₹45,00,000 at 9% and equity of ₹55,00,000.

(i) What is the firm's ROI?
(ii) Does it have favourable financial leverage?
(iii) If the firm belongs to an industry whose capital turnover is 3, does it have a high or low capital turnover?
(iv) What are the operating, financial and combined leverages of the firm?
(v) If the sales is increased by 10% by what percentage EBIT will increase?
(vi) At what level of sales the EBT of the firm will be equal to zero?
(vii) If EBIT increases by 20%, by what percentage EBT will increase?

Answer

Income Statement

Particulars	*₹*
Sales	75,00,000
Less: Variable cost @ of 56% of sales	42,00,000
Contribution	33,00,000
Less: Fixed costs	6,00,000
EBIT	27,00,000
Less: Interest @ 9% of 45,00,000	4,05,000
EBT	22,95,000

(i) $\text{ROI} = \frac{\text{EBIT}}{\text{Capital Employed}} \times 100 = \frac{27,00,000}{45,00,000 + 55,00,000} \times 100 =$ ***27%***

(ii) ROI is 27% and Interest on debt is 9%, hence, it has a favourable financial leverage.

(iii) $\text{Capital Turnover} = \frac{\text{Net Sales}}{\text{Capital}} = \frac{75,00,000}{1,00,00,000} =$ ***0.75***

Firm has very low capital turnover as compared to industry average of 3.

(iv) Calculation of Operating, Financial and Combined leverages:

$\text{Operating Leverage} = \frac{\text{Contribution}}{\text{EBIT}} = \frac{33,00,000}{27,00,000} =$ ***1.222***

$\text{Financial Leverage} = \frac{\text{EBIT}}{\text{EBT}} = \frac{27,00,000}{22,95,000} =$ ***1.176***

Combined Leverage = OL × FL = 1.222 × 1.176 = ***1.437***

(v) Operating leverage is 1.22. So if sales is increased by 10% then EBIT will be increased by 1.222 × 10 i.e. 12.22% (approx)

(vi)

EBT	=	Sales – Variable cost – Fixed cost – Interest
Nil	=	Sales – 56% sales – 6,00,000 – 4,05,000
44% of sales	=	10,05,000
Sales	=	***22,84,091***

Hence at ₹22,84,091 sales level EBT of the firm will be equal to Zero.

(vii) Financial leverage is 1.176. So, if EBIT increases by 20% then EBT will increase by 1.18 × 20% = 23.52% (approx)

PAST YEARS QUESTIONS

PYQ 1

The net Sales of A Ltd is ₹30 crores. Earning before interest and tax of the company as a percentage of net sales is 12%. The capital employed comprises ₹10 crores of Equity, ₹2 crores of 13% Cumulative Preference Share Capital and 15% Debentures of ₹6 crores. Income tax rate is 40%.

Required:

(i) Calculate the Return on Equity (ROE) for the Company and indicate its segments due to the presence of Preference Share Capital and Borrowing (Debentures).

(ii) Calculate the Operating Leverage of the Company given that its Combined Leverage is 3.

[5 Marks (May 2002)]

Answer

(i) Calculation of ROE:

$$\text{ROE} = \frac{\text{Earnings for Equity Shareholders}}{\text{Equity Shareholder's Fund}} \times 100 = \frac{1.36 \text{ Crores}}{10 \text{ Crores}} \times 100$$

$$= \textbf{13.60\%}$$

Segment:

$$\textbf{ROCE / ROI} = \frac{\text{EBIT}}{\text{Capital Employed}} \times 100 = \frac{3.60 \text{ crores}}{18 \text{ crores}} \times 100$$

$$= \textbf{20\%}$$

Segment due to Preference Share Capital = [20% (1-.40) – 13%] × $\frac{2}{10}$ = - .20%

Segment due to Debentures = [(20% - 15%) (1-.40)] × $\frac{6}{10}$ = 1.80%

Return on Equity with segment effect = ROI (1-t) - .20% + 1.80%

= [20% (1-.40)] - .20% + 1.80% = **13.60%**

(ii) Operating Leverage = Combined Leverage ÷ Financial Leverage

= 3 times ÷ 1.59 times = **1.89 times**

Working Notes:

1. Calculation of Earnings Available for Equity Shareholders

Particulars	₹
EBIT (12% of ₹30 Crores)	3,60,00,000
Less: Interest @ 15% of ₹6 Crores	90,00,000
Profit Before Tax	2,70,00,000
Less: Tax @ 40%	1,08,00,000
Profit After Tax	1,62,00,000
Less: Preference Dividend @ 13% of ₹2 Crores	26,00,000
Earnings Available for Equity Shareholders	**1,36,00,000**

2. Calculation of Financial Leverage:

$$\textbf{Financial Leverage} = \frac{\text{EBIT}}{\text{EBT} - \frac{\text{Preference Dividend}}{1 - \text{Tax}}} = \frac{3,60,00,000}{2,70,00,000 - \frac{26,00,000}{1 - 0.40}}$$

$$= \textbf{1.59 times}$$

PYQ 2

The data relating to two Companies are as given below:

	Company A	Company B
Equity Share Capital	₹6,00,000	₹3,50,000
12% Debentures	₹4,00,000	₹6,50,000
Output (units) per annum	60,000	15,000
Selling price per unit	₹30	₹250
Fixed cost per annum	₹7,00,000	₹14,00,000
Variable cost per unit	₹10	₹75

You are required to calculate the Operating leverage, Financial leverage and Combined leverage of two Companies.

[(4 Marks) Nov 2002]

Answer

Statement of OL, FL and CL

Particulars	A	B
Number of units	60,000	15,000
Sales @ ₹30 and ₹250 per unit	18,00,000	37,50,000
Less: Variable cost @ ₹10 and ₹75 per unit	6,00,000	11,25,000
Contribution	12,00,000	26,25,000
Less: Fixed cost	7,00,000	14,00,000
EBIT	5,00,000	12,25,000
Less: Interest @ 12% of 4 lacs and 6.50 lacs	48,000	78,000
EBT	4,52,000	11,47,000
Operating leverage $\left(\frac{\text{Contribution}}{\text{EBIT}}\right)$	$\frac{12,00,000}{5,00,000}$ = 2.40 times	$\frac{26,25,000}{12,25,000}$ = 2.143 times
Financial Leverage $\left(\frac{\text{EBIT}}{\text{EBT}}\right)$	$\frac{5,00,000}{4,52,000}$ = 1.106 times	$\frac{12,25,000}{11,47,000}$ = 1.068 times
Combined Leverage (OL × FL)	2.40 × 1.106 = 2.654 times	2.143 × 1.068 = 2.289 times

PYQ 3

The following summarizes the percentage changes in operating income, percentage changes in revenue, and Beta factors for four pharmaceutical firms.

Name of Firm	Change in Revenue	Change in Operating Income	Beta Factor
PQR Ltd	27%	25%	1.00
RST Ltd	25%	32%	1.15
TUV Ltd	23%	36%	1.30
WXY Ltd	21%	40%	1.40

Required:

(i) Calculate the degree of operating leverage for each of these firms. Comment also.

(ii) Use the operating leverage to explain why these firms have different beta. ***[(8 Marks) Nov 2004]***

Answer

(i) Calculation of operating leverage

Particulars	PQR Ltd	RST Ltd	TUV Ltd	WXY Ltd
Degree of Operating Leverage $\left(\frac{\%\text{ Change in operating income}}{\%\text{ change in Revenue}}\right)$	$\frac{25\%}{27\%}$ = 0.93	$\frac{32\%}{25\%}$ = 1.28	$\frac{36\%}{23\%}$ = 1.57	$\frac{40\%}{21\%}$ = 1.91

WXY Ltd is operating its business with higher business risk.

(ii) High operating leverage leads to high beta. So when operating leverage is lowest i.e. 0.9259, Beta is minimum 1.00 and when operating leverage is maximum i.e. 1.9048, beta is highest i.e. 1.40

PYQ 4

A Company had the following Balance Sheet as on March 31, 2006

Liabilities	₹(in Crores)	Assets	₹(in Crores)
Equity Share Capital (1 Crores Shares of ₹10 each)	10	Fixed Assets (net)	25
Reserve and Surplus	2	Current Assets	15
15% Debentures	20		
Current Liabilities	8		
	40		40

The additional information given is as under:

Fixed costs per annum (excluding interest)	:	₹8 Crores
Variable operating costs ratio	:	65% of sales
Total Assets turnover ratio	:	2.5 times
Income tax rate	:	40%

Calculate (i) Earnings per share, **(ii)** Operating Leverage, **(iii)** Financial Leverage, **(iv)** Combined Leverage.
[(8 Marks) Nov 2006]

Answer

(i) Statement of EPS

Particulars	₹(in Crores)
Sales @ (2.50 times of ₹40 Crores)	100.00
Less: Variable cost @ 65%	65.00
Contribution	35.00
Less: Fixed cost	8.00
EBIT	27.00
Less: Interest @ 15% of 20 Crores	3.00
EBT	24.00
Less: Tax @ 40%	9.60
EAT	14.40
÷ No. of Equity Shares	÷ 1
EPS	**₹14.40**

(ii) Operating Leverage $= \frac{\text{Contribution}}{\text{EBIT}} = \frac{35 \text{ Crores}}{27 \text{ Crores}} =$ **1.296 times**

It indicates fixed cost in cost structure. It indicates sensitivity of earnings before interest and tax (EBIT) to change in sales at a particular level.

(iii) Financial Leverage $= \frac{\text{EBIT}}{\text{EBT}} = \frac{27 \text{ Crores}}{24 \text{ Crores}} =$ **1.125 times**

The financial leverage is very comfortable since the debt service obligation is small vis-a-vis EBIT.

(iv) Combined Leverage = OL × FL = 1.296 × 1.125 = **1.458 times**

The combined leverage studies the choice of fixed cost in cost structure and choice of debt in capital structure. It studies how sensitive the change in EPS is vis-a-vis change in sales.

The leverages - operating, financial and combined are measures of risk.

PYQ 5

The following details of RST Limited for the year ended 31 March, 2006 are given below:

Operating leverage	1.4 times
Combined leverage	2.8 times
Fixed Cost (Excluding interest)	₹2.04 lakhs

Sales	₹30.00 lakhs
12% Debentures of ₹100 each	₹21.25 lakhs
Equity Share Capital of ₹10 each	₹17.00 lakhs
Income tax rate	30 per cent

Required:

(i) Calculate Financial Leverage.

(ii) Calculate P/V ratio and Earning Per Share (EPS).

(iii) If the company belongs to an industry, whose assets turnover is 1.5, does it have a high or low assets turnover?

(iv) At what level of sales the Earning before Tax (EBT) of the company will be equal to zero?

[(8 Marks) May 2007]

Answer

(i) Calculation of Financial Leverage:

Financial Leverage = CL ÷ OL = 2.80 ÷ 1.40 = ***2 times***

(ii) P/V Ratio and EPS:

$$\text{P/V ratio} = \frac{\text{Contribution}}{\text{Sales}} \times 100 = \frac{7,14,000}{30,00,000} \times 100 = \textbf{23.80\%}$$

$$\text{EPS} = \frac{\text{PAT}}{\text{No. of Shares}} = \frac{1,78,500}{1,70,000} = \textbf{₹1.05}$$

Calculation of contribution:

$$\text{Operating leverage} = \frac{\text{Contribution}}{\text{Contribution} - \text{FC}} = \frac{\text{Contribution}}{\text{Contribution} - 2,04,000}$$

$$= 1.4 \text{ times}$$

$$1.4 \text{ Contribution} - 2,85,600 = \text{Contribution} = \textbf{7,14,000}$$

Calculation of PAT:

Profit after tax = (Contribution – fixed cost – interest) (1 - t)

= (23.80% of 30 lacs – 2.04 lacs – 12% of 21.25lacs)(1 - 0.30)

= ***1,78,500***

(iii) Assets turnover:

$$\text{Assets turnover} = \frac{\text{Sales}}{\text{Total Assets}} = \frac{30,00,000}{38,25,000} = \textbf{.784}$$

0.784 < 1.5 means lower than industry assets turnover.

(iv) Level of sales to earn zero EBT:

EBT	=	Sales – Variable cost – Fixed cost – Interest
Nil	=	Sales – 76.20% sales – 2,04,000 – 2,55,000
23.80% of sales	=	4,59,000
Sales	=	***19,28,571***

PYQ 6

A firm has sales of ₹40 lakhs, variable cost of ₹25 lakhs, fixed cost of ₹6 lakhs, 10% debts of ₹30 lakhs and Equity Capital of ₹45 lakhs. Calculate operating and financial leverage.

[(2 Marks) Nov 2007]

Answer

$$\text{Operating Leverage} = \frac{\text{Contribution}}{\text{EBIT}} = \frac{40 \text{ Lacs} - 25 \text{ Lacs}}{40 \text{ Lacs} - 25 \text{ Lacs} - 6 \text{ Lacs}} = \textbf{1.67 times}$$

Financial Leverage = $\frac{\text{EBIT}}{\text{EBT}}$ = $\frac{40\text{ Lacs} - 25\text{ Lacs} - 6\text{ Lacs}}{40\text{ Lacs} - 25\text{ Lacs} - 6\text{ Lacs} - 3\text{ Lacs}}$ = **1.5 times**

PYQ 7

The following data relate to RST Ltd:

Earning before interest and tax (EBIT)	₹10,00,000
Fixed cost	₹20,00,000
Earning Before Tax (EBT)	₹8,00,000

Calculate combined leverage

[(2 Marks) May 2008]

Answer

Combined Leverage = $\frac{\text{Contribution}}{\text{EBT}}$ = $\frac{30,00,000}{8,00,000}$ = **3.75 times**

Where, contribution = EBIT + Fixed Cost
= ₹10,00,000 + ₹20,00,000 = **30,00,000**

PYQ 8

A Company operates at a production level of 1,000 units. The contribution is ₹60 per unit, operating leverage is 6, and combined leverage is 24. If tax rate is 30%, what would be its earnings after tax?

[(3 Marks) Nov 2008]

Answer

Earning after tax = EBT (1 - t) = ₹2,500 (1 - 0.30) = **₹1,750**

Working Notes:

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

24 times = $\frac{\text{Contribution}}{\text{EBT}}$ = $\frac{1,000 \times 60}{\text{EBT}}$

∴ EBT = $\frac{60,000}{24}$ = ₹2,500

PYQ 9

From the following financial data of Company A and Company B, prepare their Income statements.

	Company A	Company B
Variable cost	₹56,000	60% of sales
Fixed cost	₹20,000	?
Interest expenses	₹12,000	₹9,000
Financial Leverage	5 : 1	?
Operating Leverage	?	4 : 1
Income tax rate	30%	30%
Sales	?	1,05,000

[(8 Marks) Nov 2009]

Answer

Income Statement

Particulars	Company A	Company B
Sales	91,000	1,05,000
Less: Variable cost	56,000	63,000
Contribution	35,000	42,000
Less: Fixed cost	20,000	31,500
Profit before interest and tax	15,000	10,500

Less: Interest	12,000	9,000
Profit before tax	3,000	1,500
Less: Tax @ 30%	900	450
Profit after tax	2,100	1,050

Working Notes (Company A):

(a) Financial Leverage = $\frac{\text{EBIT}}{\text{EBIT} - \text{Interest}}$ = $\frac{\text{EBIT}}{\text{EBIT} - 12{,}000}$ = 5 times

EBIT = ***₹15,000***

(b) Contribution = EBIT + Fixed Cost = 15,000 + 20,000 = ***₹35,000***

(c) Sales = Contribution + VC = 35,000 + 56,000 = ***₹91,000***

Working Notes (Company B):

(a) Contribution = 40 % of sales (as variable costs is 60% of sales)
= 40 % of 1,05,000 = ***₹42,000***

(b) Operating Leverage = $\frac{\text{Contribution}}{\text{EBIT}}$ = $\frac{42{,}000}{\text{EBIT}}$ = 4 times

EBIT = ***₹10,500***

(c) Fixed Cost = Contribution – EBIT = 42,000 – 10,500 = ***₹31,500***

PYQ 10

Calculate the degree of operating leverage, degree of financial leverage and the degree of combined leverage for following firms and interpret the results:

Particulars	***P***	***Q***	***R***
Output (Units)	2,50,000	1,25,000	7,50,000
Fixed Cost	₹5,00,000	₹2,50,000	₹10,00,000
Unit Variable cost	₹5.00	₹2.00	₹7.50
Unit Selling price	₹7.50	₹7.00	₹10.00
Interest Expense	₹75,000	₹25,000	Nil

[(4 Marks) Nov 2010]

Answer

Statement Showing OL, FL and CL

Particulars	***P***	***Q***	***R***
Output (in units)	2,50,000	1,25,000	7,50,000
Sales @ ₹7.50, ₹7.00 and ₹10.00 per unit	18,75,000	8,75,000	75,00,000
Less: Variable cost @ ₹5.00, ₹2.00 and ₹7.50 p.u.	12,50,000	2,50,000	56,25,000
Contribution	6,25,000	6,25,000	18,75,000
Less: Fixed cost	5,00,000	2,50,000	10,00,000
EBIT	1,25,000	3,75,000	8,75,000
Less: Interest	75,000	25,000	Nil
EBT	50,000	3,50,000	8,75,000
Operating leverage $\left(\frac{\text{Contribution}}{\text{EBIT}}\right)$	$\frac{6{,}25{,}000}{1{,}25{,}000}$	$\frac{6{,}25{,}000}{3{,}75{,}000}$	$\frac{18{,}75{,}000}{8{,}75{,}000}$
	5 times	1.67 times	2.14 times
Financial leverage $\left(\frac{\text{EBIT}}{\text{EBT}}\right)$	$\frac{1{,}25{,}000}{50{,}000}$	$\frac{3{,}75{,}000}{3{,}50{,}000}$	$\frac{8{,}75{,}000}{8{,}75{,}000}$
	2.50 times	1.07 times	1 time
Combined leverage (OL × FL)	5 × 2.50	1.67 × 1.07	2.14 × 1
	12.50 times	1.79 times	2.14 times

Comment on Risk	High Business, Financial and Combined risk	Medium risk	Medium operating risk only
Comment on Policy	***Aggressive policy***	***Moderate policy***	***Moderate policy without Financial risk***

PYQ 11

You are the given two financial plans of a company which has two financial situations. The detailed information are as under:

Installed capacity	:	10,000 units
Actual production and sales	:	60% of installed capacity
Selling price per unit	:	₹30
Variable cost per unit	:	₹20

Fixed Cost:

Situation A	:	₹20,000
Situation B	:	₹25,000

Capital structure of the company is as follows:

	Financial Plans	
	XY	***XM***
Equity	12,000	35,000
12% Debt	40,000	10,000
	52,000	***45,000***

You are required to calculate operating leverage and financial leverage of both the plans.

[(4 Marks) May 2011]

Answer

Statement Showing Operating & Financial leverage

Particulars	***Situation A***		***Situation B***	
	Plan XY	***Plan XM***	***Plan XY***	***Plan XM***
Sales (6,000 × ₹30)	1,80,000	1,80,000	1,80,000	1,80,000
Less: Variable cost (6,000 × ₹20)	1,20,000	1,20,000	1,20,000	1,20,000
Contribution	60,000	60,000	60,000	60,000
Less: Fixed Cost	20,000	20,000	25,000	25,000
EBIT	40,000	40,000	35,000	35,000
Less: Interest @ 12%	4,800	1,200	4,800	1,200
EBT	35,200	38,800	30,200	33,800
OL (Contribution ÷ EBIT)	1.50 times	1.50 times	1.71 times	1.71 times
FL (EBIT ÷ EBT)	1.14 times	1.03 times	1.16 times	1.04 times

PYQ 12

Alpha Ltd has furnished the following Balance Sheet as on March 31, 2011:

Liabilities	***₹***	***Assets***	***₹***
Equity Share Capital (1,00,000 shares of ₹10 each)	10,00,000	Fixed Assets	30,00,000
		Current Assets	18,00,000
General Reserve	2,00,000		
15% Debentures	28,00,000		
Current Liabilities	8,00,000		
	48,00,000		***48,00,000***

Additional information:

(1)	Annual Fixed Cost other than Interest	₹28,00,000
(2)	Variable Cost Ratio	60% of sales
(3)	Total Assets Turnover Ratio	2.5 times
(4)	Tax Rate	30%

You are required to calculate:

(i) Earning per Share (EPS), and
(ii) Combined Leverage.

[(8 Marks) Nov 2011]

Answer

(i) Combined leverage = Contribution ÷ EBT = 48 lacs ÷ 15.80 lacs = ***3.04***

(ii) Calculation of EPS:

Particulars	₹
Sales (2.5 × 48,00,000)	1,20,00,000
Less: Variable cost @ of 60% of sales	72,00,000
Contribution	48,00,000
Less: Fixed cost	28,00,000
EBIT	20,00,000
Less: Interest @ 15% of 28,00,000	4,20,000
EBT	15,80,000
Less: Tax @ 30%	4,74,000
EAT	11,06,000
÷ No. of Shares	÷ 1,00,000
EPS	***₹11.06***

PYQ 13

The capital structure of JCPL Ltd. is as follows:

Equity share capital of ₹10 each	:	₹8,00,000
8% Preference share capital of ₹10 each	:	₹6,25,000
10% Debenture of ₹100 each	:	₹4,00,000

Additional Information:

Profit after tax (tax rate 30%)	:	₹1,82,000
Operating expenses (including depreciation ₹90,000)	:	1.50 times of EBIT
Equity share dividend paid	:	15%
Market price per equity share	:	₹20.00

Required to calculate:

(i) Operating and financial leverage.
(ii) Cover the preference and equity share dividends.
(iii) The earning yield and price earning ratio.
(iv) The net fund flow.

[(8 Marks) May 2012]

Answer

(i) Operating & Financial leverage:

$$\text{Operating Leverage} = \frac{\text{Contribution}}{\text{EBIT}} = \frac{3,90,000}{3,00,000} = \textbf{1.3 times}$$

$$\text{Financial Leverage} = \frac{\text{EBIT}}{\text{EBT} - \frac{\text{Preference Dividend}}{1-\text{Tax}}} = \frac{3,00,000}{2,60,000 - \frac{8\% \text{ of } 6,25,000}{1-0.30}}$$

$$= \frac{3,00,000}{2,60,000 - \frac{50,000}{0.70}} = \textbf{1.59 times}$$

(ii) Calculation of cover the preference & equity share dividends:

Cover the Preference Share Dividend $= \frac{\text{Profit after tax}}{\text{Preference dividend}}$

$= \frac{1,82,000}{50,000} =$ **3.64 times**

Cover the Equity Share Dividend $= \frac{\text{Profit after tax} - \text{Preference dividend}}{\text{Equity dividend}}$

$= \frac{1,82,000 - 50,000}{15\% \text{ of } 8,00,000} =$ **1.10 times**

(iii) Earning yield & price earning ratio:

Earning Yield Ratio $= \frac{EPS}{MPS} \times 100 = \frac{1.65}{20.00} \times 100 =$ **8.25%**

Price Earning Ratio $= \frac{MPS}{EPS} = \frac{20}{1.65} =$ **12.12 times**

Calculation of EPS $= \frac{\text{PAT} - \text{Preference dividends}}{\text{No. of Equity shares}} = \frac{1,82,000 - 50,000}{80,000}$

$=$ **₹1.65**

(iv) Net fund flow:

Net fund flow = PAT - Preference dividends - Equity dividends + Depreciation

= 1,82,000 – 50,000 – 1,20,000 + 90,000 = **₹1,02,000**

Calculation of contribution:

Particulars	₹
Profit after tax	1,82,000
Add: Tax $\left(1,82,000 \times \frac{30}{70}\right)$	78,000
Profit before tax	2,60,000
Add: Interest on debenture (4,00,000 × 10%)	40,000
Earning before interest and tax	3,00,000
Add: Fixed cost (assumed only depreciation is fixed)	90,000
Contribution	**3,90,000**

PYQ 14

X Limited has estimated that for a new product its break-even point is 20,000 units if the item is sold for ₹14 per unit and variable cost ₹9 per unit. Calculate the degree of operating leverage for sales volume 25,000 units and 30,000 units.

[(5 Marks) Nov 2012]

Answer

Statement of Operating Leverage

Particulars	25,000 Units	30,000 Units
Contribution @ ₹5 (₹14 - ₹9) per unit	1,25,000	1,50,000
Less: Operating fixed cost (W.N.)	1,00,000	1,00,000
EBIT	25,000	50,000
Operating Leverage (Contribution ÷ EBIT)	5 times	3 times

Calculation of operating fixed cost:

Contribution at BEP	=	Fixed Cost
₹5 × 20,000 Units	=	₹1,00,000

Note: BEP to be assumed as operating BEP or Financial fixed cost to be assumed as Nil.

PYQ 15

The following information related to XL company Ltd. for the year ended 31st March, 2013 are available to you:

Equity share capital of ₹10 each	:	₹25,00,000
11% Bonds of ₹1,000 each	:	₹18,50,000
Sales	:	₹42,00,000
Fixed cost (Excluding Interest)	:	₹3,48,000
Financial leverage	:	1.39
Profit Volume Ratio	:	25.55%
Income Tax Rate	:	35%

You are required to calculate:

(i) Operating Leverage;
(ii) Combined Leverage; and
(iii) Earning Per Share.

[(6 Marks) May 2013]

Answer

(i) Operating Leverage $= \frac{\text{Contribution}}{\text{EBIT}} = \frac{10,73,100}{7,25,100} =$ ***1.48 times***

(ii) Combined Leverage = OL × FL = 1.48 × 1.39 = ***2.06 times***

(iii) Earnings Per Share $= \frac{\text{PAT}}{\text{No of Equity shares}} = \frac{3,39,040}{2,50,000} =$ ***₹1.356***

Working Notes:

(1)	Contribution	=	Sales × PV Ratio		
		=	42 Lacs × 25.55%	=	10,73,100
(2)	EBIT	=	Contribution - Operating Fixed Cost		
		=	10,73,100 – 3,48,000	=	7,25,100
(3)	Profit after tax	=	(EBIT – Interest) (1 - t)		
		=	(7,25,100 – 11% of 18,50,000) (1 – 0.35)	=	3,39,040

PYQ 16

Calculate the degree of operating leverage, degree of financial leverage and the degree of combined leverage for the following firms:

Particulars	***N***	***S***	***D***
Production (in units)	17,500	6,700	31,800
Fixed cost	₹4,00,000	₹3,50,000	₹2,50,000
Interest on loan	₹1,25,000	₹75,000	Nil
Selling price per unit	₹85	₹130	₹37
Variable cost per unit	₹38.00	₹42.50	₹12.00

[(5 Marks) Nov 13]

Answer

Statement of the Degree of OL, Degree of FL and the Degree of CL

Particulars	***N***	***S***	***D***
Production (in units)	17,500	6,700	31,800

Sales value @ ₹85/ ₹130/ ₹37 per unit	14,87,500	8,71,000	11,76,600
Less: Variable cost @ ₹38/ ₹42.50/ ₹12 per unit	6,65,000	2,84,750	3,81,600
Contribution	8,22,500	5,86,250	7,95,000
Less: Fixed cost	4,00,000	3,50,000	2,50,000
EBIT	4,22,500	2,36,250	5,45,000
Less: Interest on loan	1,25,000	75,000	-
EBT	2,97,500	1,61,250	5,45,000
Operating leverage $\left(\frac{\text{Contribution}}{\text{EBIT}}\right)$	$\frac{8,22,500}{4,22,500}$	$\frac{5,86,250}{2,36,250}$	$\frac{7,95,000}{5,45,000}$
	1.95	2.48	1.46
Financial Leverage $\left(\frac{\text{EBIT}}{\text{EBT}}\right)$	$\frac{4,22,500}{2,97,500}$	$\frac{2,36,250}{1,61,250}$	$\frac{5,45,000}{5,45,000}$
	1.42	1.47	1.00
Combined Leverage $\left(\frac{\text{Contribution}}{\text{EBT}}\right)$	$\frac{8,22,500}{2,97,500}$	$\frac{5,86,250}{1,61,250}$	$\frac{7,95,000}{5,45,000}$
	2.76	3.64	1.46

PYQ 17

A company had the following Balance Sheet as on 31st March, 2014: ***[in crores]***

Liabilities	*₹*	*Assets*	*₹*
Equity Share Capital (50 lakh shares of ₹10 each)	5.00	Fixed Assets (Net)	12.50
		Current Assets	7.50
Reserve and Surplus	1.00		
15% Debentures	10.00		
Current Liabilities	4.00		
	20.00		***20.00***

The additional information given is as under:

Fixed cost per annum (excluding interest)	4 crores
Variable operating cost ratio	65%
Total assets turnover ratio	2.5
Income Tax rate	30%

Required:

(i) Earnings Per Share
(ii) Operating Leverage
(iii) Financial Leverage
(iv) Combined Leverage

[(8 Marks) May 2014]

Answer

(i) Calculation of EPS:

$$\text{EPS} = \frac{\text{EAT}}{\text{No. of Shares}} = \frac{840 \text{ Lakhs}}{50 \text{ Lakhs}} = \textbf{₹16.80}$$

(ii) Calculation of OL:

$$\text{OL} = \frac{\text{Contribution}}{\text{EBIT}} = \frac{17.50 \text{ Crores}}{13.50 \text{ Crores}} = \textbf{1.296 times}$$

(iii) Calculation of FL:

$$\text{FL} = \frac{\text{EBIT}}{\text{EBT}} = \frac{13.50 \text{ Crores}}{12.00 \text{ Crores}} = \textbf{1.125 times}$$

(iv) Calculation of CL:

$$\text{CL} = \text{OL} \times \text{FL} = 1.296 \times 1.125 = \textbf{1.458 times}$$

Working Notes:

Income Statement

Particulars	₹(in crores)
Sales (2.5 times of 20 crores)	50.00
Less: Variable Cost @ 65% of 50 crores	32.50
Contribution	***17.50***
Less: Fixed Cost	4.00
EBIT	***13.50***
Less: Interest @ 15% of 10 crores	1.50
EBT	***12.00***
Less: Tax @ 30%	3.60
EAT	***8.40***

PYQ 18

The capital structure of RST Ltd. is as follows:

Equity share capital of ₹10 each	:	₹8,00,000
10% Preference share capital of ₹100 each	:	₹5,00,000
12% Debenture of ₹100 each	:	₹7,00,000

Additional Information:

Profit after tax (tax rate 30%)	:	₹2,80,000
Operating expenses (including depreciation ₹96,800)	:	1.50 times of EBIT
Equity share dividend paid	:	15%
Market price per equity share	:	₹23.00

Required to calculate:

(i) Operating and financial leverage.
(ii) Cover the preference and equity share dividends.
(iii) The earning yield and price earning ratio.
(iv) The net fund flow.

Note: All operating expenses (excluding depreciation) are variable.

[(8 Marks) Nov 2014]

Answer

(i) Operating & Financial leverage:

$$\text{Operating Leverage} = \frac{\text{Contribution}}{\text{EBIT}} = \frac{5,80,800}{4,84,000} = \textbf{1.2 times}$$

$$\text{Financial Leverage} = \frac{\text{EBIT}}{\text{EBT} - \frac{\text{Preference Dividend}}{1-\text{Tax}}} = \frac{4,84,000}{4,00,000 - \frac{50,000}{1-0.30}}$$

$$= \textbf{1.473 times}$$

(ii) Calculation of cover the preference & equity share dividends:

$$\text{Cover the Preference Share Dividend} = \frac{\text{Profit after tax}}{\text{Preference dividend}} = \frac{2,80,000}{50,000}$$

$$= \textbf{5.6 times}$$

$$\text{Cover the Equity Share Dividend} = \frac{\text{Profit after tax} - \text{Preference dividend}}{\text{Equity dividend}}$$

$$= \frac{2,80,000 - 50,000}{15\% \text{ of } 8,00,000} = \textbf{1.92 times}$$

(iii) Earning yield & price earning ratio:

Earning Yield Ratio = $\frac{EPS}{MPS} \times 100$ = $\frac{2.875}{23.00} \times 100$ = **12.50%**

Price Earning Ratio = $\frac{MPS}{EPS}$ = $\frac{23.00}{2.875}$ = **8 times**

Calculation of EPS = $\frac{PAT - Preference\ dividends}{No.\ of\ Equity\ shares}$ = $\frac{2,80,000 - 50,000}{80,000}$

= **₹2.875**

(iv) Net fund flow:

Net fund flow = PAT - Preference dividends - Equity dividends + Depreciation

= 2,80,000 – 50,000 – 1,20,000 + 96,800 = **₹2,06,800**

Calculation of contribution

Particulars	₹
Profit after tax	2,80,000
Add: Tax (2,80,000 × $^{30}/_{70}$)	1,20,000
Profit before tax	4,00,000
Add: Interest on debenture (7,00,000 × 12%)	84,000
Earning before interest and tax	4,84,000
Add: Fixed cost (only depreciation)	96,800
Contribution	**5,80,800**

PYQ 19

Following information are related to four firms of the same industry:

Firm	Change in Revenue	Change in Operating Income	Change in EPS
P	27%	25%	30%
Q	25%	32%	24%
R	23%	36%	21%
S	21%	40%	23%

Find out:

(i) Degree of operating leverage , and

(ii) Degree of combined leverage of all the firms.

[(5 Marks) May 2015]

Answer

(i) Degree of Operating Leverage = $\frac{\%\ Change\ in\ opereating\ income}{\%\ Chacge\ in\ revenue}$

P = 25% ÷ 27% = **0.93**

Q = 32% ÷ 25% = **1.28**

R = 36% ÷ 23% = **1.57**

S = 40% ÷ 21% = **1.91**

(ii) Degree of Combined Leverage = $\frac{\%\ Change\ in\ EPS}{\%\ Chacge\ in\ revenue}$

P = 30% ÷ 27% = **1.11**

Q = 24% ÷ 25% = **0.96**

R = 21% ÷ 23% = **0.91**

S = 23% ÷ 21% = **1.10**

PYQ 20

The capital structure of the ABC Ltd as at 31.03.15 consists of ordinary share capital of ₹5,00,000 (face value ₹100 each) and 10% debentures of ₹5,00,000 (₹100 each). In the year ended March 15, sales decreased from 60,000 units to 50,000 units. During the year and in the previous year, the selling price is ₹12 per unit; variable cost stood at ₹8 per unit and fixed expenses were at ₹1,00,000 p.a. The income tax rate was 30%.

You are required to calculate the following:

(i) The percentage decrease in earnings per share.
(ii) The degree of operating leverage at 60,000 units and 50,000 units.
(iii) The degree of financial leverage at 60,000 units and 50,000 units.

[(5 Marks) June 2015]

Answer

(i) Calculation of % decrease in EPS

Particulars	60,000 units	50,000 units
Sales @ ₹12 per unit	7,20,000	6,00,000
Less: Variable cost @ ₹8 per unit	4,80,000	4,00,000
Contribution	***2,40,000***	***2,00,000***
Less: Fixed cost	1,00,000	1,00,000
Profit before interest and tax	***1,40,000***	***1,00,000***
Less: Interest @ 10% of ₹5,00,000	50,000	50,000
Profit before tax	***90,000***	***50,000***
Less: Tax @ 30%	27,000	15,000
Profit after tax	***63,000***	***35,000***
÷ No. of shares	5,000	5,000
Earning per share	***₹12.60***	***₹7.00***

% Decrease in EPS $= \frac{12.60 - 7.00}{12.60} \times 100 =$ ***44.44%***

(ii) Degree of Operating Leverage $= \frac{\text{Contribution}}{\text{EBIT}}$

At 60,000 units $= \frac{2,40,000}{1,40,000} =$ ***1.71 times***

At 50,000 units $= \frac{2,00,000}{1,00,000} =$ ***2 times***

(iii) Degree of Financial Leverage $= \frac{\text{EBIT}}{\text{EBT}}$

At 60,000 units $= \frac{1,40,000}{90,000} =$ ***1.56 times***

At 50,000 units $= \frac{1,00,000}{50,000} =$ ***2 times***

PYQ 21

From the following details of X Ltd., prepare the Income Statement for the year ended 31st December 2014:

Financial Leverage	:	2
Interest	:	₹2,000
Operating Leverage	:	3
Variable cost as a % of sales	:	75%
Income tax rate	:	30%

[(5 Marks) Nov 2015]

Answer

Income Statement for the year ended 31st December, 2014

Particulars	₹
Sales	48,000
Less: Variable cost	36,000
Contribution	12,000
Less: Fixed cost	8,000
EBIT	4,000
Less: Interest	2,000
EBT	2,000
Less: Tax @ 30%	600
EAT	1,400

Working Notes:

(a) Calculation of EBIT:

$$\text{Financial Leverage} = 2 = \frac{EBIT}{EBT} = \frac{EBIT}{EBIT - Interest}$$

$$= \frac{EBIT}{EBIT - 2,000} \quad \text{or} \quad EBIT = ₹4,000$$

(b) Calculation of Contribution:

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

Contribution = ₹12,000

(c) Calculation of Sales:

$$\text{Sales Value} = \frac{Contribution}{PV\ Ratio} = \frac{12,000}{100\% - 75\%} = ₹48,000$$

PYQ 22

A company had the following Balance Sheet as on 31st March, 2015.

Liabilities	₹	Assets	₹
Equity Share Capital of ₹10 each	40,00,000	Fixed Assets (Net)	1,28,00,000
Reserve and Surplus	8,00,000	Current Assets	32,00,000
15% Debentures	80,00,000		
Current Liabilities	32,00,000		
	1,60,00,000		1,60,00,000

The additional information given is as under:

Fixed cost per annum (excluding interest)	₹32,00,000
Variable operating cost ratio	70%
Total assets turnover ratio	2.5
Income Tax rate	30%

Required:

(i) Operating Leverage, **(ii)** Financial Leverage, **(iii)** Combined Leverage and **(iv)** Earnings Per Share **[(5 Marks) May 2016]**

Answer

(i) Calculation of OL:

$$OL = \frac{Contribution}{EBIT} = \frac{1,20,00,000}{88,00,000} = 1.364 \text{ times}$$

(ii) Calculation of FL:

$$FL = \frac{EBIT}{EBT} = \frac{88,00,000}{76,00,000} = \textbf{1.158 times}$$

(iii) Calculation of CL:

$$CL = OL \times FL = 1.364 \times 1.158 = \textbf{1.579 times}$$

(iv) Calculation of EPS:

$$EPS = \frac{EAT}{No.\ of\ Shares} = \frac{53,20,000}{4,00,000} = \textbf{₹13.30}$$

Working Notes:

Income Statement

Particulars	₹
Sales (2.5 times of 1,60,00,000)	4,00,00,000
Less: Variable Cost @ 70% of 400 Lacs	2,80,00,000
Contribution	***1,20,00,000***
Less: Fixed Cost	32,00,000
EBIT	***88,00,000***
Less: Interest @ 15% of 80,00,000	12,00,000
EBT	***76,00,000***
Less: Tax @ 30%	22,80,000
EAT	***53,20,000***

PYQ 23

The following information related to YZ company Ltd. for the year ended 31st March, 2016 are available to you:

Equity share capital of ₹10 each	:	₹50,00,000
12% Bonds of ₹1,000 each	:	₹37,00,000
Sales	:	₹84,00,000
Fixed cost (Excluding Interest)	:	₹6,96,000
Financial leverage	:	1.49
Profit Volume Ratio	:	27.55%
Income Tax Rate	:	40%

You are required to calculate:

(a) Operating Leverage;
(b) Combined Leverage; and
(c) Earning Per Share. [upto two decimal points]

[(5 Marks) Nov 2016]

Answer

(a) Operating Leverage $= \frac{Contribution}{EBIT} = \frac{23,14,200}{16,18,200} =$ ***1.43 times***

(b) Combined Leverage $= OL \times FL = 1.43 \times 1.49 =$ ***2.13 times***

(c) Earnings Per Share $= \frac{PAT}{No\ of\ Equity\ shares} = \frac{6,51,624}{5,00,000} =$ ***₹1.303***

Working Notes:

1. Contribution = Sales × PV Ratio = 84 Lacs × 27.55%= ***23,14,200***

2. EBIT = Contribution - Operating Fixed Cost
= 23,14,200 – 6,96,000 = **16,18,200**

3. Profit after tax = (EBIT – Interest) (1 - t)
= (16,18,200 – 5,32,160) (1 – 0.40) = **6,51,624**

4. Interest:

Financial Leverage	=	EBIT ÷ EBT	=	16,18,200 ÷ EBT	=	1.49
EBT	=	16,18,200 ÷ 1.49	=	10,86,040		
Interest	=	EBIT – EBT	=	16,18,200 – 10,86,040	=	**5,32,160**

Other interest = Total interest – Interest on bonds
= 12% of 37,00,000 – 5,32,160 = **88,160**

PYQ 24

You are given the following information of 5 firms of the same industry:

Firm	Change in Revenue	Change in Operating Income	Change in EPS
M	28%	26%	32%
N	27%	34%	26%
P	25%	38%	23%
Q	23%	43%	27%
R	25%	40%	28%

Find out:

(a) Degree of operating leverage , and

(b) Degree of combined leverage of all the firms.

[(5 Marks) May 2017]

Answer

(a) ***Degree of Operating Leverage*** = $\frac{\text{\% Change in opereating income}}{\text{\% Chacge in revenue}}$

M	=	26% ÷ 28%	=	**0.93**
N	=	34% ÷ 27%	=	**1.26**
P	=	38% ÷ 25%	=	**1.52**
Q	=	43% ÷ 23%	=	**1.87**
R	=	40% ÷ 25%	=	**1.60**

(b) ***Degree of Combined Leverage*** = $\frac{\text{\% Change in EPS}}{\text{\% Chacge in revenue}}$

M	=	32% ÷ 28%	=	**1.14**
N	=	26% ÷ 27%	=	**0.96**
P	=	23% ÷ 25%	=	**0.92**
Q	=	27% ÷ 23%	=	**1.17**
R	=	28% ÷ 25%	=	**1.12**

PYQ 25

The following details of a company for the year ended 31 March, 2017 are given below:

Operating leverage	2 times
Combined leverage	2.5 times
Fixed Cost (Excluding interest)	₹3.40 lakhs
Sales	₹50.00 lakhs
8% Debentures of ₹100 each	₹30.25 lakhs
Equity Share Capital of ₹10 each	₹34.00 lakhs
Income tax rate	30 per cent

Required:

(i) Calculate Financial Leverage.

(ii) Calculate P/V ratio and Earning Per Share (EPS).

(iii) If the company belongs to an industry, whose assets turnover is 1.5, does it have a high or low assets turnover?

(iv) At what level of sales the Earning before Tax (EBT) of the company will be equal to zero?

[(8 Marks) Nov 2017]

Answer

(i) Calculation of Financial Leverage:

Financial Leverage	=	CL ÷ OL	=	2.50 ÷ 2	=	***1.25***

(ii) P/V Ratio and EPS:

P/V ratio	=	$\frac{\text{Contribution}}{\text{Sales}} \times 100$	=	$\frac{6,80,000}{50,00,000} \times 100$	=	***13.60%***
EPS	=	$\frac{\text{PAT}}{\text{No. of Shares}}$	=	$\frac{68,600}{3,40,000}$	=	***₹0.2018***

Calculation of contribution:

Operating leverage	=	$\frac{\text{Contribution}}{\text{Contribution} - \text{FC}}$	=	$\frac{\text{Contribution}}{\text{Contribution} - 3,40,000}$	
	=	2 times			
2 Contribution – 6,80,000	=	Contribution	=	***6,80,000***	

Calculation of PAT:

Profit after tax	=	(Contribution – fixed cost – interest) (1 - t)
	=	(6,80,000 – 3,40,000 – 8% of 30,25,000)(1 - 0.30)
	=	***68,600***

(iii) Assets turnover:

Assets turnover	=	$\frac{\text{Sales}}{\text{Total Assets}}$	=	$\frac{50,00,000}{34,00,000 + 30,25,000}$	= ***0.778***

0.778 < 1.5 means lower than industry assets turnover.

(iv) Level of sales to earn zero EBT:

EBT	=	Sales – Variable cost – Fixed cost – Interest
Nil	=	Sales – 86.40% sales – 3,40,000 – 2,42,000
13.60% of sales	=	5,82,000
Sales	=	***42,79,412***

Note: The question can also be solved by first calculating EBIT with the help of Financial Leverage. Accordingly answer to the requirement ***(ii)*** and ***(iv)*** will also vary. Calculation of interest in such case as follows:

Financial Leverage	=	EBIT ÷ EBT	=	6,80,000 – 3,40,000 ÷ EBT
	=	1.25	=	3,40,000 ÷ EBT
EBT	=	3,40,000 ÷ 1.25	=	2,72,000
Interest	=	EBIT – EBT	=	3,40,000 – 2,72,000
	=	***68,000***		

PYQ 26

Following are the selected financial information of A Ltd and B Ltd for the year ended March 31, 2018:

	A Ltd	***B Ltd***

Variable cost ratio	60%	50%
Interest	₹20,000	₹1,00,000
Operating Leverage	5	2
Financial Leverage	3	2
Tax rate	30%	30%

You are required to find out:

(1) EBIT
(2) Sales
(3) Fixed cost
(4) Identify the company which is better placed with reasons besed on leverages.

[(8 Marks) May 2018]

Answer

(1) Financial Leverage $= \frac{\text{EBIT}}{\text{EBIT - Interest}}$

Financial Leverage (A Ltd) $= \frac{\text{EBIT}}{\text{EBIT - 20,000}} =$ 3 times

EBIT = ***₹30,000***

Financial Leverage (B Ltd) $= \frac{\text{EBIT}}{\text{EBIT - 1,00,000}} =$ 2 times

EBIT = ***₹2,00,000***

(2) Operating Leverage $= \frac{\text{Contribution}}{\text{EBIT}}$

Operating Leverage (A Ltd) $= \frac{\text{Contribution}}{30,000} =$ 5 times

Contribution = ₹1,50,000

Sales = ₹1,50,000 ÷ 40% (PV) = ***₹3,75,000***

Operating Leverage (B Ltd) $= \frac{\text{Contribution}}{2,00,000} =$ 2 times

Contribution = ₹4,00,000

Sales = ₹4,00,000 ÷ 50% (PV) = ***₹8,00,000***

(3) Contribution = EBIT + Fixed Cost

Contribution (A Ltd) = 30,000 + Fixed Cost = ₹1,50,000

Fixed cost = ***₹1,20,000***

Contribution (B Ltd) = 2,00,000 + Fixed Cost = ₹4,00,000

Fixed cost = ***₹2,00,000***

(4) ***Comment based on leverage:*** B Ltd is better than A Ltd having lower degree of Business risk, Financial risk and overall risk.

PYQ 27

The following data have been extracted from the books of LM Ltd:

Sales	₹100 Lakhs
Interest payable per annum	₹10 Lakhs
Operating leverage	1.2
Combined leverage	2.16

You are required to find out:

(1) The Financial leverage
(2) Fixed cost and
(3) P/V ratio

[(5 Marks) May 2018]

Answer

(1) Financial Leverage = Combined leverage ÷ Operating leverage
= 2.16 ÷ 1.2 = ***1.8 times***

(2) Calculation of fixed cost:

Financial Leverage = $\frac{\text{EBIT}}{\text{EBIT - Interest}}$ = 1.8 times

= $\frac{\text{EBIT}}{\text{EBIT - 10,00,000}}$ = 1.8 times

EBIT = ₹22,50,000

Operating Leverage = $\frac{\text{Contribution}}{\text{EBIT}}$ = 1.2 times

Contribution = ₹22,50,000 × 1.2 = ₹27,00,000

Fixed cost = Contribution – EBIT
= ₹27,00,000 – 22,50,000 = ***₹4,50,000***

(3) P/V ratio = Contribution ÷ Sales
= 27,00,000 ÷ 1,00,00,000 = ***27%***

PYQ 28

Following is Balance Sheet of Soni Ltd. as on 31st March, 2018.

Liabilities	***₹***	***Assets***	***₹***
Equity Share Capital of ₹10 each	25,00,000	Non Current Assets	60,00,000
Reserve and Surplus	5,00,000	Current Assets	40,00,000
Non Current liabilities (12% Debt)	50,00,000		
Current Liabilities	20,00,000		
	1,00,00,000		***1,00,00,000***

Additional information:

Fixed cost per annum (excluding interest)	₹20,00,000
Variable operating cost ratio	60%
Total assets turnover ratio	5 times
Income Tax rate	25%

You are required to:

(1) Prepare Income Statement
(2) Calculate the following and comment:

(a) Operating Leverage
(b) Financial Leverage
(c) Combined Leverage

[(10 Marks) Nov 2018]

Answer

(1) Income Statement

Particulars	*₹*
Sales (5 times of 1,00,00,000)	5,00,00,000
Less: Variable Cost @ 60% of 500 Lacs	3,00,00,000
Contribution	***2,00,00,000***
Less: Fixed Cost	20,00,000
EBIT	***1,80,00,000***
Less: Interest @ 12% of 50,00,000	6,00,000
EBT	***1,74,00,000***
Less: Tax @ 25%	43,50,000
EAT	***1,30,50,000***

(2) Calculation of OL:

$$OL = \frac{\text{Contribution}}{\text{EBIT}} = \frac{2,00,00,000}{1,80,00,000} = \textbf{1.11 times}$$

It indicates fixed cost in cost structure. It indicates sensitivity of earnings before interest and tax (EBIT) to change in sales at a particular level.

Calculation of FL:

$$FL = \frac{\text{EBIT}}{\text{EBT}} = \frac{1,80,00,000}{1,74,00,000} = \textbf{1.03 times}$$

The financial leverage is very comfortable since the debt service obligation is small vis-à-vis EBIT.

Calculation of CL:

$$CL = OL \times FL = 1.11 \times 1.03 = \textbf{1.15 times}$$

The combined leverage studied the choice of fixed cost in cost structure and choice of debt in capital structure. It studies how sensitive the change in EPS is vis-à-vis change in sales.

PYQ 29

A company has sales of ₹1,00,00,000; variable cost is 55% of sales and fixed cost is ₹6,00,000. The capital structure of the company is: Equity ₹1,20,00,000 and 8% Debt ₹80,00,000.

Calculate:

(1) Operating, Financial and Combined Leverages.
(2) If the sales amount is increased by 12%, by what percentage EBIT will increase?

[(5 Marks) Nov 2018]

Answer

(1) Operating Leverage $= \frac{\text{Contribution}}{\text{EBIT}} = \frac{1,00,00,000 \times 45\%}{45,00,000 - 6,00,000} =$ ***1.154 times***

Financial Leverage $= \frac{\text{EBIT}}{\text{EBT}} = \frac{39,00,000}{39,00,000 - 8\% \text{ of } 80,00,000} =$ ***1.196 times***

Combined Leverage $= OL \times FL$

= 1.154 × 1.196 = ***1.38 times***

(2) % increase on EBIT:

Δ EBIT (in %) = Δ Sales × DOL

= 12% × 1.154 times = ***13.848%***

PYQ 30

The capital structure of the Shiva Ltd. consists of an ordinary share capital of ₹20,00,000 (share of ₹100 par value) and ₹20,00,000 of 10% debentures.

Sales increased by 20% from 2,00,000 units to 2,40,000 units, the selling price is ₹10 per unit; variable cost amounts to ₹6 per unit and fixed expenses amount to ₹4,00,000. The income tax rate is assumed to be 50%.

You are required to calculate the following:

(1) The percentage increase in earnings per share;
(2) Financial leverage at 2,00,000 units and 2,40,000 units.
(3) Operating leverage at 2,00,000 units and 2,40,000 units.
(4) Comment on the behavior of operating and financial leverages in relation to increase in production from 2,00,000 units to 2,40,000 units.

[(10 Marks) May 2019]

Answer

(1) Calculation of % increase in EPS

Particulars	***2,00,000 units***	***2,40,000 units***
Sales @ ₹10 per unit	20,00,000	24,00,000
Less: Variable cost	12,00,000	14,40,000
Contribution	***8,00,000***	***9,60,000***
Less: Fixed cost	4,00,000	4,00,000
Profit before interest and tax	***4,00,000***	***5,60,000***
Less: Interest @ 10% of ₹20,00,000	2,00,000	2,00,000
Profit before tax	***2,00,000***	***3,60,000***
Less: Tax @ 50%	1,00,000	1,80,000
Profit after tax	***1,00,000***	***1,80,000***
÷ No. of shares	20,000	20,000
Earning per share	***₹5.00***	***₹9.00***

% increase in EPS = $\frac{9.00 - 5.00}{5.00} \times 100$ = ***80%***

(2) Financial Leverage = $\frac{\text{EBIT}}{\text{EBT}}$

At 2,00,000 units = $\frac{4,00,000}{2,00,000}$ = ***2 times***

At 2,40,000 units = $\frac{5,60,000}{3,60,000}$ = ***1.56 times***

(3) Operating Leverage = $\frac{\text{Contribution}}{\text{EBIT}}$

At 2,00,000 units = $\frac{8,00,000}{4,00,000}$ = ***2 times***

At 2,40,000 units = $\frac{9,60,000}{5,60,000}$ = ***1.71 times***

(4) Increase in production and sales will result in decrease in risk.

PYQ 31

The balance sheet of Gitashree Ltd. is given below:

Liabilities	₹	Assets	₹
Equity Share Capital (₹10 per share)	1,80,000	Net Fixed Assets	4,50,000
		Current Assets	1,50,000
Retained Earning	60,000		
10% Long Term Debt	2,40,000		
Current Liabilities	1,20,000		
	6,00,000		**6,00,000**

The company's total assets turnover ratio is 4 times, its fixed operating cost is ₹2,00,000 and its variable operating cost ratio is 60%. The income tax rate is 30%.

You are required to:

1. **(a)** Degree of Operating Leverage.
   (b) Degree of Financial Leverage.
   (c) Degree of Combined Leverage.

2. Determine the likely level of EBIT if EPS is **(A)** ₹1.00, **(B)** ₹2.00 and **(C)** ₹Nil.

[(10 Marks) Nov 2019]

Answer

1. **(a)** Operating Leverage $= \frac{\text{Contribution}}{\text{EBIT}} = \frac{9,60,000}{7,60,000} =$ **1.26**

   (b) Financial Leverage $= \frac{\text{EBIT}}{\text{EBT}} = \frac{7,60,000}{7,36,000} =$ **1.03**

   (c) Combined Leverage $= \text{OL} \times \text{FL} = 1.26 \times 1.03 =$ **1.30**

2. **Calculation of likely level of EBIT:**

   Earnings Per Share $= \frac{(\text{EBIT} - \text{I})(1 - \text{t})}{\text{N}}$

   Case A: ₹1.00 $= \frac{(\text{EBIT} - 24,000)(1 - 0.30)}{18,000}$ or EBIT = **₹49,714**

   Case B: ₹2.00 $= \frac{(\text{EBIT} - 24,000)(1 - 0.30)}{18,000}$ or EBIT = **₹75,429**

   Case C: ₹0.00 $= \frac{(\text{EBIT} - 24,000)(1 - 0.30)}{18,000}$ or EBIT = **₹24,000**

Working Note:

Income Statement

Particulars	₹
Sales (4 times of 6,00,000)	24,00,000
Less: Variable Cost @ 60% of 24,00,000	14,40,000
Contribution	**9,60,000**
Less: Fixed Cost	2,00,000
EBIT	**7,60,000**
Less: Interest @ 10% of 2,40,000	24,000
EBT	**7,36,000**

PYQ 32

The following data is available for Stone Ltd.:

Particulars	₹
Sales	5,00,000
Less: Variable cost @ of 40% of sales	2,00,000
Contribution	3,00,000
Less: Fixed costs	2,00,000
EBIT	1,00,000
Less: Interest	25,000
Profit before tax	75,000

Using the concept of leverage, find out:

(i) The percentage change in taxable income if EBIT increases by 10%.
(ii) The percentage change in EBIT if sales increases by 10%.
(iii) The percentage change in taxable income if sales increases by 10%.

Also verify the results in each of the above case.

[(10 Marks) Nov 2020]

Answer

(i) % change in taxable income (EBT) = % increase in EBIT × FL
= 10% × 1.333 times = ***13.33%***

(ii) % change in EBIT = % increase in Sales × OL
= 10% × 3 times = ***30%***

(iii) % change in taxable income (EBT) = % increase in Sales × CL
= 10% × 4 times = ***40%***

Verification in each case:

(i) % change in taxable income if EBIT increases by 10%:

Revised taxable income (EBT) = EBIT + 10% - Interest
= 1,00,000 + 10% - 25,000 = 85,000

% change in taxable income = $\frac{85,000-75,000}{75,000}\times 100$ = ***13.33%***

(ii) % change in EBIT if Sales increases by 10%:

Revised EBIT = (Sales + 10%) - Variable cost @ 40% - Fixed cost
= (5,00,000 + 10%) – 40% of 5,50,000 – 2,00,000
= 1,30,000

% change in EBIT = $\frac{1,30,000-1,00,000}{1,00,000}\times 100$ = ***30%***

(iii) % change in taxable income if Sales increases by 10%:

Revised taxable income (EBT) = (Sales+10%) - Variable cost@40% - Fixed cost - Interest
= (5,00,000 + 10%) – 40% of 5,50,000 – 2,00,000 – 25,000
= 1,05,000

% change in taxable income = $\frac{1,05,000-75,000}{75,000}\times 100$ = ***40%***

Working Note:

(a)	Operating Leverage	=	$\frac{\text{Contribution}}{\text{EBIT}}$	=	$\frac{3,00,000}{1,00,000}$	=	***3 times***
(b)	Financial Leverage	=	$\frac{\text{EBIT}}{\text{EBT}}$	=	$\frac{1,00,000}{75,000}$	=	***1.333 times***
(c)	Combined Leverage	=	OL × FL	=	3 × 1.333	=	***4 times***

PYQ 33

The following information related to XYZ Company Ltd. for the year ended 31st March, 2020 are as follows:

Equity share capital of ₹100 each	:	₹50 Lakhs
12% Bonds of ₹1,000 each	:	₹30 Lakhs
Sales	:	₹84 Lakhs
Fixed cost (Excluding Interest)	:	₹7.5 Lakhs
Financial leverage	:	1.39
Profit Volume Ratio	:	25%
Market Price per Equity Share	:	₹200
Income Tax Rate Applicable	:	30%

You are required to calculate:

(i) Operating Leverage
(ii) Combined Leverage
(iii) Earning Per Share
(iv) Earning Yield

[(10 Marks) Jan 2021]

Answer

(i)	Operating Leverage	=	$\frac{\text{Contribution}}{\text{EBIT}}$	=	$\frac{21,00,000}{13,50,000}$	=	***1.56 times***
(ii)	Combined Leverage	=	OL × FL	=	1.56 × 1.39	=	***2.16 times***
(iii)	Earnings Per Share	=	$\frac{\text{PAT}}{\text{No of Equity shares}}$	=	$\frac{6,93,000}{50,000}$	=	***₹13.86***
(iv)	Earnings Yield	=	$\frac{\text{EPS}}{\text{MPS}} \times 100$	=	$\frac{13.86}{200} \times 100$	=	***6.93%***

Working Notes:

(1)	Contribution	=	Sales × PV Ratio	=	84 Lakhs × 25%	= 21,00,000
(2)	EBIT	=	Contribution - Fixed Cost	=	21,00,000 – 7,50,000	= 13,50,000
(3)	Profit after tax	=	(EBIT – Interest) (1 - t)			
		=	(13,50,000 – 12% of 30,00,000) (1 – 0.30)			= 6,93,000

PYQ 34

A Company had the following Balance Sheet as on 31st March 31, 2021:

Liabilities	***₹(in Crores)***	***Assets***	***₹(in Crores)***
Equity Share Capital	7.50	Building	12.50
(75 lakhs Shares of ₹10 each)		Machinery	6.25
Reserve and Surplus	1.50	Current Assets:	
15% Debentures	15.00	Stock	3.00

Current Liabilities	6.00	Debtors	3.25
		Bank Balance	5.00
	30.00		***30.00***

The additional information given is as under:

Fixed costs per annum (excluding interest)	:	₹6 Crores
Variable operating costs ratio	:	60% of sales
Total assets turnover ratio	:	2.5 times
Income tax rate	:	40%

Calculate the following and comment:

(a) Earnings per share
(b) Operating Leverage
(c) Financial Leverage
(d) Combined Leverage

[(10 Marks) July 2021]

Answer

(a) Statement of EPS

Particulars	***₹ (in Crores)***
Sales @ (2.50 times of ₹30 Crores)	75.00
Less: Variable cost @ 60%	45.00
Contribution	30.00
Less: Fixed cost	6.00
EBIT	24.00
Less: Interest @ 15% of 15 Crores	2.25
EBT	21.75
Less: Tax @ 40%	8.70
EAT	13.05
÷ No. of Equity Shares	÷ 0.75
EPS	***₹17.40***

EPS indicates the amount the company earns per share. Investors use this as a guide while valuing the share and making investment decisions. It is also an indicator used in comparing firms within an industry or industry segment.

(b) Operating Leverage $= \frac{\text{Contributi on}}{\text{EBIT}} = \frac{30 \text{ Crores}}{24 \text{ Crores}} =$ ***1.25 times***

It indicates the choice of technology and fixed cost in cost structure. It is level specific. When firm operates beyond operating break-even level, then operating leverage is low. It indicates sensitivity of earnings before interest and tax (EBIT) to change in sales at a particular level.

(c) Financial Leverage $= \frac{\text{EBIT}}{\text{EBT}} = \frac{24 \text{ Crores}}{21.75 \text{ Crores}} =$ ***1.10 times***

The financial leverage is very comfortable since the debt service obligation is small vis-a-vis EBIT.

(d) Combined Leverage = OL × FL = 1.25 × 1.10 = ***1.38 times***

The combined leverage studies the choice of fixed cost in cost structure and choice of debt in capital structure. It studies how sensitive the change in EPS is vis-a-vis change in sales.

PYQ 35

Information of A Ltd. is given below:

- Earnings after tax : 5% of sales

- Income tax rate : 50%
- Degree of Operating leverage : 4 times
- 10% Debenture in capital structure : ₹3 lakhs
- Variable costs : ₹6 lakhs

Required:

(i) From the given data complete following statement:

Sales	XXXX
Less: Variable Costs	₹6,00,000
Contribution	XXXX
Less: Fixed costs	XXXX
EBIT	XXXX
Less: Interest expenses	XXXX
EBT	XXXX
Less: Income tax	XXXX
EAT	XXXX

(ii) Calculate Financial Leverage and Combined Leverage.
(iii) Calculate percentage change in earning per share, if sales increased by 5%.

[(10 Marks) Dec 2021]

Answer

(i) Statement of EAT

Particulars	***₹***
Sales	12,00,000
Less: Variable Costs	6,00,000
Contribution	6,00,000
Less: Fixed costs	4,50,000
EBIT	1,50,000
Less: Interest expenses @ 10% of ₹3 lakhs	30,000
EBT	1,20,000
Less: Income tax	60,000
EAT @5% of ₹12,00,000	***₹60,000***

(ii) Financial Leverage = $\frac{\text{EBIT}}{\text{EBT}}$ = $\frac{1,50,000}{1,20,000}$ = ***1.25 times***

Combined Leverage = OL × FL = 4 × 1.25 = ***5 times***

(iii) % change in EPS = % change in Sales × CL = 5% × 5 = ***25% Increased***

Working Notes:

(a) Operating Leverage = $\frac{\text{Contribution}}{\text{EBIT}}$ = $\frac{\text{Contribution}}{\text{Contribution} - \text{Fixed cost}}$ = 4

Contribution = 4 Contribution – 4 Fixed cost
- 3 Contribution = - 4 Fixed cost
¾ Contribution = Fixed cost

Contribution = Sales – Variable cost = Sales – ₹6,00,000

∴ Fixed cost = ¾ or 75% of contribution = 75% (Sales - ₹6,00,000)
= 75% Sales - ₹4,50,000

(b) EAT = 5% of Sales
EBT = EAT ÷ (1 - t) = 5% Sales ÷ (1 – 0.5)
= 10% Sales

(c)	EBT	=	Sales – Variable cost – Fixed cost – Interest		
	10% Sales	=	Sales - ₹6,00,000 – (75% Sales - ₹4,50,000) - ₹30,000		
	10% Sales	=	Sales - ₹6,00,000 – 75% Sales + ₹4,50,000 - ₹30,000		
	10% Sales	=	25% Sales - ₹1,80,000		
	15% Sales	=	₹1,80,000		
	Sales	=	₹1,80,000 ÷ 15%	=	***₹12,00,000***
(d)	EBT	=	10% of Sales	=	10% of ₹12,00,000
		=	***₹1,20,000***		
(e)	EBIT	=	EBT + Interest	=	₹1,20,000 + ₹30,000
		=	***₹1,50,000***		
(f)	Fixed cost	=	75% of Contribution	=	75% of ₹6,00,000
		=	***₹4,50,000***		

PYQ 36

Details of a company for the year ended 31st March, 2022 are given below:

Sales	:	₹86,00,000
Profit Volume (P/V) Ratio	:	35%
Fixed Cost excluding interest expense	:	₹10,00,000
10% Debt	:	₹55,00,000
Equity Share Capital of ₹10 each	:	₹75,00,000
Income Tax Rate	:	40%

Required:

(1) Determine company's Return on Capital Employed (Pre-tax) and EPS.
(2) Does the company have a favourable financial leverage?
(3) Calculate operating and combined leverage of the company.
(4) Calculate percentage change in EBIT, if sales increases by 10%
(5) At what level of sales, the Earning before tax (EBT) of the company will be equal to zero?

[(10 Marks) May 2022]

Answer

(1) $\text{ROCE} = \frac{\text{EBIT}}{\text{Capital Employed}} \times 100 = \frac{20,10,000}{55,00,000 + 75,00,000} \times 100 =$ ***15.46%***

Statement of EPS

Particulars	***₹***
Sales	86,00,000
Less: Variable cost @ of 65% (100 – P/V ratio) of sales	55,90,000
Contribution	30,10,000
Less: Fixed costs	10,00,000
EBIT	20,10,000
Less: Interest @ 10% of 55,00,000	5,50,000
EBT	14,60,000
Less: Income Tax @ 40%	5,84,000
EAT	8,76,000
÷ Number of Equity Shares	÷ 7,50,000
EPS	***1.168***

(2) ROCE is 15.46% and Interest on debt is 10%, hence, it has a favourable financial leverage.
(3) Calculation of Operating and Combined leverages:

Operating Leverage = $\frac{\text{Contribution}}{\text{EBIT}}$ = $\frac{30,10,000}{20,10,000}$ = ***1.497***

Combined Leverage = $\frac{\text{Contribution}}{\text{EBT}}$ = $\frac{30,10,000}{14,60,000}$ = ***2.062***

(4) Operating leverage is 1.497. So if sales is increased by 10% then EBIT will be increased by 1.497 × 10 i.e. 14.97% (approx.)

(5)

EBT	=	Sales – Variable cost – Fixed cost – Interest
Nil	=	Sales – 65% sales – 10,00,000 – 5,50,000
35% of sales	=	15,50,000
Sales	=	***₹44,28,571***

PYQ 37

The following information is available for SS Ltd.

Profit volume (PV) ratio	-	30%
Operating leverage	-	2.00
Financial leverage	-	1.50
Loan	-	₹1,25,000
Post-tax interest rate	-	5.6%
Tax rate	-	30%
Market Price per share (MPS)	-	₹140
Price Earnings Ratio (PER)	-	10

You are required to

(1) Prepare the Profit-Loss statement of SS Ltd. and

(2) Find out the number of equity shares.

[(10 Marks) Nov 2022]

Answer

(1) Profit-Loss Statement

Particulars	*Company A*
Sales	2,00,000
Less: Variable cost (b.f.)	1,40,000
Contribution	60,000
Less: Fixed cost (b.f.)	30,000
Earnings before interest and tax (EBIT)	30,000
Less: Interest	10,000
Profit before tax	20,000
Less: Tax @ 30%	6,000
Profit after tax	14,000

(2) Number of Equity Shares = PAT/EPS = ₹14,000/₹14 = ***1,000 Shares***

Working Notes:

(a)

Financial Leverage	=	EBIT/(EBIT - Interest)		
	=	EBIT/(EBIT – ₹10,000*)	=	1.5
EBIT	=	1.5 EBIT – ₹15,000		
EBIT	=	***₹30,000***		
*Interest	=	Loan × Pre-tax interest rate		
	=	₹1,25,000 × 8% [5.6% ÷ (1 – 0.3)]	=	₹10,000

(b) Operating Leverage = Contribution/EBIT

		=	Contribution/30,000	=	2.00
	Contribution	=	***₹60,000***		
(c)	Sales	=	Contribution/PV Ratio		
		=	₹60,000/0.30	=	***₹2,00,000***
(d)	EPS	=	MPS/PE Ratio		
		=	₹140/10 times	=	***₹14***

PYQ 38

Following information is given for X Ltd:

Total contribution (₹)	4,25,000
Operating leverage	3.125
15% Preference shares (₹100 each)	1,000
Number of equity shares	2,500
Tax rate	50%

Calculate EPS of X Ltd., if 40% decrease in sales will result EPS to zero.

[(5 Marks) May 23]

Answer

EPS of X Ltd. = {EBT (1 – t) – PD} ÷ No of Equity Shares

= {2,00,000 (1 – 0.5) – 15,000} ÷ 2,500 = ***₹34***

Working Note:

Calculation of CL and EBT:

Question says that 40% decrease in sales will result in 100% decrease in EPS:

$$\text{Combined Leverage} = \frac{\%\ \text{Change in EPS}}{\%\ \text{Change in Sales}} = \frac{100\%}{40\%} = \textbf{2.5 times}$$

$$= \frac{\text{Contribution}}{\text{EBT} - \frac{\text{Preference Dividend}}{1 - \text{Tax}}} = \frac{4,25,000}{\text{EBT} - \frac{15,000}{1 - 0.50}}$$

$$2.5 = \frac{4,25,000}{\text{EBT} - 30,000}$$

$$2.5\ \text{EBT} - 75,000 = 4,25,000$$

$$\text{EBT} = 2,00,000$$

SUGGESTED REVISION

Ques. No.	Observations or KEY Points (Note down during revisions)	Page No. of Practical Register	1st & 2nd Revision	3rd, 4th & 5th Revision	Revision during Exams
BQ (Book Questions covering Study Module of ICAI, PM, RTP's, MTP's and Important Questions)					
1			Y	-	-
2			Y	-	-
3			Y	-	-
4			Y	-	-
5			Y	Y	-
6			Y	Y	-
7			Y	-	-
8			Y	Y	Y
9			Y	Y	Y
10			Y	Y	Y
11			Y	Y	Y
12			Y	Y	Y
13			Y	Y	-
14			Y	Y	Y
15			Y	Y	Y
16			Y	Y	-
17			Y	Y	-
18			Y	Y	Y
19			Y	Y	Y
20			Y	Y	Y
21			Y	Y	Y
22			Y	Y	Y
23			Y	Y	Y
24			Y	-	-
25			Y	Y	-
26			Y	Y	Y
27			Y	Y	-
28			Y	Y	Y
29			Y	Y	Y
30			Y	Y	Y
PYQ (Past Year Questions)					
1			Y	Y	Y
2			Y	-	-
3			Y	Y	Y
4			Y	Y	Y
5			Y	Y	Y
6			Y	-	-
7			Y	-	-
8			Y	Y	-
9			Y	Y	Y
10			Y	-	-
11			Y	Y	-
12			Y	-	-
13			Y	Y	Y
14			Y	Y	Y
15			Y	Y	-
16			Y	-	-
17			Y	-	-

18			Y	-	-
19			Y	-	-
20			Y	Y	-
21			Y	-	-
22			Y	-	-
23			Y	Y	Y
24			Y	Y	Y
25			Y	-	-
26			Y	-	-
27			Y	-	-
28			Y	-	-
29			Y	Y	-
30			Y	-	-
31			Y	-	-
32			Y	Y	Y
33			Y	Y	Y
34			Y	Y	Y
35			Y	Y	Y
36			Y	Y	Y
37			Y	Y	Y
38			Y	Y	Y

CHAPTER - 3

MANAGEMENT OF RECEIVABLES & PAYABLES

LEARNING OBJECTIVES

After studying this chapter you will be able to:

- ***Discuss in details about management of receivables, its meanings and its significance to any business.***
- ***Understand the concept of credit policies and the estimation of optimum credit period and credit amount.***
- ***Understand the need for a business to invest in receivables.***
- ***Know why it is important to manage efficiently the receivables?***
- ***Discuss the cost of receivables.***
- ***Understand the concept of factoring and its types.***
- ***Understand the concept of management of payables.***

EVALUATION OF CREDIT POLICIES

BQ 1

Gemini Products Ltd. is considering the revision of its credit policy with a view to increasing its sales and profits. Currently all its sales are on credit and the customers are given one month time to settle the dues. It has a contribution of 40% on sales and it can raise additional funds at a cost of 20% per annum. The marketing director of the company has given the following options with draft estimates for consideration:

Particulars	Existing	Option 1	Option 2	Option 3
Sales (₹ in lacs)	200	210	220	250
Credit period (in months)	1	1.5	2	3
Bad debts (₹ in lacs)	2	2.5	3	5
Cost of administration (₹ in lacs)	1.20	1.30	1.5	3.00

Advise the company to take the right decision. (Workings should form part of the answer)

Answer

Statement of Evaluation of Credit Policies (Total Approach)

Particulars	Classifications (in Lakhs)			
	Existing	Option 1	Option 2	Option 3
Credit sales	200	210	220	250
Less: Variable cost @ 60%	120	126	132	150
Profit before bad debts and admin cost	80	84	88	100
Less: Bad debts	2	2.5	3	5
Less : Cost of administration	1.2	1.3	1.5	3
Expected Profit	***76.80***	***80.20***	***83.5***	***92***
Less: Cost of funds	2	3.15	4.40	7.50
Net Benefit	***74.80***	***77.05***	***79.10***	***84.50***

Working Notes:

Calculation of cost of funds

Existing	Option 1	Option 2	Option 3
$120 \times {}^{1}/_{12} \times 20\%$ = 2.00	$126 \times {}^{1.5}/_{12} \times 20\%$ = 3.15	$132 \times {}^{2}/_{12} \times 20\%$ = 4.40	$150 \times {}^{3}/_{12} \times 20\%$ = 7.50

Select Option 3 with credit of 3 months having higher net benefit.

Note:

In the above solution, investment in accounts receivable is based on total cost of goods sold on credit. Since fixed costs are not given in the problem, therefore, it is assumed that there are no fixed costs and investment in receivables is determined with reference to variable costs only. The above solution may alternatively be worked out on the basis of incremental approach. However, the recommendation would remain the same.

BQ 2

ABC Ltd. is considering the following credit policy alternatives:

Particulars	Existing	Option 1	Option 2
Sales (₹ in lacs)	10.00	9.60	12.00
Credit period (in days)	30	41	60
Bad debts (% of sales)	5	3.33	6
Cost of administration (₹ in lacs)	.20	.12	.25
Average effective collection period (in days)	45	51	72

The average effective collection period differs from the credit period as all debtors do not strictly adhere to the condition stipulated. The company achieves a contribution of 40% on sales and the firm requires a 20% p.a. return on investment.

You are required to suggest which credit period is more suitable to the company. Do you have any further suggestions to make to the management in the context of your finding?

Answer

Statement of Evaluation of Credit Policies (Total Approach)

Particulars	Existing	Option 1	Option 2
Credit sales	10,00,000	9,60,000	12,00,000
Less: Variable cost @ 60%	6,00,000	5,76,000	7,20,000
Profit before bad debts and admin cost	4,00,000	3,84,000	4,80,000
Less: Bad debts	50,000	31,968	72,000
Less : Cost of administration	20,000	12,000	25,000
Expected Profit	***3,30,000***	***3,40,032***	***3,83,000***
Less: Cost of funds	14,795	16,096	28,405
Net Benefit	***3,15,205***	***3,23,936***	***3,54,595***

Working notes

Calculation of required return on investment:

Existing	=	6,00,000 × $^{45}/_{365}$ × 20%	=	***14,795***
Option 1	=	5,76,000 × $^{51}/_{365}$ × 20%	=	***16,096***
Option 2	=	7,20,000 × $^{72}/_{365}$ × 20%	=	***28,405***

Select Option 2 with credit period of 60 Days. It is further suggested that company should collect amount from debtors within credit period allowed.

BQ 3

The following are the details regarding the operation of a firm during a period of 12 months:

Sales	₹12,00,000
Selling price	₹10 per unit
Variable cost	₹7 per unit
Total cost	₹9 per unit
Credit period allowed to customers	One month

The firm is considering a proposal for a more liberal extension of credit by increasing the average collection period from one month to two months. This relaxation is expected to increase the sales by 25%.

You are required to advise the firm regarding adopting of the new credit policy, presuming that the firm's required return on investment is 25%.

Answer

Statement of Evaluation of Proposed Policy

Particulars	Policies	
	Present	***Proposed***
Sales units	***1,20,000***	***1,50,000***
Sales value	12,00,000	15,00,000
Less: Variable cost @ ₹7 per unit/ 70%	8,40,000	10,50,000
Less: Fixed Cost (1,20,000 × ₹2)	2,40,000	2,40,000
Expected Profit	***1,20,000***	***2,10,000***
Less: Required return @ 25% on investment in debtors	22,500	53,750
Net Benefit	***97,500***	***1,56,250***
Incremental Benefit	***-***	***58,750***

Calculation of required return on investment in cost of debtors:

Existing	=	(8,40,000 + 2,40,000) × $^{1}/_{12}$ × 25%	=	***22,500***
Proposed	=	(10,50,000 + 2,40,000) × $^{2}/_{12}$ × 25%	=	***53,750***

Analysis: The proposal for a more liberal extension of credit by increasing the average collection period from one month to two months is suggested to adopt.

BQ 4

A company sells 40,000 units of its product per year @ ₹35 per unit. The average cost per unit is ₹31 out of which variable cost per unit is ₹28. The average collection period is 60 days. Bad debts losses are 3% on sales and the collection charges amount to ₹15,000.

The company is considering the proposal to follow stricter collection policy which would bring down the losses on account of bad debts to 1% of sales and average collection period to 45 days. It would, however, reduce the sales volume by 1,000 units and increase collection expenses to ₹25,000. The company requires a rate of return of 20%.

Would you recommend the adoption of the new credit policy? (Assume 360 days in a year for the purpose of your calculation.)

Answer

Statement of Evaluation of Proposed policy

Particulars	Policies	
	Present	Proposed
Sales units	**40,000**	**39,000**
Sales value @ ₹35 per unit	14,00,000	13,65,000
Less: Variable cost @ ₹28 per unit	11,20,000	10,92,000
Less: Fixed Cost (40,000 × ₹3)	1,20,000	1,20,000
Profit before cost of credit	**1,60,000**	**1,53,000**
Less: Bad debts @ 3% / 1%	42,000	13,650
Less: Collection charges	15,000	25,000
Expected Profit	**1,03,000**	**1,14,350**
Less: Required return @ 20% on investment in debtors	41,333	30,300
Net Benefit	**61,667**	**84,050**
Incremental Benefit	**-**	**22,383**

Analysis: Company should adopt stricter policy of credit i.e. 45 days of credit having higher net benefit.

Working notes:

Calculation of required return on investment in cost of debtors:

Existing	=	(11,20,000 + 1,20,000) × $^{60}/_{360}$ × 20%	=	**41,333**
Proposed	=	(10,92,000 + 1,20,000) × $^{45}/_{360}$ × 20%	=	**30,300**

BQ 5

XYZ Corporation 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 ₹50 lakhs and accounts receivable turnover ratio of 4 times a year. The current level of loss due to bad debts is ₹1,50,000. The firm is required to give a return of 25% on the investment in new accounts receivables. The company's variable costs are 70% of the selling price. Given the following information, identify which is the better option?

Particulars	Policies		
	Present	Option 1	Option 2
Annual credit sales	₹50,00,000	₹60,00,000	₹67,50,000
Account receivable turnover ratio	4 times	3 times	2.4 times
Bad debt losses	₹1,50,000	₹3,00,000	₹4,50,000

Answer

Statement of Evaluation of Credit Policies

Particulars	Existing	Option 1	Option 2
Credit sales	50,00,000	60,00,000	67,50,000
Less: Variable cost @ 70%	35,00,000	42,00,000	47,25,000
Profit before bad debt losses	15,00,000	18,00,000	20,25,000
Less: Bad debt losses	1,50,000	3,00,000	4,50,000

Expected Profit	***13,50,000***	***15,00,000***	***15,75,000***
Less: Required return on investment 'WN'	2,18,750	3,50,000	4,92,188
Net Benefit	***11,31,250***	***11,50,000***	***10,82,812***

Working notes:

Calculation of required return on investment:

Existing	=	35,00,000 × $^{1}/_{4}$ × 25%	=	***2,18,750***
Option 1	=	42,00,000 × $^{1}/_{3}$ × 25%	=	***3,50,000***
Option 2	=	47,25,000 × $^{1}/_{2.4}$ × 25%	=	***4,92,188***

Recommendation: The Proposed Policy I (option 1) should be adopted since the net benefits under this policy are higher as compared to other policies.

BQ 6

Mosaic Limited has current sales of ₹15 lakhs per year. Cost of sales is 75 per cent of sales and bad debts are one per cent of sales. Cost of sales comprises 80 per cent variable costs and 20 per cent fixed costs, while the company's required rate of return is 12 per cent. Mosaic Limited currently allows customers 30 days' credit, but is considering increasing this to 60 days' credit in order to increase sales.

It has been estimated that this change in policy will increase sales by 15 per cent, while bad debts will increase from one per cent to four per cent. It is not expected that the policy change will result in an increase in fixed costs and creditors and stock will be unchanged.

Should Mosaic Limited introduce the proposed policy? Analyse (Assume a 360 days year)

Answer

Statement of Evaluation

Particulars	***Policies***	
	Present	***Proposed***
Sales value	15,00,000	17,25,000
Less: Variable cost @ 80%	9,00,000	10,35,000
Less: Fixed cost	2,25,000	2,25,000
Profit before bad debt losses	3,75,000	4,65,000
Less: Bad debt losses @1%/4%	15,000	69,000
Expected Profit	***3,60,000***	***3,96,000***
Less: Required return on investment 'WN'	11,250	25,200
Net Benefit	***3,48,750***	***3,70,800***

Advise: Mosaic Limited should introduce the proposed policy.

Working notes:

Calculation of Variable cost:

Existing	=	15,00,000 × 75% × 80%	=	***9,00,000***
Proposed	=	9,00,000 + 15%	=	***10,35,000***

Calculation of Fixed cost:

Existing	=	15,00,000 × 75% × 20%	=	***2,25,000***
Proposed	=	Same as at existing level	=	***2,25,000***

Calculation of required return:

Existing	=	11,25,000 × $^{30}/_{360}$ × 12%	=	***11,250***
Proposed	=	12,60,000 × $^{60}/_{360}$ × 12%	=	***25,200***

BQ 7

A trader whose current sales are in the region of ₹6 lakhs per annum and an average collection period of 30 days wants to pursue a more liberal policy to improve sales. A study made by a management consultant reveals the following information:

Credit Policy	Increase in Collection Period	Increase in Sales	Present default anticipated
A	10 days	₹30,000	1.5%
B	20 days	₹48,000	2%
C	30 days	₹75,000	3%
D	45 days	₹90,000	4%

The selling price per unit is ₹3. Average cost per unit is ₹2.25 and variable costs per unit are ₹2. The current bad debt loss is 1%. Required return on additional investment is 20%. Assume a 360 days year.

Analyse which of the above policies would you recommend for adoption?

Answer

Statement of Evaluation of Credit Policies

Particulars	Existing	A	B	C	D
No of units	2,00,000	2,10,000	2,16,000	2,25,000	2,30,000
Credit sales @ ₹3 per unit	6,00,000	6,30,000	6,48,000	6,75,000	6,90,000
Less: Variable cost @ ₹2 per unit	4,00,000	4,20,000	4,32,000	4,50,000	4,60,000
Less: Fixed cost (2.25 - 2) × 2,00,000	50,000	50,000	50,000	50,000	50,000
Profit before bad debt losses	1,50,000	1,60,000	1,66,000	1,75,000	1,80,000
Less: Bad debt losses	6,000	9,450	12,960	20,250	27,600
Expected Profit	***1,44,000***	***1,50,550***	***1,53,040***	***1,54,750***	***1,52,400***
Less: Required return on investment	7,500	10,444	13,389	16,667	21,250
Net Benefit	***1,36,500***	***1,40,106***	***1,39,651***	***1,38,083***	***1,31,150***

Recommendation: The Proposed Policy A (i.e. increase in collection period by 10 days or total 40 days) should be adopted since the net benefits under this policy are higher as compared to other policies.

Working notes:

Calculation of cost required rate of return:

$$\text{Required rate of return} = \text{Total cost} \times \frac{\text{Collection Period}}{360\,\text{Days}} \times \text{Rate of return}$$

$$\text{Existing Policy} = 4{,}50{,}000 \times \frac{30}{360\ \text{Days}} \times 20\% = \textbf{7,500}$$

$$\text{Credit Policy A} = 4{,}70{,}000 \times \frac{40}{360\ \text{Days}} \times 20\% = \textbf{10,444}$$

$$\text{Credit Policy B} = 4{,}82{,}000 \times \frac{50}{360\ \text{Days}} \times 20\% = \textbf{13,389}$$

$$\text{Credit Policy C} = 5{,}00{,}000 \times \frac{60}{360\ \text{Days}} \times 20\% = \textbf{16,667}$$

$$\text{Credit Policy D} = 5{,}10{,}000 \times \frac{75}{360\ \text{Days}} \times 20\% = \textbf{21,250}$$

BQ 8

As a part of the strategy to increase sales and profits, the sales manager of a company proposes to sell goods to a group of new customers with 10% risk of non-payment. This group would require one and a half months credit and is likely to increase sales by ₹1,00,000 p.a. Production and Selling expenses amount to 80% of sales and the income-tax rate is 50%. The company's minimum required rate of return (after tax) is 25%.

(1) Should the sales manager's proposal be accepted?

(2) Also find the degree of risk of non-payment that the company should be willing to assume if the required rate of return (after tax) were (i) 30%, (ii) 40% and (iii) 60%.

Answer

(1) Statement of Evaluation

Particulars	₹
Increase in sales	1,00,000
Less: Cost of sales @ 80%	80,000
Profit before bad debts	20,000
Less: Bad debts @ 10%	10,000
Expected PBT	**10,000**
Less: Tax @ 50%	5,000
Expected PAT	**5,000**
Less: Required return after tax (80,000 × 1.5/12 × 25%)	2,500
Net Benefit (After Tax)	**2,500**

Advise: The sales manager's proposal should be accepted.

(2) Computation the Degree of risk of non-payment:

Required return after tax = (Sales – Cost of sales – Risk of non payment) (1 - t)

Case I

Required return after tax	=	(Sales – Cost of sales – Risk of non payment) (1 - t)	
80,000 × 1.5/12 × 30%	=	(1,00,000 – 80,000 - Risk of non payment) (1 - .50)	
Risk of non payment	=	14,000	
Degree of risk of non-payment	=	$^{14,000}/_{1,00,000}$ × 100	= **14%**

Case II

Required return after tax	=	(Sales – Cost of sales – Risk of non payment) (1 - t)	
80,000 × 1.5/12 × 40%	=	(1,00,000 – 80,000 - Risk of non payment) (1 - .50)	
Risk of non payment	=	12,000	
Degree of risk of non-payment	=	$^{12,000}/_{1,00,000}$ × 100	= **12%**

Case III

Required return after tax	=	(Sales – Cost of sales – Risk of non payment) (1 - t)	
80,000 × 1.5/12 × 60%	=	(1,00,000 – 80,000 - Risk of non payment) (1 - .50)	
Risk of non payment	=	8,000	
Degree of risk of non-payment	=	$^{8,000}/_{1,00,000}$ × 100	= **8%**

BQ 9

Slow Payers are regular customer of Goods Dealers Ltd., Calcutta and have approached the sellers of extension of a credit facility for enabling them to purchase goods from Goods Dealer Ltd. On an analysis of past performance and on the basis of information supplied, the following pattern of payment schedule is regard to Slow Payers:

	Pattern of Payment Schedule
At the end of 30 Days	15% of the bills
At the end of 60 Days	34% of the bills
At the end of 90 Days	30% of the bills
At the end of 100 Days	20% of the bills
Non-recovery	1% of the bills

Slow Payers want to enter into a firm commitment for purchase of goods of ₹15 Lacs in 2023, deliveries to be made in equal quantities on the first day of each quarter in the calendar year. The price per unit of commodity is ₹150 on which a profit of ₹5 per unit is expected to be made. It is anticipated by Goods Dealers Ltd. that taking up of this contract would mean an extra recurring expenditure of ₹5,000 per annum.

If the opportunity cost of funds in the hands of Goods dealers is 24% per annum, would you as the finance manager of the seller recommend the grant of credit to Slow Payers? Workings should form part of your answer. Assume year of 365 days.

Answer

Statement of Evaluation of Credit Policy

Particulars	***Proposed***
Sales in units	***10,000***
Sales value @ ₹150 per unit	15,00,000
Less: Variable cost @ ₹145 per unit	14,50,000
Less: Extra recurring expenditure	5,000
Profit before bad debt	45,000
Less: Bad debts @ 1%	15,000
Expected Profit	***30,000***
Less: Opportunity cost of investment in receivables (WN)	68,788
Net Benefit	***(38,788)***

Recommendation: The proposed policy should not be adopted since the net benefit under this policy is negative.

Working notes:

Calculation of Opportunity cost of average investment:

$$\text{Opportunity cost} = \text{Total cost} \times \frac{\text{Average Collection Period}}{365} \times \text{Rate}$$

$$= 14{,}55{,}000 \times {}^{71.90}/_{365} \times 24\% = \textbf{68,788}$$

Calculation of Average collection period:

Average collection period = 30 days × 15% + 60 days × 34% + 90 days × 30% + 100 days × 20%

= ***71.90 Days***

BQ 10

A regular customer of your company has approached to you for extension of a credit facility for enabling them to purchase goods. On an analysis of past performance and on the basis of information supplied, the following pattern of payment schedule emerges:

	Pattern of Payment Schedule
At the end of 30 Days	20% of the bills
At the end of 60 Days	30% of the bills
At the end of 90 Days	30% of the bills
At the end of 100 Days	18% of the bills
Non-recovery	2% of the bills

The customer wants to enter into a firm commitment for purchase of goods of ₹30 Lacs in 2023, deliveries to be made in equal quantities on the first day of each quarter in the calendar year. The price per unit of commodity is ₹300 on which a profit of ₹10 per unit is expected to be made. It is anticipated that taking up of this contract would mean an extra recurring expenditure of ₹10,000 per annum.

If the opportunity cost is 18% per annum, would you as the finance manager of the company recommend the grant of credit to the customer? Assume year of 360 days.

Answer

Statement of Evaluation of Credit Policy

Particulars	***Proposed***
Sales in units	***10,000***
Sales value @ ₹300 per unit	30,00,000
Less: Variable cost @ ₹290 per unit	29,00,000
Less: Extra recurring expenditure	10,000
Profit before bad debt	90,000
Less: Bad debts @ 2%	60,000

Expected Profit	***30,000***
Less: Opportunity cost of investment in receivables (WN)	1,00,395
Net Benefit	***(70,395)***

Recommendation: The proposed policy should not be adopted since the net benefit under this policy is negative.

Working notes:

Calculation of Opportunity cost of average investment:

$$\text{Opportunity cost} = \text{Total cost} \times \frac{\text{Average Collection Period}}{360} \times \text{Rate}$$

$$= 29,10,000 \times {}^{69}/_{360} \times 18\% = \textbf{1,00,395}$$

Calculation of Average collection period:

Average collection period = 30 days × 20% + 60 days × 30% + 90 days × 30% + 100 days × 18%

= ***69 Days***

BQ 11

Star Limited manufacturer of color TV sets, are considering the liberalization of existing credit terms to three of their large customers A, B and C. The credit period and likely quantity of TV sets that will be lifted by the customers are as follows:

	Quantity Lifted (No. of TV Sets)		
Credit Period (Days)	***A***	***B***	***C***
0	1,000	1,000	-
30	1,000	1,500	-
60	1,000	2,000	1,000
90	1,000	2,500	1,500

The selling price per TV set is ₹9,000. The expected contribution is 20% of the selling price. The cost of carrying debtors averages 20% per annum.

You are required:

(a) Determine the credit period to be allowed to each customer. (Assume 360 days in a year for calculation purposes).

(b) What other problems the company might face in allowing the credit period as determined in ***(a)*** above?

Answer

(a) In case of customer A, there is no increase in sales even if the credit is given. Hence, it is suggested not to extend any credit period to customer A. Statement of evaluation for B and C is given below:

(₹Lakhs)

Particulars	***Customer B***				***Customer C***	
Credit period (days)	***0***	***30***	***60***	***90***	***60***	***90***
Sales (units)	***1,000***	***1,500***	***2,000***	***2,500***	***1,000***	***1,500***
Sales	90	135	180	225	90	135
Less: Variable cost @ 80%	72	108	144	180	72	108
Contribution	18	27	36	45	18	27
Less: Cost of debtors @ 20%	-	1.8	4.8	9	2.4	5.4
Net Benefit	***18***	***25.2***	***31.2***	***36***	***15.6***	***21.6***

The excess of contribution over cost of carrying Debtors is highest in case of credit period of 90 days in respect of both the customers B and C. Hence, credit period of 90 days should be allowed to B and C.

(b) Problems:

1. Customer A is taking 1,000 TV sets whether credit is given or not. Customer C is taking 1,000 TV sets at credit for 60 days. Hence, A also may demand credit for 60 days compulsorily.

2. B will take 2,500 TV sets at credit for 90 days whereas C would lift 1,500 sets only. In such case B will demand further relaxation in credit period i.e. B may ask for 120 days credit.

BQ 12

A company offers standard credit terms of 60 days net. Its cost of short term borrowings is 16% per annum. Determine whether a 2.5% discount should be offered for payment within7 days to customers who would normally pay after ***(i)*** 60 days ***(ii)*** 80 days, and ***(iii)*** 105 days.

Answer

This cost of using a discount to obtain funds and improve liquidity should be compared with alternative sources of finance. If the cost of short term borrowings is 16%, then cost of discount offer must be less than this, otherwise discount need not be offered. A customer who is paying after 60, 80 or 105 days involves a cost @ 16% per annum for the respective period.

If the firm offers a discount @ 2.5% for payment within 7 days, then it means that 97.5% of the fund will be available for 53 days, 73 days and 98 days respectively. The percentage cost of getting funds for respective period is ₹2.50/₹97.50.

However, the annual percentage cost of the discount in each case is the discount should be offered to customers who would have paid after 80 or 105 days, and not to those who would have paid after 60 days. The reason is being that the cost of funds is 16% and the customers who would have paid after 60 days, would inflict a cost of 17.66% if the discount terms are offered to them.

(a) $\frac{2.50}{97.50} \times \frac{365}{53}$ = 17.66% p.a.

(b) $\frac{2.50}{97.50} \times \frac{365}{73}$ = 12.82% p.a.

(c) $\frac{2.50}{97.50} \times \frac{365}{98}$ = 9.55% p.a.

BQ 13

The Dolce Company purchases raw materials on terms of 2/10, net 30. A review of the company's records by the owner, Mr. Gautam, revealed that payments are usually made 15 days after purchases are made. When asked why the firm did not take advantage of its discounts, the accountant, Mr. Rohit, replied that it cost only 2% for these funds, whereas a bank loan would cost the company 12%.

(a) Analyse, what mistake is Rohit making?

(b) If the firm could not borrow from the bank and was forced to resort to the use of trade credit funds, what suggestion might be made to Rohit that would reduce the annual interest cost? Identify.

Answer

(a) Rohit's argument of comparing 2% discount with 12% bank loan rate is not rational as 2% discount can be earned by making payment 5 days in advance i.e. within 10 days rather 15 days as payments are made presently. Whereas 12% bank loan rate is for a year.

Assume that the purchase value is ₹100, the discount can be earned by making payment within 10 days is ₹2, therefore, net payment would be ₹98 only. Annualized benefit:

$\frac{2}{98} \times \frac{365}{5} \times 100$ = ***148.98% p.a.***

This means cost of not taking cash discount is 148.98%.

(b) If the bank loan facility could not be available, then in this case the company should resort to utilise maximum credit period as possible. Therefore, payment should be made in 30 days to reduce the interest cost. The annual interest cost in such case:

$$\frac{2}{98} \times \frac{365}{20} \times 100 \quad = \quad \textbf{37.24\% p.a.}$$

BQ 14

The Alliance Ltd., a petrochemical sector company had just invested huge amount in its new expension project. Due to huge capital investment, the company is in need of an additional ₹1,50,000 in working capital immediately. The finance manager has determined the following three feasible sources of funds:

(a) ***Bank loan:*** The Company's bank will lend ₹2,00,000 at 15%. A 10% compensating balance will be required, which otherwise would not be maintained by the company.

(b) ***Trade credit:*** The Company has been offered credit term from its major supplier of 3/30, net 90 for purchasing raw materials worth ₹1,00,000 per month

(c) ***Factoring:*** A factoring firm will buy the company's receivables of ₹2,00,000 per month, which have a collection period of 60 days. The factor will advance up to 75% of the face value of the receivables at 12% on an annual basis. The factor will also charge commission of 2% on all receivables purchased. It has been estimated that the factor's services will save the company a credit department expense and bad debt expenses of ₹1,250 and ₹1,750 per month respectively.

On the basis of annual percentage cost, Advise which alternative should the company select? Assume 360 days year.

Answer

(a) ***Bank Loan:***

Loan amount will be ₹2,00,000, company has to pay 15% interest on ₹2,00,000 but company can use only ₹1,80,000. The real cost of bank loan would be

$$\frac{15\% \text{ of } 2{,}00{,}000}{1{,}80{,}000} \times 100 \quad = \quad \textbf{16.67\% p.a.}$$

(b) ***Trade Credit:***

If discounts are not taken, the real cost of not taking advantage of the discount would be:

$$\frac{3}{97} \times \frac{360}{60} \times 100 \quad = \quad \textbf{18.56\% p.a.}$$

(c) ***Factoring:***

The factor commission for the year would be (2% of ₹24,00,000) ₹48,000. Borrowing ₹1,50,000 (75% of ₹2,00,000) attract interest of ₹18,000 p.a. (12% interest will be paid on ₹1,50,000) on the receivables The savings effected, however, would be ₹36,000 p.a. [(₹1,250 + ₹1,750) × 12], giving a net factoring cost of ₹30,000 (₹48,000 + ₹18,000 – ₹36,000). Thus cost would be:

$$\frac{30{,}000}{1{,}50{,}000} \times 100 \quad = \quad \textbf{20\% p.a.}$$

Advise: The company should select alternative of Bank Loan as it has the lowest annual cost i.e. 16.67% p.a.

FACTORING SERVICES

BQ 15

A company is considering using a factor, the following information is relevant:

(a) The current average collection period for the company's debts is 80 days and ½% of debt default. The factor has agreed to pay over money due, after 60 days, and it will suffer loss of any bad debts.

(b) The annual charge for the factoring is 2% of turnover payable annually in arrears. Administration cost saving will total ₹1,00,000 per annum.

(c) Annual sales, all on credit are ₹1,00,00,000. Variable costs total 80% of sales price. The company's cost of borrowings is 15% per annum. Assume year consisting of 365 days. Should the company enter into a factoring agreement?

Answer

Statement of Evaluation

Particulars	₹
(A) Savings:	
Saving in administration cost	1,00,000
Saving in bad debts (0.5% of 1,00,00,000)	50,000
*Saving in cost of debtors (1,00,00,000 × 80% × $^{80-60}/_{365}$ × 15%)	65,753
Total (A)	***2,15,753***
(B) Cost:	
Annual charges (2% of 1,00,00,000)	2,00,000
Total (B)	***2,00,000***
Net Benefit (A -B)	***15,753***

*Presently, the debtors of the company pay after 80 days. However, the factor has agreed to pay after 60 days only. So, the investment in Debtors will be reduced by 20 days.

Conclusion: Yes, company should enter into factoring agreement.

BQ 16

A Factoring firm has credit sales of ₹360 lakhs and its average collection period is 30 days. The financial controller estimates, bad debt losses are around 2% of credit sales. The firm spends ₹1,40,000 annually on debtors administration. This cost comprises of telephonic and fax bills along with salaries of staff members. These are the avoidable costs. A Factoring firm has offered to buy the firm's receivables. The factor will charge 1% commission and will pay an advance against receivables on an interest @15% p.a. after withholding 10% as reserve.

What should the firm do? Assume 360 days in a year.

Answer

Statement of Effective Cost of Factoring to the Firm

Particulars	₹
(1) Cost of factoring:	
Factoring commission (1% of 3,60,00,000)	3,60,000
Interest charges (33,375 × $^{360\ Days}/_{30\ Days}$)	4,00,500
Total (A)	***7,60,500***
(2) Savings:	
Saving in credit administration cost	1,40,000
Saving in bad debts (2% of 3,60,00,000)	7,20,000
Total (B)	***8,60,000***
Net Benefits to Firm (B - A)	***99,500***

Working Notes:

Calculation of advance:

Particulars	₹
Average receivables (360 Lakhs × $^{30}/_{360}$)	30,00,000
Less: Factor reserve @ 10% of 30,00,000	3,00,000
	27,00,000
Less: Commission @ 1% of 30,00,000	30,000
Amount available for advance	26,70,000
Less: Interest (26,70,000 × 15% × $^{30}/_{360}$)	33,375
Amount of advance	***26,36,625***

Advice: Since the savings to the firm exceeds the cost to the firm on account of factoring, therefore, the proposal is acceptable.

BQ 17

A Ltd. has a total sale of ₹6.4 crores and its average collection period is 90 days. The past experience indicates that bad debt losses are 1.5% on sales.

The expenditure incurred by the firm in administering its receivable collection efforts is ₹10,00,000. A factor is prepared to buy the firm's receivables by charging 2% commissions.

The factor will pay advance on receivables to the firm at an interest rate of 18% p.a. after withholding 10% as reserve.

(1) Calculate the effective cost of factoring to the firm (360 Days in a year),
(2) If bank finance for working capital is available at 14% interest, should the firm avail of factoring service?

Answer

(1) Statement of Effective Cost of Factoring to the Firm

Particulars	***₹***
(1) Cost of factoring:	
Factoring commission (3,20,000 × $^{360\ Days}/_{90\ Days}$)	12,80,000
Interest charges (6,33,600 × $^{360\ Days}/_{90\ Days}$)	25,34,400
Total (1)	***38,14,400***
(2) Savings:	
Saving in credit administration cost	10,00,000
Saving in bad debts (1.5% of 6,40,00,000)	9,60,000
Total (2)	***19,60,000***
Effective cost of factoring (1 - 2)	***18,54,400***
Rate of effective cost $\left(\frac{18,54,400}{1,34,46,400}\times 100\right)$	***13.79%***

Working Notes:

Calculation of advance:

Particulars	***₹***
Average receivables (6,40,00,000 × $^{90}/_{360}$)	1,60,00,000
Less: Factor reserve @ 10% of 1,60,00,000	16,00,000
Maximum possible advance	1,44,00,000
Less: Commission @ 2% of 1,60,00,000	3,20,000
Amount available for advance	1,40,80,000
Less: Interest (1,40,80,000 × 18% × $^{90}/_{360}$)	6,33,600
Amount of advance	***1,34,46,400***

(2) If bank finance for working capital is available at 14%, firm should avail factoring service at 13.79% which is lower than bank interest.

Note: Alternatively rate of effective cost also can be calculated by some authors on amount avail for advance (1,40,80,000).

MANAGEMENT OF PAYABLES (CREDITORS)

BQ 18

ABC Ltd has been offered credit terms from its major supplier 2/10 net 45. If ABC Ltd. can invest the additional

cash and can obtain an annual return of 25% per annum and the amount of invoice is ₹10,000.

Should ABC Ltd accept the discount offer?

Answer

Statement of Evaluation of Discount Offer

Particulars	Refuse	Accept
Payment to supplier	10,000	9,800
Less: Return from investing ₹9,800 between day 10 and day 45 (₹9,800 × 35/365 × 25%)	(235)	-
Net Cost	**9,765**	**9,800**

Advise: Thus it is better for the company to refuse the discount, as return on cash retained is more than the saving on account of discount.

BQ 19

A Ltd. is in manufacturing business and it acquires raw material from X Ltd. on a regular basis. As per the terms of agreement the payment must be made within 40 days of purchase. However, A Ltd. has a choice of paying ₹98.50 per ₹100 it owes to X Ltd. on or before 10th day of purchase.

Examine whether A Ltd. should accept the offer of discount assuming average billing of A Ltd. is ₹10,00,000 and an alternative investment yield a return of 15% and company pays the invoice.

Answer

Statement of Evaluation of Discount Offer

Particulars	Refuse	Accept
Payment to supplier	10,00,000	9,85,000
Less: Return from investing ₹9,85,000 between day 10 and day 40 (₹9,85,000 × 30/365 × 15%)	(12,144)	-
Net Cost	**9,87,856**	**9,85,000**

Advise: Thus it is cheaper for the company to accept the discount.

MANAGEMENT OF INVENTORY

BQ 20

A company's requirements for ten days are 6,300 units. The ordering cost per order is ₹10 and the carrying cost per unit is ₹0.26.

You are required to Calculate the economic order quantity.

Answer

$$EOQ = \sqrt{\frac{2AO}{C}} = \sqrt{\frac{2\times 6{,}300\times 36.5\times 10}{0.26\times 36.5}} = 696 \text{ Units}$$

BQ 21

Marvel Limited uses a large quantity of salt in its production process. Annual consumption is 60,000 tonnes over a 50-week working year. It costs ₹100 to initiate and process an order and delivery follow two weeks later. Storage costs for the salt are estimated at ₹0.10 per tonne per annum. The current practice is to order twice a year when the stock falls to 10,000 tonnes.

Identify an appropriate ordering policy for Marvel Limited, and contrast it with the cost of the current policy.

Answer

The recommended policy should be based on the EOQ model:

EOQ	=	$\sqrt{\frac{2AO}{C}}$	=	$\sqrt{\frac{2\times60,000\times100}{0.10}}$	= ***10,954 tonnes***
Annual Ordering Cost at EOQ	=	Number of orders × Cost per order			
	=	*6 × 100	=	₹600	
Annual Carrying Cost at EOQ	=	½ of EOQ × C			
	=	½ of 10,954 × 0.10	=	₹548	
Total Ordering & Carrying Cost	=	₹600 + ₹548	=	***₹1,148***	
*Number of orders per year	=	60,000/10,954	=	5.47 or 6 orders	

Now in Existing Policy,

Minimum Stock	=	ROL – Average Consumption × Average Lead Time		
	=	10,000 – [(60,000 ÷ 50 weeks) × 2 weeks]		
	=	7,600 tonnes		
Maximum Stock	=	ROL + *ROQ – Minimum Consumption × Minimum Lead Time		
	=	10,000 + 30,000 – [(60,000 ÷ 50 weeks) × 2 weeks]		
	=	37,600 tonnes		
*ROQ	=	60,000 ÷ 2 Orders	=	30,000 tonnes
Annual Carrying Cost	=	Average Stock × C		
	=	[(7,600 + 37,600) ÷ 2] × 0.10	=	₹2,260
Annual Ordering Cost	=	2 Orders × 100	=	₹200
Total Ordering & Carrying Cost	=	₹2,260 + ₹200	=	***₹2,460***

Advise: The recommended policy (i.e. EOQ) should be adopted as the costs are less than the current policy by ₹1,312 (₹2,460 – ₹1,148).

BQ 22

Pureair Company is a distributor of air filters to retail stores. It buys its filters from several manufacturers. Filters are ordered in lot sizes of 1,000 and each order costs ₹40 to place. Demand from retail stores is 20,000 filters per month, and carrying cost is ₹0.10 a filter per month.

(a) Compute the optimal order quantity with respect to so many lot sizes?
(b) Calculate the optimal order quantity if the carrying cost were ₹0.05 a filter per month?
(c) Compute the optimal order quantity if ordering costs were ₹10?

Answer

(a) EOQ = $\sqrt{\frac{2AO}{C}}$ = $\sqrt{\frac{2\times20\times12\times40}{100\times12}}$ = ***4 Lots***

Carrying costs = ₹0.10 × 1,000 = ₹100 per month for one lot of 1,000 units.

(b) EOQ = $\sqrt{\frac{2AO}{C}}$ = $\sqrt{\frac{2\times20\times12\times40}{50\times12}}$ = ***5.66 or 6 Lots***

(c) EOQ = $\sqrt{\frac{2AO}{C}}$ = $\sqrt{\frac{2\times20\times12\times10}{100\times12}}$ = ***2 Lots***

PAST YEARS QUESTIONS

PYQ 1

The present credit terms of P Company are $^{1}/_{10}$ net 30. Its annual sales is ₹80 lakhs, its average collection period is 20 days. Its variable costs and average total costs to sales are 0.85 and 0.95 respectively and its cost of capital is 10 per cent. The proportion of sales on which customers currently take discount is 0.5.

P Company is considering relaxing its discount terms to $^{2}/_{10}$ net 30. Such relaxation is expected to increase sales by ₹5 lakhs, reduce the average collection period to 14 days and increase the proportion of discount sales to 0.8.

What will be the effect of relaxing the discount policy on company's profit? Take year as 360 days. [(10 Marks) May 1998]

Answer

Statement of Evaluation

Particulars	Policies	
	Present	Proposed
Sales value	80,00,000	85,00,000
Less: Variable cost @ 85%	68,00,000	72,25,000
Less: Fixed Cost (10% of 80,00,000)	8,00,000	8,00,000
Profit before cost of credit	4,00,000	4,75,000
Less: Cash discount	40,000	1,36,000
Expected Profit	**3,60,000**	**3,39,000**
Less: Cost of investment in debtors	42,222	31,208
Net benefit	**3,17,778**	**3,07,792**

Effect: Income will be decreased by ₹9,986.

Working Notes:

(1) Calculation of cost of investment in debtors:

Existing	=	(68,00,000 + 8,00,000) × 10% × $^{20}/_{360}$	=	**42,222**
Proposed	=	(72,25,000 + 8,00,000) × 10% × $^{14}/_{360}$	=	**31,208**

(2) Calculation of cash discount:

Existing	=	80,00,000 × 0.50 × 1%	=	**40,000**
Proposed	=	85,00,000 × 0.80 × 2%	=	**1,36,000**

PYQ 2

Radiance Garments Ltd. manufactures readymade garments and sells them on credit basis through a network of dealers. Its present sale is ₹60,00,000 per annum with 20 days credit period. The company is contemplating an increase in the credit period with a view to increasing sales. Present variable costs are 70% of sales and the total fixed costs ₹8,00,000 per annum.

The company expects pre-tax return on investment @ 25%. Some other details are given as under:

Proposed Credit Policy	Average Collection Period (days)	Expected Annual Sales (₹lakh)
I	30	65
II	40	70
III	50	74
IV	60	75

Required: Which credit policy should the company adopt? Present your solution in a tabular form. Assume 360 days a year. Calculations should be made upto two digits after decimal.

[(10 Marks) Nov 1999]

Answer

Statement of Evaluation

Particulars	Policies				
	Present	I	II	III	IV
Sales value	60,00,000	65,00,000	70,00,000	74,00,000	75,00,000
Less: Variable cost @ 70%	42,00,000	45,50,000	49,00,000	51,80,000	52,50,000
Less: Fixed Cost	8,00,000	8,00,000	8,00,000	8,00,000	8,00,000
Expected Profit	**10,00,000**	**11,50,000**	**13,00,000**	**14,20,000**	**14,50,000**
Less: Required return (WN)	69,444	1,11,459	1,58,333	2,07,640	2,52,083
Net benefit	**9,30,556**	**10,38,541**	**11,41,666**	**12,12,360**	**11,97,916**

Working Notes:

Calculation of required return on investment in cost of average debtors:

Present	=	$(42,00,000 + 8,00,000) \times 25\% \times {}^{20}/_{360}$	=	**69,444**
Option I	=	$(45,50,000 + 8,00,000) \times 25\% \times {}^{30}/_{360}$	=	**1,11,459**
Option II	=	$(49,00,000 + 8,00,000) \times 25\% \times {}^{40}/_{360}$	=	**1,58,333**
Option III	=	$(51,80,000 + 8,00,000) \times 25\% \times {}^{50}/_{360}$	=	**2,07,640**
Option IV	=	$(52,50,000 + 8,00,000) \times 25\% \times {}^{60}/_{360}$	=	**2,52,083**

Analysis:

The company should adopt the credit policy III (with collection period of 50 days) as it yields a maximum profit to the company.

PYQ 3

A Bank is analyzing the receivables of Jackson Company in order to identify acceptable collateral for a short term loan. The company's credit policy is $^{2}/_{10}$ net 30.

The bank lends 80 per cent on accounts where customers are not currently overdue and where the average payment period does not exceed 10 days past the net period.

A schedule of Jackson's receivables has been prepared. How much will the bank lend on a pledge of receivables, if the bank uses a 10 per cent allowance for cash discount and returns?

Account	Amount	Days Outstanding	Average Pay Period
74	₹25,000	15	20
91	₹9,000	45	60
107	₹11,500	22	24
108	₹2,300	9	10
114	₹18,000	50	45
116	₹29,000	16	10
123	₹14,000	27	48

[(6 Marks) Nov 2000]

Answer

Statement of the amount lend by the banks on a pledge of receivables
(If bank allows 10% allowance or cash discount and returns)

Account No.	Amount	90% of amount (10% allowance)	80% of amount (Loan)
74	₹25,000	25,000 – 10% = 22,500	22,500 × 80% = 18,000
107	₹11,500	11,500 – 10% = 10,350	10,350 × 80% = 8,280
108	₹2,300	2,300 – 10% = 2,070	2,070 × 80% = 1,656
116	₹29,000	29,000 – 10% = 26,100	26,100 × 80% = 20,880
Total loan amount			**₹48,816**

For identification of acceptable collateral for a short term to loan, Bank analyses the receivables of Jackson Company:

Bank lends 80% on A/c where customers are not currently overdue and average payment period does not exceed 10 day past the period of 30 days.

On the basis of this, schedule of Jackson's: Account No. 91 & Account No. 114 are currently overdue and Account No. 123 payment period exceeds 40 days. So, these accounts are eliminated and Account No. 74, 107, 108 and 116 are selected or lending decision.

PYQ 4

The credit manager of XYZ Ltd. is reappraising the company's credit policy. The company sells its products on terms of net 30. Cost of goods sold is 85% of sales and fixed costs are further 5% of sales. XYZ classifies its customers on a scale of 1 to 4. During the past five years, the experience was as under:

Classification	*Default as % of sales*	*Average collection period*
1	0	45 Days
2	2	42 Days
3	10	40 Days
4	20	80 Days

The average rate of interest is 15%. What conclusion do you draw about the Company's credit policy? What other factors should be taken into account before changing the present policy? Discuss.

[(6 Marks) May 2001]

Answer

Let the amount of revenue generated for each type of customers be ₹100.

Statement of Evaluation

Particulars	*Classifications*			
	1	*2*	*3*	*4*
Sales	100	100	100	100
Less: COGS @ 85%	85	85	85	85
Less: Further expenses 5%	5	5	5	5
Profit	10	10	10	10
Less: Bad debts	-	2	10	20
Expected Profit	*10*	*8*	*Nil*	*(10)*
Less: Interest cost	1.66	1.55	1.48	2.96
Net Benefit	*8.34*	*6.45*	*(1.48)*	*(12.96)*
Evaluation	Accept	Accept	Reject	Reject

Calculation of interest cost

Category 1	*Category 2*	*Category 3*	*Category 4*
$\frac{90 \times 15\% \times 45 \text{ days}}{365 \text{ days}}$ = ₹1.66	$\frac{90 \times 15\% \times 42 \text{ days}}{365 \text{ days}}$ = ₹1.55	$\frac{90 \times 15\% \times 40 \text{ days}}{365 \text{ days}}$ = ₹1.48	$\frac{90 \times 15\% \times 80 \text{ days}}{365 \text{ days}}$ = ₹2.96

Recommendation: The reappraisal of company's credit policy indicates that the company either follows a lenient credit policy or it is inefficient in collection of debts. Even though the company sells its products on term of net 30 days, it allows average collection period for more than 30 days to all categories of its customers.

The company can continue with customers covered in categories 1 and 2 since net benefits are favourable. The company either should not continue with customer covered in categories 3 and 4 or should reduce the bad debt % by at least 1.48% and 12.96% respectively since net benefits are unfavourable to the extent of 1.48% and 12.96% of sales respectively.

The other factors to be taken into consideration before changing the present policy includes (1) past performance of the customers and (2) their credit worthiness.

PYQ 5

A Ltd. has a total sale of ₹3.2 crores and its average collection period is 90 days. The past experience indicates that bad debt losses are 1.5% on sales.

The expenditure incurred by the firm in administering its receivable collection efforts is ₹5,00,000. A factor is prepared to buy the firm's receivables by charging 2% commissions.

The factor will pay advance on receivables to the firm at an interest rate of 18% p.a. after withholding 10% as reserve.

Calculate the effective cost of factoring to the firm (360 Days in a year).

[(6 Marks) May 2002]

Answer

Statement of Effective Cost of Factoring to the Firm

Particulars	***₹***
(A) Cost of factoring:	
Factoring commission (1,60,000 × $^{360\ Days}/_{90\ Days}$)	6,40,000
Interest charges (3,16,800 × $^{360\ Days}/_{90\ Days}$)	12,67,200
Total (A)	***19,07,200***
(B) Savings:	
Saving in credit administration cost	5,00,000
Saving in bad debts (1.5% of 3,20,00,000)	4,80,000
Total (B)	***9,80,000***
Effective cost of factoring (A - B)	***9,27,200***
Rate of effective cost $\left(\frac{9,27,200}{67,23,200}\times 100\right)$	***13.79%***

Working Notes:

Calculation of advance

Particulars	***₹***
Average receivables (3,20,00,000 × $^{90}/_{360}$)	80,00,000
Less: Factor reserve @ 10% of 80,00,000	8,00,000
Maximum possible advance	72,00,000
Less: Commission @ 2% of 80,00,000	1,60,000
Advance net of commission	70,40,000
Less: Interest (70,40,000 × 18% × $^{90}/_{360}$)	3,16,800
Amount of advance	***67,23,200***

Note: Alternatively rate of effective cost can be calculated on amount available for advance (70,40,000)

PYQ 6

A company has prepared the following projections for a year:

Sales	21,000 units
Selling price per unit	₹40
Variable cost per unit	₹25
Total costs per unit	₹35
Credit period allowed	One month

The Company proposes to increase the credit period allowed to its customers from one month to two months. It is envisaged that the change in the policy as above will increase the sales by 8%. The company desires a return of 25% on its investment.

You are required to examine and advise whether the proposed credit policy should be implemented or not.

[(4 Marks) Nov 2002]

Answer

Statement of Evaluation

Particulars	***Policies***	
	Present	***Proposed***
Sales units	***21,000***	***22,680***
Sales value @ ₹40 per unit	8,40,000	9,07,200
Less: Variable cost @ ₹25 per unit/ 62.50%	5,25,000	5,67,000
Less: Fixed Cost (21,000 × ₹10)	2,10,000	2,10,000

Expected Profit	***1,05,000***	***1,30,200***
Less: Required return (WN)	15,313	32,375
Net Benefit	***89,687***	***97,825***

Analysis: The proposal for a more liberal extension of credit by increasing the average collection period from one month to two months is suggested to adopt.

Working notes:

Calculation of required return on investment in cost of debtors:

Existing = (5,25,000 + 2,10,000) × $^{1}/_{12}$ × 25% = ***15,313***

Proposed = (5,67,000 + 2,10,000) × $^{2}/_{12}$ × 25% = ***32,375***

PYQ 7

A firm has a current sales of ₹2,56,48,750. The firm has unutilized capacity. In order to boost its sales, it is considering the relaxation in its credit policy. The proposed terms of credit will be 60 days credit against the present policy of 45 days. As a result, the bad debts will increase from 1.5% to 2% of sales. The firm's sales are expected to increase by 10%. The variable operating costs are 72% of the sales. The firm's corporate tax rate is 35%, and it requires an after tax return of 15% on its investment.

Should the firm change its credit period? Assume 360 days in a year.

[(4 Marks) Nov 2003]

Answer

Statement of Evaluation

Particulars	***Policies***	
	Present	***Proposed***
Sales value	2,56,48,750	2,82,13,625
Less: Variable cost @ 72% of sales	1,84,67,100	2,03,13,810
Profit before cost of credit	71,81,650	78,99,815
Less: Bad debts @ 1.5% / 2%	3,84,731	5,64,273
Expected PBT	***67,96,919***	***73,35,542***
Less: Tax @ 35%	23,78,922	25,67,440
Expected PAT	***44,17,997***	***47,68,102***
Less: Cost of investment in debtors	3,46,258	5,07,845
Net benefit after tax	***40,71,739***	***42,60,257***

Yes, the firm should change its credit period.

Working Notes:

Calculation of cost of investment in debtors:

Existing = 1,84,67,100 × $^{45}/_{360}$ × 15% = ***3,46,258***

Proposed = 2,03,13,810 × $^{60}/_{360}$ × 15% = ***5,07,845***

PYQ 8

A firm is considering offering 30 days credit to its customers. The firm like to charge them an annualized rate of 24%. The firm wants to structure the credit in terms of a cash discount for immediate payment.

How much would the discount rate have to be?

[(4 Marks) Nov 2004]

Answer

Interest @ 24% p.a. for a period of 30 days (year 365 days) = 0.24 × $^{30}/_{365}$

= 0.019726 i.e. 1.9726%

Hence, the principal of ₹1 including the interest after 30 days will become 1.019726.

Hence, discount which can be offered to receivables as on zero date = 1 - 0.980656
= ***0.019344 i.e. 1.93%.***

PYQ 9

A company has sales of ₹25,00,000. Average collection period is 50 days, bad debt losses are 5% of sales and collection expenses are ₹25,000. The cost of funds is 15%. The company has two alternative collection programs:

	Programme I	***Programme II***
Average collection period reduced to	40 days	30 days
Bad debt losses reduced to	4% of sales	3% of sales
Collection expenses	₹50,000	₹80,000

Evaluate which programme is viable.

[(6 Marks) May 2006]

Answer

Statement of Evaluation

Particulars	***Current 50 days***	***Program 1 40 days***	***Program 2 30 days***
Sales	25,00,000	25,00,000	25,00,000
Cost of investment in Debtors	51,370	41,096	30,822
Bad debt losses	1,25,000	1,00,000	75,000
Collection expenses	25,000	50,000	80,000
Cost of credit	***2,01,370***	***1,91,096***	***1,85,822***

Analysis: The Proposed Policy II should be adopted since the total costs under this policy is least as compared to other policies.

Note: In absence of Cost of Sales, sales has been taken for purpose of calculating cost of investment in debtors.

Working Notes:
Calculation of cost of investment in debtors:

Existing	=	25,00,000 × $^{50}/_{365}$ × 15%	=	***51,370***
Program 1	=	25,00,000 × $^{40}/_{365}$ × 15%	=	***41,096***
Program 2	=	25,00,000 × $^{30}/_{365}$ × 15%	=	***30,822***

PYQ 10

The sales manager of AB Limited suggests that if credit period is given for 1.5 months then sales may likely to increases by ₹1,20,000 per annum. Cost of sales amounted to 90% of sales. The risk of non payment is 5%. Income tax rate is 30%. The expected return on investment is ₹3,375 (after tax).

Should the company accept the suggestion of sales manager? ***[(3 marks) May 2008]***

Answer

Statement of Evaluation

Particulars	***₹***
Increase in sales	1,20,000
Less: Cost of sales @ 90%	1,08,000
Profit before cost of credit	12,000
Less: Risk of non payments @ 5%	6,000
Expected PBT	***6,000***
Less: Tax @ 30%	1,800
Expected PAT	***4,200***
Less: Required return after tax	3,375
Net Benefit	***825***

Conclusion:

Since company has positive benefit after fulfill of required return from investment in debtors, Suggestion of the sales manager should be accepted.

PYQ 11

A firm has a total sales of ₹12,00,000 and its average collection period is 90 days. The past experience indicates that bad debt losses are 1.5% on sale. The expenditure incurred by the firm in administering receivable collection effort are ₹50,000.

A factor is prepared to buy the firm's receivables by charging 2% commission. The factor will pay advance on receivables to this firm at an interest rate of 16% p.a. after withholding 10% as reserve.

Calculate effective cost of factoring to the firm. Assume 360 days in a year.

[(8 Marks) May 2009]

Answer

Statement of Effective Cost of Factoring to the Firm

Particulars	₹
(A) Cost of factoring:	
Factoring commission (12,00,000 × 2%)	24,000
Interest charges (10,560 × $^{360\ Days}/_{90\ Days}$)	42,240
Total (A)	**66,240**
(B) Savings:	
Saving in credit administration cost	50,000
Saving in bad debts (1.5% of 12,00,000)	18,000
Total (B)	**68,000**
Net Benefit to firm (B - A)	**1,760**

Calculation of advance

Particulars	₹
Average receivables (12,00,000 × $^{90}/_{360}$)	3,00,000
Less: Factor reserve @ 10% of 3,00,000	30,000
Maximum possible advance	2,70,000
Less: Commission @ 2% of 3,00,000	6,000
Amount available for advance	2,64,000
Less: Interest (2,64,000 × 16% × $^{90}/_{360}$)	10,560
Amount of advance	**2,53,440**

Conclusion: Since company has positive benefit, it is suggested to enter into factoring agreement.

PYQ 12

RST 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 ₹225 lakhs and accounts receivable turnover ratio of 5 times a year. The current level of loss due to bad debts is ₹7,50,000. The firm is required to give a return of 20% on the investment in new accounts receivables. The Company's variable costs are 60% of the selling price.

On the basis of the following information, which is better option?

Particulars	Present	Option I	Option II
Annual credit sales (₹)	2,25,00,000	2,75,00,000	3,50,00,000
Accounts receivables turnover ratio	5 times	4 times	3 times
Bad debt losses (₹)	7,50,000	22,50,000	47,50,000

[(8 Marks) Nov 2010]

Answer

Statement of Evaluation of Credit Policies (in Lakhs)

Particulars	Present	Option 1	Option 2

Credit sales	225.00	275.00	350.00
Less: Variable cost @ 60%	135.00	165.00	210.00
Profit before bad debt losses	90.00	110.00	140.00
Less: Bad debt losses	7.50	22.50	47.50
Expected Profit	***82.50***	***87.50***	***92.50***
Less: Required return on investment (Variable cost × 1/DTR × 20%)	5.40	8.25	14.00
Net Benefit	***77.10***	***79.25***	***78.50***

Recommendation: The Proposed Policy I should be adopted since the net benefits under this policy are higher than those under other policies.

Note: In the above solution, investment in accounts receivable is based on total cost of goods sold on credit. Since fixed costs are not given in the problem, therefore, it is assumed that there are no fixed costs and investment in receivables is determined with reference to variable costs only. The above solution may alternatively be worked out on the basis of incremental approach. However, the recommendation would remain the same.

PYQ 13

The marketing manager of XY Ltd. is giving a proposal to the board of directors of the company that an increase in credit period allowed to customers from the present one month to two months will bring a 25% increase in sales volume in the next year.

The following operational data of the company for the current year are taken from the records of the company:

Selling price	₹21 per unit
Variable cost	₹14 per unit
Total cost	₹18 per unit
Sales value	₹18,90,000

The board, by forwarding the above proposal and data requests you to give your expert opinion on the adoption of the new credit policy in next year subject to a condition that the company's required rate of return on investments is 40%.

[(8 Marks) May 2011]

Answer

Statement of Evaluation

Particulars	***Policies***	
	Present	***Proposed***
Sales units	***90,000***	***1,12,500***
Sales value @ ₹21 per unit	18,90,000	23,62,500
Less: Variable cost @ ₹14 per unit	12,60,000	15,75,000
Less: Fixed Cost (90,000 × ₹4)	3,60,000	3,60,000
Expected profit	***2,70,000***	***4,27,500***
Less: Required return (WN)	54,000	1,29,000
Net Benefit	***2,16,000***	***2,98,500***

Analysis:

The proposal for a more liberal extension of credit by increasing the average collection period from one month to two months is suggested to adopt.

Working notes:

Calculation of required return on investment in cost of debtors:

Existing = (12,60,000 + 3,60,000) × $^{1}/_{12}$ × 40% = ***54,000***

Proposed = (15,75,000 + 3,60,000) × $^{2}/_{12}$ × 40% = ***1,29,000***

PYQ 14

A new customer with 10% risk of non-payment desires to establish business connection with you. He would require 1.5 month of credit and is likely to increase you sales by ₹1,20,000 p.a. Cost of sales amounted to 85% of sales. The tax rate is 30%. Required rate of return is 40% (after tax).

Should you accept the offer?

[(4 Marks) Nov 2011]

Answer

Statement of Evaluation

Particulars	*₹*
Increase in sales	1,20,000
Less: Cost of sales @ 85%	1,02,000
	18,000
Less: Expected bad debts loss (10% on sales)	12,000
Expected PBT	***6,000***
Less: Tax @ 30%	1,800
Expected PAT	***4,200***
Less: Required return after tax (1,02,000 × $^{1.5}/_{12}$ × 40%)	5,100
Net benefit (after tax)	***(900)***

Conclusion: Since company has negative benefit after tax ,offer should be rejected.

PYQ 15

A company is presently having credit sales of ₹12,00,000. The existing credit terms are $^{1}/_{10}$ net 45 days and average collection period is 30 days. The current bad debts loss is 1.5%.

In order to accelerate the collection process further as also to increase sales, the company is contemplating liberalization of its existing credit terms to $^{2}/_{10}$ net 45 days.

It is expected that sales are likely to increase $^{1}/_{3}$ of existing sales, bad debts increase to 2% of sales and average collection period to decline to 20 days.

The contribution to sales ratio of the company is 22% and opportunity cost of investment in receivables is 15 percent (pre tax). 50 percent and 80 percent of customers in term of sales revenue are expected to avail cash discount under existing and liberalisation scheme respectively. The tax rate is 30%.

Should the company change its credit terms? (Assume 360 days in a year).

[(5 Marks) May 2012]

Answer

Statement of Evaluation

Particulars	*Policies*	
	Present	*Proposed*
Sales value	12,00,000	16,00,000
Less: Variable cost @ 78%	9,36,000	12,48,000
Contribution @ 22%	2,64,000	3,52,000
Less: Bad debts	18,000	32,000
Less: Cash discount (WN)	6,000	25,600
Expected Profit	***2,40,000***	***2,94,400***
Less: Opportunity cost of investment in receivables (WN)	11,700	10,400
Net Benefit Before Tax	***2,28,300***	***2,84,000***
Less: Tax @ 30%	68,490	85,200
Net Benefit After Tax	***1,59,810***	***1,98,800***

Advise: Company should change its credit terms having higher net benefit.

Working notes:

(1) Calculation of opportunity cost of investment in receivables:

Existing	=	9,36,000 × 15% × $^{30}/_{360}$	=	***11,700***
Proposed	=	12,48,000 × 15% × $^{20}/_{360}$	=	***10,400***

(2) Calculation of cash discount:

Existing	=	12,00,000 × 50% × 1%	=	***6,000***
Proposed	=	16,00,000 × 80% × 2%	=	***25,600***

PYQ 16

PTX Limited is considering a change in its present credit policy. Currently it is evaluating two policies. The company is required to give a return of 20% on the investment in new receivables. The company's variable costs are 70% of selling price.

Information regarding present and proposed policies are as follows:

Particulars	***Policies***		
	Present	***Option 1***	***Option 2***
Annual credit sales	₹30,00,000	₹42,00,000	₹45,00,000
Debtors turnover ratio	4 times	3 times	2.4 times
Loss due to bad debts	3% of sales	5% of sales	6% of sales

Note: Return on investment in new account receivable is based on cost of investment in debtors.

Which option would you recommend?

[(Marks 8) Nov 13]

Answer

Statement of Evaluation

Particulars	***Existing***	***Option 1***	***Option 2***
Credit sales	30,00,000	42,00,000	45,00,000
Less: Variable cost @ 70%	21,00,000	29,40,000	31,50,000
Profit before bad debt losses	9,00,000	12,60,000	13,50,000
Less: Bad debt losses	90,000	2,10,000	2,70,000
Expected Profit	***8,10,000***	***10,50,000***	***10,80,000***
Less: Required return on investment 'WN' (Variable cost × 1/DTR × 20%)	1,05,000	1,96,000	2,62,500
Net Benefit	***7,05,000***	***8,54,000***	***8,17,500***

Recommendation: PTX Limited is advised to adopt Policy Option 1.

Note: In the above solution, investment in accounts receivable is based on total cost of goods sold on credit. Since fixed costs are not given in the problem, therefore, it is assumed that there are no fixed costs and investment in receivables is determined with reference to variable costs only. The above solution may alternatively be worked out on the basis of incremental approach. However, the recommendation would remain the same.

PYQ 17

PQR Ltd. having annual sales of ₹30,00,000, is re considering its present collection policy. At present the average collection period is 50 days, bad debt losses are 5% of sales. The company is incurring an expenditure of ₹30,000 on account of collection of receivables. Cost of funds is 10 percent.

The alternative policies are:

	Alternative I	***Alternative II***
Average collection period reduced to	40 days	30 days
Bad debt losses	4% of sales	3% of sales
Collection expenses	₹60,000	₹95,000

Evaluate the alternatives on the basis of incremental approach and state which alternative is more beneficial. ***[(8 Marks) Nov 2014]***

Answer

Statement of Evaluation

Particulars	Current	Alternate 1	Alternate 2
Sales	30,00,000	30,00,000	30,00,000
Cost of investment in Debtors	41,096	32,877	24,658
1. Saving in cost in Debtors	-	8,219	16,438
Bad debt losses	1,50,000	1,20,000	90,000
2. Saving in Bad debt losses	-	30,000	60,000
Collection expenses	30,000	60,000	95,000
3. Increase in collection expenses	-	30,000	65,000
Incremental Benefit (1 + 2 - 3)	***-***	***8,219***	***11,438***

Analysis: Since incremental benefit over present policy is higher in case of alternative II, select Alternative II. It is suggested to reduce the collection period from existing 50 days to 30 days.

Working Notes:

Calculation of cost of investment in debtors:

Existing	=	$30,00,000 \times {}^{50}/_{365} \times 10\%$	=	***41,096***
Alternative I	=	$30,00,000 \times {}^{40}/_{365} \times 10\%$	=	***32,877***
Alternative II	=	$30,00,000 \times {}^{30}/_{365} \times 10\%$	=	***24,658***

Note: In absence of Cost of Sales, sales has been taken for purpose of calculating investment in receivables.

PYQ 18

A new customer has approached a firm to establish new business connection. The customer require 1.5 month of credit. If the proposal is accepted, the sales of the firm will go up by ₹2,40,000 per annum. The new customer is being considered as a member of 10% risk of non-payment group.

The cost of sales amounted to 80% of sales. The tax rate is 30% and required rate of return is 40% (after tax).

Should the firm accept the offer? Give your opinion on the basis of calculations.

[(5 Marks) May 2015]

Answer

Statement of Evaluation

Particulars	₹
Increase in sales	2,40,000
Less: Cost of sales @ 80%	1,92,000
Profit before cost of credit	48,000
Less: Risk of non payments @ 10%	24,000
Expected PBT	***24,000***
Less: Tax @ 30%	7,200
Expected PAT	***16,800***
Less: Required return after tax (WN)	9,600
Net Benefit (After Tax)	***7,200***

Conclusion: Since company has positive benefit after fulfill of required return from investment in debtors, offer should be accepted.

Working notes:

Calculation of cost of investment in debtors:

Existing	=	$1,92,000 \times {}^{1.5}/_{12} \times 40\%$	=	***9,600***

PYQ 19

A firm has total sales as ₹200 lakhs of which 80% is on credit. It is offering credit term of 2/40, net 120. Of the total, 50% of customers avail of discount and the balance pay in 120 days. Past experience indicates that bad debt losses are around 1% of credit sales. The firm spends about ₹2,40,000 per annum to administer its credit

sales. These are avoidable as a factor is prepared to buy the firm's receivables. He will charge 2% commission. He will pay advance against receivables to the firm at an interest rate of 18% after withholding 10% as reserve.

(i) What is the effective cost of factoring? Consider year as 360 days.

(ii) If bank finance for working capital is available at 14% interest, should the firm avail of factoring service?

[(8 Marks) Nov 2015]

Answer

(i) Statement of Effective Cost of Factoring to the Firm

Particulars	*₹*
(1) Cost of factoring:	
Factoring commission (₹71,111 × $^{360\ Days}/_{80\ Days}$)	3,20,000
Interest charges (₹31,28,889 × 18%)	5,63,200
Total (A)	***8,83,200***
(2) Savings:	
Saving in credit administration cost	2,40,000
Saving in bad debts (1% × 80% × ₹2,00 Lakhs)	1,60,000
Total (B)	***4,00,000***
Effective cost of factoring (A - B)	***4,83,200***
Rate of effective cost $\left(\frac{4,83,200}{30,03,733}\times 100\right)$	***16.09%***

Alternatively:

If cost of factoring is calculated on the basis of total amount available for advance, then, it will be

Rate of effective cost = $\left(\frac{4,83,200}{31,28,889}\times 100\right)$ = ***15.44%***

Working Notes:

1. Calculation of advance:

Particulars	*₹*
Average receivables (₹200 Lakhs × 80% × $^{80}/_{360}$)	35,55,556
Less: Factor reserve @ 10% of ₹35,55,556	3,55,556
Maximum possible advance	32,00,000
Less: Commission @ 2% of ₹35,55,556	71,111
Amount available for advance	31,28,889
Less: Interest (₹31,28,889 × 18% × $^{80}/_{360}$)	1,25,156
Amount of advance	***30,03,733***

2. Average collection period = 40 Days × ½ + 120 Days × ½ = 80 Days

(ii) If bank finance for working capital is available at 14%, firm will not avail factoring services as 14% is less than 16.08% (or 15.44%).

PYQ 20

A trader whose current sales are ₹4,20,000 per annum and an average collection period of 30 days, wants to pursue a more liberal policy to improve sales. A study made by a management consultant reveals the following information:

Credit Policy	*Increase in Collection Period*	*Increase in Sales*	*Present default anticipated*
I	10 days	₹21,000	1.5%
II	30 days	₹52,500	3%
III	45 days	₹63,000	4%

The selling price per unit is ₹3. Average cost per unit is ₹2.25 and variable cost per unit is ₹2. The current bad-debts loss is 1%. Required return on additional investment is 20%. Assume a 360 days year.

Which of the above policies would you recommend for adoption?

[(8 Marks) May 2016]

Answer

Statement of Evaluation of Credit Policies

Particulars	Present	I	II	III
No of units	1,40,000	1,47,000	1,57,500	1,61,000
Credit sales @ ₹3 per unit	4,20,000	4,41,000	4,72,500	4,83,000
Less: Variable cost @ ₹2 per unit	2,80,000	2,94,000	3,15,000	3,22,000
Less: Fixed cost (2.25 - 2) × 1,40,000	35000	35,000	35,000	35,000
Profit before bad debt losses	1,05,000	1,12,000	1,22,500	1,26,000
Less: Bad debt losses	4,200	6,615	14,175	19,320
Expected Profit	***1,00,800***	***1,05,385***	***1,08,325***	***1,06,680***
Less: Required return on investment	5,250	7,311	11,667	14,875
Net Benefit	***95,550***	***98,074***	***96,658***	***91,805***

Recommendation: Proposed Policy I (i.e. increase in collection period by 10 days or total 40 days) should be adopted since the net benefits under this policy are higher as compared to other policies.

Working notes:

Calculation of cost required rate of return:

$$\text{Required rate of return} = \text{Total cost} \times \frac{\text{Collection Period}}{360\,\text{Days}} \times \text{Rate of return}$$

$$\text{Existing} = 3{,}15{,}000 \times \frac{30}{360\ \text{Days}} \times 20\% = \textbf{5,250}$$

$$\text{Credit Policy I} = 3{,}29{,}000 \times \frac{40}{360\ \text{Days}} \times 20\% = \textbf{7,311}$$

$$\text{Credit Policy II} = 3{,}50{,}000 \times \frac{60}{360\ \text{Days}} \times 20\% = \textbf{11,667}$$

$$\text{Credit Policy III} = 3{,}57{,}000 \times \frac{75}{360\ \text{Days}} \times 20\% = \textbf{14,875}$$

PYQ 21

A current credit sales of a firm is ₹15,00,000 and the firm still has an unutilized capacity. In order to boost its sales, the firm is willing to relax its credit policy.

The firm proposes a new credit policy of 2/10 net 60 days as against the present policy of 1/10 net 45 days. The firm expects an increase in the sales by 12%. However, it is also expected that bad debts will go upto 2% of sales from 1.5%.

The contribution to sales ratio of the firm is 28%. The firm's tax rate is 30% and firm requires an after tax return of 15% on its investment. 50 percent and 80 percent of customers in term of sales revenue are expected to avail cash discount under existing and liberalization scheme respectively.

Should the firm change its credit period?

[(8 Marks) Nov 2017]

Answer

Statement of Evaluation

Particulars	Policies	
	Present	Proposed
Sales value	15,00,000	16,80,000
Less: Variable cost @ 72% of sales	10,80,000	12,09,600
Profit before cost of credit	4,20,000	4,70,400
Less: Bad debts @ 1.5% / 2%	22,500	33,600
Less: Cash Discount 'WN'	7,500	26,880

Expected PBT	***3,90,000***	***4,09,920***
Less: Tax @ 30%	1,17,000	1,22,976
Expected PAT	***2,73,000***	***2,86,944***
Less: Cost of investment in debtors 'WN'	12,205	9,942
Net benefit after tax	***2,60,795***	***2,77,002***

Yes, the firm should change its credit period.

Working notes:

1. Calculation of opportunity cost of investment in receivables:

Existing	=	10,80,000 × 15% × 27.5 (.5×10+.5×45)/365	=	***12,205***
Proposed	=	12,09,600 × 15% × 20 (.8×10+.2×60)/365	=	***9,942***

2. Calculation of cash discount:

Existing	=	15,00,000 × 50% × 1%	=	***7,500***
Proposed	=	16,80,000 × 80% × 2%	=	***26,880***

PYQ 22

A company is considering to engage a factor. The following information is available:

- The current average collection period for the company's debtors is 90 days and ½% of debtors default. The factor has agreed to pay money due after 60 days, and will take the responsibility of any loss on account of bad debts.
- The annual charge for the factoring is 2% of turnover. Administration cost saving is likely to be ₹1,00,000 per annum.
- Annual credit sales are ₹1,20,00,000. Variable costs is 80% of sales price. The company's cost of borrowings is 15% per annum. Assume 360 days in a year.

Should the company enter into a factoring agreement?

[(8 Marks) May 2018]

Answer

Statement of Evaluation

Particulars	***₹***
(A) Savings:	
Saving in administration cost	1,00,000
Saving in bad debts (0.5% of 1,20,00,000)	60,000
*Saving in cost of debtors (1,20,00,000 × 80% × $^{90-60}/_{360}$ × 15%)	1,20,000
Total (A)	***2,80,000***
(B) Cost:	
Annual charges (2% of 1,20,00,000)	2,40,000
Total (B)	***2,40,000***
Net Benefit (A -B)	***40,000***

*Presently, the debtors of the company pay after 90 days. However, the factor has agreed to pay after 60 days only. So, the investment in Debtors will be reduced by 30 days.

Conclusion: Yes, company should enter into factoring agreement.

PYQ 23

MN Ltd has a current turnover of ₹30,00,000 p.a. Cost of sale is 80% of turnover and bad debts are 2% of turnover. Cost of sales includes 70% Variable cost and 30% Fixed cost, while company's required rate of return is 15%. MN Ltd. currently allows 15 days credit to its customer, but it is considering increase this to 45 days credit in order to increase turnover.

It has been estimated that this change in policy will increase turnover by 20%, while bad debts will increase by 1%. It is not expected that the policy change will result in an increase in fixed cost and creditors

and stock will be unchanged.

Should MN Ltd introduce the proposed policy? (Assume 360 days year)

[(10 Marks) Nov 2018]

Answer

Statement of Evaluation

Particulars	*Policies*	
	Present	*Proposed*
Sales value	30,00,000	36,00,000
Less: Variable cost 70% of 80% of sales	16,80,000	20,16,000
Less: Fixed cost (30% of 80% of current sales 30,00,000)	7,20,000	7,20,000
Profit before cost of credit	6,00,000	8,64,000
Less: Bad debts @ 2%/3%	60,000	1,08,000
Expected Profit	***5,40,000***	***7,56,000***
Less: Required return	15,000	51,300
Net Benefit	***5,25,000***	***7,04,700***

Yes, the firm should change its credit period.

Working Notes:

Calculation of required return in debtors:

Existing = (16,80,000 + 7,20,000) × $^{15}/_{360}$ × 15% = ***15,000***

Proposed = (20,16,000 + 7,20,000) × $^{45}/_{360}$ × 15% = ***51,300***

PYQ 24

Current annual sales of SKD Ltd. ₹360 Lakhs. It's directors are of the opinion that company's current expenditure on receivables management is too high and with a view to reduce the expenditure they are considering following two new alternate credit policies:

	Policy X	*Policy Y*
Average collection period	1.5 months	1 month
% of default	2%	1%
Annual collection expenditure	₹12 Lakhs	₹20 lakhs

Selling price per unit of product is ₹150. Total cost per unit is ₹120. Current credit terms are 2 months and percentage of default is 3%. Current annual collection expenditure is ₹8 Lakhs. Required rate of return on investment of SKD Ltd. is 20%.

Determine which credit policy SKD Ltd. should follow.

[(5 Marks) July 2021]

Answer

Statement of Evaluation of Credit Policies

Particulars	*Current Policy*	*Policy X*	*Policy Y*
Sales Units (3,60,00,000 ÷ ₹150)	2,40,000	2,40,000	2,40,000
Sales value	3,60,00,000	3,60,00,000	3,60,00,000
Less: Cost @ ₹120 per units	2,88,00,000	2,88,00,000	2,88,00,000
Profit before cost of credit	72,00,000	72,00,000	72,00,000
Less: Bad debts @ 3%/2%/1%	10,80,000	7,20,000	3,60,000
Less: Annual Collection Expenses	8,00,000	12,00,000	20,00,000
Expected Profit	53,20,000	52,80,000	48,40,000
Less: Cost of investment in debtors	9,60,000	7,20,000	4,80,000
Net Benefit	43,60,000	45,60,000	43,60,000

Recommendation: The proposed policy X should be adopted having higher net benefit.

Working Notes:

Calculation of cost of investment in debtors:

Current policy	=	3,60,00,000 × 80% × $^{2}/_{12}$ × 20%	=	***9,60,000***
Policy X	=	3,60,00,000 × 80% × $^{1.5}/_{12}$ × 20%	=	***7,20,000***
Policy Y	=	3,60,00,000 × 80% × $^{1}/_{12}$ × 20%	=	***4,80,000***

PYQ 25

A factoring firm has offered a to buy it's accounts receivables. The relevant information is given below.

(a) The current average collection period for the company's debts is 80 days and ½% of debtors default. The factor has agreed to pay over money due, to the company after 60 days, and it will suffer losses of any bad debts also.

(b) Factor will charge commission @2%.

(c) The company spends ₹1,00,000 p.a. on administration of debtor. These are avoidable cost.

(d) Annual credit sales are ₹90,00,000. Total variable costs is 80% of sales. The company's cost of borrowings is 15% per annum. Assume 365 days in a year.

Should the company enter into a factoring agreement?

[(5 Marks) Dec 2021]

Answer

Statement of Evaluation

Particulars	***₹***
(A) Savings:	
Saving in administration cost	1,00,000
Saving in bad debts (0.5% of 90,00,000)	45,000
*Saving in cost of debtors (90,00,000 × 80% × $^{80-60}/_{365}$ × 15%)	59178
Total (A)	***2,04,178***
(B) Cost:	
Annual charges (2% of 90,00,000)	1,80,000
Total (B)	***1,80,000***
Net Benefit (A - B)	***24,178***

*Presently, the debtors of the company pay after 80 days. However, the factor has agreed to pay after 60 days only. So, the investment in Debtors will be reduced by 20 days.

Conclusion: Yes, company should enter into factoring agreement.

PYQ 26

A company has current sale of ₹12 lakhs per year. The profit-volume ratio is 20% and post-tax cost of investment in receivables is 15%. The current credit terms are 1/10, net 50 days and average collection period is 40 days. 50% of customers in terms of sales revenue are availing cash discount and bad debt is 2% of sales.

In order to increase sales, the company want to liberalize its existing credit terms to 2/10, net 35 days. Due to which, expected sales will increase to ₹15 lakhs. Percentage of default in sales will remain same. Average collection period will decrease by 10 days. 80% of customers in terms of sales revenue are expected to avail cash discount under this proposed policy. Tax rate is 30%.

Advise, should the company change its credit terms. (Assume 360 days in a year.)

[(5 Marks) May 23]

Answer

Statement of Evaluation

Particulars	***Policies***	
	Present	***Proposed***
Sales value	12,00,000	15,00,000
Less: Variable cost @ 80%	9,60,000	12,00,000

Contribution @ 20%	2,40,000	3,00,000
Less: Bad debts @ 2% of sales	24,000	30,000
Less: Cash discount (WN)	6,000	24,000
Expected Profit Before Tax	***2,10,000***	***2,46,000***
Less: Tax @ 30%	63,000	73,800
Expected Profit After Tax	***1,47,000***	***1,72,200***
Less: Cost of investment (WN)	16,000	15,000
Net Benefit After Tax	***1,31,000***	***1,57,200***

Advise: Company should change its credit terms having higher net benefit after tax.

Working notes:

(3) Calculation of Cost of investment:

Existing	=	9,60,000 × 15% × $^{40}/_{360}$	=	***16,000***
Proposed	=	12,00,000 × 15% × $^{30}/_{360}$	=	***15,000***

(4) Calculation of cash discount:

Existing	=	12,00,000 × 50% × 1%	=	***6,000***
Proposed	=	15,00,000 × 80% × 2%	=	***24,000***

SUGGESTED REVISION

Ques. No.	Observations or KEY Points (Note down during revisions)	Page No. of Practical Register	1st & 2nd Revision	3rd, 4th & 5th Revision	Revision during Exams
BQ (Book Questions covering Study Module of ICAI, PM, RTP's, MTP's and Important Questions)					
1			Y	-	-
2			Y	Y	-
3			Y	Y	-
4			Y	Y	-
5			Y	Y	Y
6			Y	Y	Y
7			Y	Y	Y
8			Y	Y	Y
9			Y	Y	Y
10			Y	-	-
11			Y	Y	Y
12			Y	Y	-
13			Y	Y	Y
14			Y	Y	Y
15			Y	Y	Y
16			Y	-	-
17			Y	Y	Y
18			Y	Y	-
19			Y	Y	Y
20			Y	Y	-
21			Y	Y	-
22			Y	Y	-
PYQ (Past Year Questions)					
1			Y	Y	Y
2			Y	-	-
3			Y	Y	-
4			Y	Y	-
5			Y	-	-
6			Y	Y	-
7			Y	Y	-
8			Y	Y	Y
9			Y	Y	Y
10			Y	Y	-
11			Y	Y	Y
12			Y	-	-
13			Y	-	-
14			Y	-	-
15			Y	Y	Y
16			Y	Y	-
17			Y	Y	Y
18			Y	Y	-
19			Y	Y	Y
20			Y	Y	-
21			Y	-	-
22			Y	Y	Y
23			Y	Y	-
24			Y	Y	-
25			Y	Y	-
26			Y	Y	-

CHAPTER - 4

MANAGEMENT OF WORKING CAPITAL

LEARNING OBJECTIVES

After studying this chapter you will be able to:

- ***Discuss in details about working capital management, its meanings and its significance to any business/firm.***
- ***Understand the concept of operating cycle and the estimation of working capital needs.***
- ***Understand the need for a business to invest in current assets.***
- ***Know why it is important to manage efficiently the current assets and current liabilities?***
- ***Discuss the financing of working capital.***

OPERATING OR WORKING CAPITAL CYCLE METHOD

BQ 1

ABC Ltd. expects its cost of goods for 2022 - 23 to be ₹600 lakhs. The expected operating cycle is 90 days. It wants to keep minimum cash balance of ₹1,00,000.

What is the expected working capital requirement (assume 360 days in a year)?

[₹1,51,00,000]

BQ 2

From the following information of XYZ Ltd., you are required to calculate:

(a) Net operating cycle period.
(b) Number of operating cycles in a year.

Raw material inventory consumed during the year	₹6,00,000
Average stock of raw material	₹50,000
Annual cost of production	₹5,00,000
Average work-in-progress inventory	₹30,000
Annual cost of goods sold	₹8,00,000
Average finished goods stock held	₹40,000
Average collection period from debtors	45 days
Average credit period availed	30 days
No. of days in a year	360 days

Answer

(a) Operating cycle = ***R + W + F + D – C***

= 30 + 22 + 18 + 45 – 30 = ***85 Days***

Calculations:

Raw materials storage period (R) = $\frac{\text{Average stock of raw materials}}{\text{Average cost of raw materials consumption per day}}$

= $\frac{50,000}{6,00,000 \div 360}$ = ***30 days***

WIP holding period = $\frac{\text{Average stock of WIP}}{\text{Average cost of production per day}}$

= $\frac{30,000}{5,00,000 \div 360}$ = ***22 days***

Finished Goods storage period = $\frac{\text{Average stock of FG}}{\text{Average cost of goods sold per day}}$

= $\frac{40,000}{8,00,000 \div 360}$ = ***18 days***

(b) Number of operating cycles in the year:

$\frac{360}{\text{Operating cycle period}}$ = $\frac{360}{85}$ = ***4.24 times***

BQ 3

Following information is forecasted by the CS Limited for the year ending 31st March 2023:

	Bal as at 01.04.22	***Bal as at 31.03.23***
Raw Material	45,000	65,356
Work-in-process	35,000	51,300

Finished goods	60,161	70,175
Receivables	1,12,123	1,35,000
Payables	50,079	70,469
Annual purchases of raw materials (all credit)	4,00,000	
Annual cost of production	7,50,000	
Annual cost of goods sold	9,15,000	
Annual operating cost	9,50,000	
Sales (all credit)	11,00,000	

You may take one year as equal to 365 days

You are required to calculate:

(i) Net operating cycle period.
(ii) Number of operating cycles in the year.
(iii) Amount of working capital requirement.

Answer

(i) Operating cycle = ***R + W + F + D – C***

= 53 + 21 + 26 + 41 – 55 = ***86 Days***

Calculations:

Raw materials storage period (R) = $\frac{\text{Average stock of raw materials}}{\text{Average cost of raw materials consumption per day}}$

= $\frac{55,178}{3,79,644 \div 365}$ = ***53 days***

Raw materials consumption = Opening RM + Purchases – Closing RM

= 45,000 + 4,00,000 – 65,356 = ***3,79,644***

WIP holding period = $\frac{\text{Average stock of WIP}}{\text{Average cost of production per day}}$

= $\frac{43,150}{7,50,000 \div 365}$ = ***21 days***

Finished Goods storage period = $\frac{\text{Average stock of FG}}{\text{Average cost of goods sold per day}}$

= $\frac{65,178}{9,15,000 \div 365}$ = ***26 days***

Debtors collection period = $\frac{\text{Average book debts}}{\text{Average credit sales per day}}$

= $\frac{1,23,562}{11,00,000 \div 365}$ = ***41 days***

Credit period availed = $\frac{\text{Average trade creditors}}{\text{Average credit purchases per day}}$

= $\frac{60,274}{4,00,000 \div 365}$ = ***55 days***

Calculation of averages:

1.	Average stock of raw materials	=	(45,000 + 65,356) ÷ 2	=	55,178
2.	Average stock of WIP	=	(35,000 + 51,300) ÷ 2	=	43,150
3.	Average stock of FG	=	(60,181 + 70,175) ÷ 2	=	65,178
4.	Average receivables	=	(1,12,123 + 1,35,000) ÷ 2	=	1,23,562
5.	Average payables	=	(50,079 + 70,469) ÷ 2	=	60,274

(ii) Number of operating cycles in the year:

$$\frac{365}{\text{Operating cycle period}} = \frac{365}{86} = \textbf{4.244 times}$$

(iii) Amount of working capital required:

$$\frac{\text{Annual operating cost}}{\text{Number of operating cycles}} = \frac{9,50,000}{4.244} = \textbf{₹2,23,845} \quad \textbf{Or}$$

$$\frac{\text{Annual operating cost}}{365} \times \text{Operating cycle period} = \frac{9,50,000}{365} \times 86 = \textbf{₹2,23,836}$$

BQ 4

Following information is forecasted by R Limited for the year ending 31st March, 2023:

	Balance as at 31.03.23 (₹ in Lakh)	Balance as at 31.03.22 (₹ in Lakh)
Raw Material	65	45
Work-in-process	51	35
Finished goods	70	60
Receivables	135	112
Payables	71	68
Annual purchases of raw materials (all credit)	400	
Annual cost of production	450	
Annual cost of goods sold	525	
Annual operating cost	325	
Sales (all credit)	585	

You may take one year as equal to 365 days

You are required to calculate:

(i) Net operating cycle period.
(ii) Number of operating cycles in the year.
(iii) Amount of working capital requirement.

Answer

(i) Operating cycle = ***R + W + F + D – C***
= 53 + 35 + 45 + 77 – 63 = ***147 Days***

(ii) Number of operating cycles in the year:

$$\frac{365}{\text{Operating cycle period}} = \frac{365}{147} = \textbf{2.48 times}$$

(iii) Amount of working capital required:

$$\frac{\text{Annual operating cost}}{\text{Number of operating cycles}} = \frac{325 \text{ Lakhs}}{2.48} = \textbf{₹131 Lakhs}$$

Calculations:

Raw materials storage period (R) = $\frac{\text{Average stock of raw materials}}{\text{Average cost of raw materials consumption per day}}$

$$= \frac{55}{380 \div 365} = \textbf{53 days}$$

Raw materials consumption = Opening RM + Purchases – Closing RM
= 45 + 400 – 65 = ***380***

WIP holding period = $\frac{\text{Average stock of WIP}}{\text{Average cost of production per day}}$

$$= \frac{43}{450 \div 365} = \textbf{35 days}$$

Finished Goods storage period $= \frac{\text{Average stock of FG}}{\text{Average cost of goods sold per day}}$

$$= \frac{65}{525 \div 365} = \textbf{45 days}$$

Debtors collection period $= \frac{\text{Average book debts}}{\text{Average credit sales per day}}$

$$= \frac{123.5}{585 \div 365} = \textbf{77 days}$$

Credit period availed $= \frac{\text{Average trade creditors}}{\text{Average credit purchases per day}}$

$$= \frac{69.5}{400 \div 365} = \textbf{63 days}$$

Calculation of averages:

1.	Average stock of raw materials	=	(45 + 65) ÷ 2	=	55
2.	Average stock of WIP	=	(35 + 51) ÷ 2	=	43
3.	Average stock of FG	=	(60 + 70) ÷ 2	=	65
4.	Average receivables	=	(112+ 135) ÷ 2	=	123.5
5.	Average payables	=	(68 + 71) ÷ 2	=	69.5

COMPONENTWISE ESTIMATION METHOD

BQ 5

A Company provided the following data:

	Cost per unit (₹)
Raw materials	₹52.00
Direct labour	₹19.50
Overheads	₹39.00
Total cost	₹110.50
Profit	₹19.50
Selling price	***₹130.00***

The following additional information is available:

Average raw materials in stock	:	one month;
Average materials in process	:	half-a-month;
Average finished goods in stock	:	one month;
Credit allowed by suppliers	:	one month;
Credit allowed to debtors	:	two months;
Time lag in payment of wages	:	one and a half weeks;
Time lag in payment of Overheads	:	one month;
Sales	:	25% on cash basis;
Expected cash balance	:	₹1,20,000.

You are required to prepare a statement showing the working capital needed to finance a level of activity of 70,000 units of annual output. The production is carried throughout the year on even basis and wages and overheads accrue similarly. (Calculation can be made on the basis of 30 days a month and 52 weeks a year).

[₹17,01,562]

Assumption: WIP: Material 100%, Wages & Overhead 50%.

BQ 6

On 1st January, the Managing Director of Naureen Ltd. wishes to know the amount of working capital that will be required during the year. From the following information prepare the working capital requirements forecast.

Production during the previous year was 60,000 units. It is planned that this level of activity would be maintained during the present year.

The expected ratios of the cost to selling prices are Raw materials 60%, Direct wages 10% and Overheads 20%.

Raw materials are expected to remain in store for an average of 2 months before issue to production. Each unit is expected to be in process for one month, the raw materials being fed into the pipeline immediately and the labour and overhead costs accruing evenly during the month. Finished goods will stay in the warehouse awaiting dispatch to customers for approximately 3 months. Credit allowed by creditors is 2 months from the date of delivery of raw material. Credit allowed to debtors is 3 months from the date of dispatch.

Selling price is ₹ 5 per unit. There is a regular production and sales cycle. Wages and overheads are paid on the 1st of each month for the previous month. The company normally keeps cash in hand to the extent of ₹ 20,000.

You are required to prepare the forecast statement. The finance manager is particularly interested in applying the quantitative techniques for forecasting the working capital needs of the company.

Answer

Statement of Working Capital Requirement

Particulars		***₹***
(A) Current Assets:		
Raw materials (1,80,000 × $^{2}/_{12}$)		30,000
Work in progress:		
Material	(1,80,000 × 100% × $^{1}/_{12}$)	15,000
Labour and Overheads	(30,000 + 60,000 × 50% × $^{1}/_{12}$)	3,750
Finished goods (2,70,000 × $^{3}/_{12}$)		67,500
Debtors (2,70,000 × $^{3}/_{12}$)		67,500
Cash		20,000
Total (A)		***2,03,750***
(B) Current Liabilities:		
Creditors (1,80,000 × $^{2}/_{12}$)		30,000
Outstanding labour (30,000 × $^{1}/_{12}$)		2,500
Outstanding overhead (60,000 × $^{1}/_{12}$)		5,000
Total (B)		***37,500***
Working Capital (A - B)		***1,66,250***

Working Notes:

Projected Income Statement

Particulars	***₹***
Raw materials (60,000 × 5 × 60%)	1,80,000
Direct Labour (60,000 × 5 × 10%)	30,000
Overheads including depreciation (60,000 × 5 × 20%)	60,000
Total cost	***2,70,000***
Profit (60,000 × 5 × 10%)	30,000
Sales (60,000 × 5)	***3,00,000***

BQ 7

The following annual figures relate to XYZ Co.

Sales (at 2 months' credit)	₹36,00,000
Materials consumed (suppliers extend two months' credit)	₹9,00,000
Wages paid (1 month lag in payment)	₹7,20,000

Cash Manufacturing expenses (1 month lag in payment)	₹9,60,000
Administrative expenses (cash 1 month lag in payment)	₹2,40,000
Sales promotion expenses (paid quarterly in advance)	₹1,20,000

The company sells its products on gross profit 25%. Depreciation is considered as a part of the cost of production. It keeps one month's stock each of raw materials and finished goods and a cash balance of ₹1,00,000. Assuming a 20% safety margin, ignore work-in-process.

Find out the requirements of working capital of the company on cash cost basis.

Answer

Statement of Working Capital Requirement (Cash Cost Basis)

Particulars	₹
(A) Current Assets:	
Raw Materials (9,00,000 × $^{1}/_{12}$)	75,000
Finished Goods (25,80,000 × $^{1}/_{12}$)	2,15,000
Debtors (29,40,000 × $^{2}/_{12}$)	4,90,000
Cash	1,00,000
Prepaid Sales Promotion Expenses (1,20,000 × $^{1}/_{4}$)	30,000
Total (A)	***9,10,000***
(B) Current Liabilities:	
Creditors (9,00,000 × $^{2}/_{12}$)	1,50,000
Outstanding labour (7,20,000 × $^{1}/_{12}$)	60,000
Outstanding Manufacturing Expenses (9,60,000 × $^{1}/_{12}$)	80,000
Outstanding Administrative Expenses (2,40,000 × $^{1}/_{12}$)	20,000
Total (B)	***3,10,000***
Working Capital Before Provision (A - B)	***6,00,000***
Add : Safety Margin @ 20% of 6,00,000	1,20,000
Working Capital	***7,20,000***

Working Notes:

Projected Income Statement (Cash Cost Basis)

Particulars	₹
Raw Materials	9,00,000
Wages	7,20,000
Manufacturing Expenses (in cash)	9,60,000
Cash Cost of Goods Sold	***25,80,000***
Administration Expenses (in cash)	2,40,000
Sales Promotion Expenses (in cash)	1,20,000
Cash Cost of Sales	***29,40,000***

MPBF AS PER (MR. P. L. TANDON'S) TANDON COMMITTEE (1974)

BQ 8

Calculate MPBF under the all three methods suggested by Tandon Committee on the basis of information given below:

Current assets (Inclusive 20% core current assets)	₹20,00,000
Current liabilities (Excluding bank finance)	₹5,00,000

Answer

Calculation of MPBF:

Method 1 = 75% (CA - CL) = 75% (20,00,000 – 5,00,000) = ***₹11,25,000***

Method 2 = (75% CA) – CL = (75% 20,00,000) – 5,00,000 = ***₹10,00,000***

Method 3 = (75% CA other than core CA) – CL

= 75% (20,00,000 – 20%) – 5,00,000 = ***₹7,00,000***

BQ 9

Calculate MPBF under the all three methods suggested by Tandon Committee on the basis of information given below:

Current assets	₹20,00,000
Core current assets	20% of CA
Current liabilities (Including ₹1,00,000 bank finance)	₹5,00,000

Answer

Calculation of MPBF:

Method 1	=	75% (CA - CL) =	75% (20,00,000 – 4,00,000)	=	**₹12,00,000**
Method 2	=	(75% CA) – CL =	(75% 20,00,000) – 4,00,000	=	**₹11,00,000**
Method 3	=	(75% CA other than core CA) – CL			
	=	75% (20,00,000 – 20%) – 4,00,000		=	**₹8,00,000**

Note: CL is taken excluding bank finance ₹1,00,000.

BQ 10

From the following data, calculate maximum permissible bank finance under the all three methods suggested by Tandon Committee:

Current Liabilities	₹ In Lakhs
Creditors	120
Other current liabilities	40
Bank borrowings	250
Total	**410**
Current Assets	**₹ In Lakhs**
Raw materials	180
Work-in-progress	60
Finished goods	100
Receivables	150
Other current assests	20
Total	**510**

The core current assets (CCA) are ₹200 Lakhs

Answer

Calculation of MPBF:

Method 1	=	75% (CA - CL) =	75% (510 – 160)	=	**₹262.50 Lakhs**
Method 2	=	(75% CA) – CL =	(75% 510) – 160	=	**₹222.50 Lakhs**
Method 3	=	(75% CA other than core CA) – CL			
	=	75% (510 – 200) – 160		=	**₹72.50 Lakhs**

Note: CL is taken excluding bank finance ₹250 Lakhs.

Note: As the firm, has already availed the bank loan of 250 lakhs, it can still avail a loan of ₹12.50 lakhs as per the first method. However, as per the second and third method, it is not eligible for additional financing as maximum financing allowed is for ₹222.50 lakhs and ₹72.50 lakhs only whereas its present bank borrowings are already ₹250 lakhs.

BQ 11

The management of Royal industries has called for a statement showing the working capital needs to finance a level of 1,80,000 units of output for the year. The cost structure for the company's product for the above mentioned activity level is detailed below:

	Cost per Unit (₹)
Raw materials	20
Direct labour	5

Overheads (including depreciation of ₹5 per unit)	15
Total cost	40
Profit	10
Selling price	***50***

Additional Information:

(a) Minimum desired cash balance is ₹20,000.
(b) Raw materials are held in stock on an average for 2 months.
(c) Work-in-progress (assume 50% completion stage) will approximate to half month's production.
(d) Finished goods remain in warehouse on an average for a month.
(e) Suppliers of materials extend a month's credit and debtors are provided two month's credit.
(f) Cash sales are 25% of total sales.
(g) There is a time lag in payment of wages of a month and half a month in case of overheads.

From the above data, you are required to:

(1) Prepare a statement showing working capital needs; and
(2) Determine the maximum working capital finance available under the first two methods suggested by Tandon Committee.

Answer

(1) Statement of Working Capital Requirement

Particulars	***₹***
(A) Current Assets:	
Raw materials (36,00,000 × $^{2}/_{12}$)	6,00,000
Work in progress (72,00,000 × 50% × $^{.5}/_{12}$)	1,50,000
Finished goods (72,00,000 × $^{1}/_{12}$)	6,00,000
Debtors (72,00,000 × 75% × $^{2}/_{12}$)	9,00,000
Cash	20,000
Total (A)	***22,70,000***
(B) Current Liabilities:	
Creditors (36,00,000 × $^{1}/_{12}$)	3,00,000
Outstanding labour (9,00,000 × $^{1}/_{12}$)	75,000
Outstanding overhead (18,00,000 × $^{.5}/_{12}$)	75,000
Total (B)	***4,50,000***
Working Capital (A - B)	***18,20,000***

(2) Calculation of Maximum Permissible Bank Finance under the suggestion of Tandon Committee:

Method 1 = 75% (CA - CL) = 75% of 18,20,000 = ***₹13,65,000***

Method 2 = (75% CA) – CL = (75% 22,70,000) – 4,50,000 = ***₹12,52,500***

Working Notes:

Projected Income Statement

Particulars	***₹***
Raw materials (1,80,000 × 20)	36,00,000
Direct Labour (1,80,000 × 5)	9,00,000
Overheads including depreciation (1,80,000 × 15)	27,00,000
Total cost	***72,00,000***
Profit	18,00,000
Sales (1,80,000 × 50)	***90,00,000***

NEW PROJECT

BQ 12

A newly formed company has applied to the commercial bank for the first time for financing its working capital requirements.

The following information is available about the projections for the current year:

Estimated level of activity is 2,08,000 completed units of production plus 8,000 units of work-in-progress.

Based on the above activity, estimated cost per unit is:

Raw material	₹16
Direct wages	₹6
Overheads (exclusive of depreciation)	₹12
Total cost	***₹34***
Selling price	₹40

Raw materials in stock: average 4 weeks consumption, work-in-progress (assume 50% completion stage in respect of conversion cost and materials issued at the start of the processing).

Finished goods in stock	16,000 units
Credit allowed by suppliers	Average 4 weeks
Credit allowed to debtors	Average 8 weeks
Lag in payment of wages	Average 1.5 weeks
Lag in payment of overheads	Average 4 weeks
Cash at banks (for smooth operation)	₹50,000

Assume that production is carried on evenly throughout the year (52 weeks) and wages and overheads accrue similarly. All sales are on credit basis only.

You are required to estimate net working capital.

Answer

Statement of Working Capital Requirement

Particulars		***₹***
(1)	***Current Assets:***	
	Raw materials (34,56,000 × $^{4}/_{52}$)	2,65,846
	Work in progress	2,00,000
	Finished goods	5,44,000
	Debtors (65,28,000 × $^{8}/_{52}$)	10,04,308
	Cash	50,000
	Total (1)	***20,64,154***
(2)	***Current Liabilities:***	
	Creditors (34,56,000 + 2,65,846) × $^{4}/_{52}$	2,86,296
	Outstanding labour (12,72,000 × $^{1.5}/_{52}$)	36,692
	Outstanding overheads (25,44,000 × $^{4}/_{52}$)	1,95,692
	Total (2)	***5,18,680***
	Working Capital (1 - 2)	***15,45,474***

Working Notes:

Projected Income Statement

Particulars	***₹***
Raw materials (2,16,000 × 16)	34,56,000
Direct labour (2,08,000 + ½ × 8,000) × 6	12,72,000
Overheads (2,08,000 + ½ × 8,000) × 12	25,44,000
Cost Upto Factory	***72,72,000***
Less: Closing WIP 8,000 units × (16 + 3 + 6)	(2,00,000)
Cost of Production (2,08,000 units)	***70,72,000***
Less: Closing FG 16,000 units × 34	(5,44,000)
Cost of Goods Sold (1,92,000 units)	***65,28,000***
Profit	11,52,000
Sales (1,92,000 × 40)	***76,80,000***

BQ 13

PQ Ltd. a company newly commencing business in 2023 has the under-mentioned projected P & L Account:

Particulars	₹	₹
Sales		2,10,000
Cost of goods sold		1,53,000
Gross Profit		57,000
Administrative Expenses	14,000	
Selling Expenses	13,000	27,000
Profit Before Tax		30,000
Provision for taxation		10,000
Profit After Tax		20,000
The cost of goods sold has been arrived at as under:		
Materials used	84,000	
Wages and manufacturing Expenses	62,500	
Depreciation	23,500	
Cost of Finished Goods Produced	1,70,000	
Less: Stock of Finished Goods	17,000	
(10% of goods produced not yet sold)	1,53,000	

The figure given above relate only to finished goods and not to work-in-progress. Goods equal to 15% of the year's production (in terms of physical units) will be in process on the average requiring full materials but only 40% of the other expenses. The company believes in keeping materials equal to two months consumption in stock.

All expenses will be paid one month in advance. Suppliers of materials will extend 1-½months credit. Sales will be 20% for cash and rest at two months credit. 70% of the income tax will be paid in advance in quarterly installments. The company wishes to keep ₹8,000 in cash. 10% has to be added to the estimated figure for unforeseen contingencies.

Prepare an estimate of working capital on cash cost basis.

Answer

Statement of Working Capital Requirement

Particulars	₹
(1) Current Assets:	
Raw materials (96,600 × $^{2}/_{12}$)	16,100
Work in progress	16,350
Finished goods	14,650
Debtors (1,58,850 × 80% × $^{2}/_{12}$)	21,180
Prepaid expenses:	
Wages and Manufacturing Expenses (66,250 × $^{1}/_{12}$)	5,521
Administrative Expenses (14,000 × $^{1}/_{12}$)	1,167
Selling Expenses (13,000 × $^{1}/_{12}$)	1,083
Advance tax paid [(70% of 10,000) × $^{3}/_{12}$]	1,750
Cash	8,000
Total (1)	***85,801***
(2) Current Liabilities:	
Creditors (96,600 + 16,100) × $^{1.5}/_{12}$	14,088
Provision for Tax (Net of Advance Tax) (10,000 × 30%)	3,000
Total (2)	***17,088***
Working Capital Before Provision(1 - 2)	***68,713***
Add : Provision for Contingencies @ 10% of 68,713	6,871
Working Capital Including Provision	***75,584***

Working Notes:

Projected Income Statement

Particulars	₹
Raw Materials (84,000 + 15%)	96,600
Wages and Manufacturing Expenses (62,500 + 15% of 62,500 × 40%)	66,250
Cost Upto Factory	**1,62,850**
Less: Closing WIP (84,000 × 15%) + (15% of 62,500 × 40%)	(16,350)
Cost of Production	**1,46,500**
Less: Closing FG (10% of 1,46,500)	(14,650)
Cost of Goods Sold	**1,31,850**
Administrative Expenses	14,000
Selling Expenses	13,000
Cash Cost of Sales	**1,58,850**

BQ 14

PQR Ltd. a company newly commencing business in 2023 has the under-mentioned projected P & L Account:

Particulars	₹	₹
Sales		5,04,000
Cost of goods sold		3,67,200
Gross Profit		1,36,800
Administrative Expenses	33,600	
Selling Expenses	31,200	64,800
Profit Before Tax		72,000
Provision for taxation		24,000
Profit After Tax		48,000
The cost of goods sold has been arrived at as under:		
Materials used	2,01,600	
Wages and manufacturing Expenses	1,50,000	
Depreciation	56,400	
Cost of Finished Goods Produced	4,08,000	
Less: Stock of Finished Goods	40,800	
(10% of goods produced not yet sold)	3,67,200	

The figure given above relate only to finished goods and not to work-in-progress. Goods equal to 15% of the year's production (in terms of physical units) will be in process on the average requiring full materials but only 40% of the other expenses. The company believes in keeping materials equal to two months consumption in stock.

All expenses will be paid one month in advance. Suppliers of materials will extend 1-½months credit. Sales will be 20% for cash and rest at two months credit. 70% of the income tax will be paid in advance in quarterly installments. The company wishes to keep ₹19,200 in cash. 10% has to be added to the estimated figure for unforeseen contingencies.

Prepare an estimate of working capital on cash cost basis.

Answer

Statement of Working Capital Requirement

Particulars	₹
(1) Current Assets:	
Raw materials (2,31,840 × $^{2}/_{12}$)	38,640
Work in progress	39,240
Finished goods	35,160
Debtors (3,81,240 × 80% × $^{2}/_{12}$)	50,832
Prepaid expenses:	
Wages and Manufacturing Expenses (1,59,000 × $^{1}/_{12}$)	13,250

Administrative Expenses (33,600 × $^{1}/_{12}$)	2,800
Selling Expenses (31,200 × $^{1}/_{12}$)	2,600
Advance tax paid [(70% of 24,000) × $^{3}/_{12}$]	4,200
Cash	19,200
Total (1)	***2,05,922***
(2) Current Liabilities:	
Creditors (2,31,840 + 38,640) × $^{1.5}/_{12}$	33,810
Provision for Tax (Net of Advance Tax) (24,000 × 30%)	7,200
Total (2)	***41,010***
Working Capital Before Provision(1 - 2)	***1,64,912***
Add : Provision for Contingencies @ 10% of 1,64,912	16,491
Working Capital Including Provision	***1,81,403***

Working Notes:

Projected Income Statement

Particulars	***₹***
Raw Materials (2,01,600 + 15%)	2,31,840
Wages and Manufacturing Expenses (1,50,000 + 15% of 1,50,000 × 40%)	1,59,000
Cost Upto Factory	***3,90,840***
Less: Closing WIP (2,01,600 × 15%) + (15% of 1,50,000 × 40%)	(39,240)
Cost of Production	***3,51,600***
Less: Closing FG (10% of 3,51,600)	(35,160)
Cost of Goods Sold	***3,16,440***
Administrative Expenses	33,600
Selling Expenses	31,200
Cash Cost of Sales	***3,81,240***

OTHERS

BQ 15

The management of Trux Company Ltd. is planning to expand its business and consults you to prepare an estimated working capital statement. The records of the company reveals the following annual information:

The records of the company revealed the following annual information:

Sales:	
Domestic at one month's credit	₹18,00,000
Export at three month's credit (Sales price 10% below Domestic price)	₹8,10,000
Material used (suppliers extend two months credit)	₹6,75,000
Lag in payment of wages - ½ month	₹5,40,000
Lag in payment of manufacturing expenses (cash) - 1 month	₹7,65,000
Lag in payment of administrative expenses - 1 month	₹1,80,000
Sales promotion expenses payable quarterly in advance	₹1,12,500
Income tax payable in four installments (of which one falls in the next financial year)	₹1,68,000

Rate of gross profit is 20%. Ignore work-in-progress and depreciation. The company keeps one month's stock of raw materials and finished goods (each) and believes in keeping ₹2,50,000 available to it including the overdraft limit of ₹75,000 not yet utilized by the company. The management is also of the opinion to make 10% margin for contingencies on computed figure.

You are required to prepare the estimated working capital statement for next year.

Answer

Statement of Working Capital Requirement (Cash Cost Basis)

Particulars	***₹***

(A) Current Assets:	
Raw Materials (6,75,000 × $^{1}/_{12}$)	56,250
Finished Goods (21,60,000 × $^{1}/_{12}$)	1,80,000
Debtors:	
Domestic (14,40,000 + 77,586) × $^{1}/_{12}$	1,26,466
Export (7,20,000 + 34,914) × $^{3}/_{12}$	1,88,729
Cash (2,50,000 – 75,000)	1,75,000
Prepaid Sales Promotion Expenses (1,12,500 × $^{1}/_{4}$)	28,125
Total (A)	***7,54,570***
(B) Current Liabilities:	
Creditors (6,75,000 × $^{2}/_{12}$)	1,12,500
Outstanding labour (5,40,000 × $^{0.5}/_{12}$)	22,500
Outstanding Manufacturing Expenses (7,65,000 × $^{1}/_{12}$)	63,750
Outstanding Administrative Expenses (1,80,000 × $^{1}/_{12}$)	15,000
Income Tax Payable(1,68,000 × $^{1}/_{4}$)	42,000
Total (B)	***2,55,750***
Working Capital Before Provision (A - B)	***4,98,820***
Add : Safety Margin @ 10% of 4,98,820	49,882
Working Capital	***5,48,702***

Working Notes:

1. Calculation of Cash cost of Debtors:

Export sales (10% below domestic sales price) = 8,10,000

Export sales equivalent to domestic sales = $8,10,000 \times \frac{100}{90}$ = 9,00,000

Total equivalent domestic sales = 18,00,000 + 9,00,000 = 27,00,000

Apportionment of cash cost of sales except sales promotion expenses in proportion of equivalent domestic sales between Domestic and Foreign Sales:

Domestic sales = $21,60,000 \times \frac{18,00,000}{27,00,000}$ = 14,40,000

Foreign sales = $21,60,000 \times \frac{9,00,000}{27,00,000}$ = 7,20,000

Apportionment of sales promotion expenses between Domestic and Foreign Sales in sales ratio:

Domestic sales = $1,12,500 \times \frac{18,00,000}{26,10,000}$ = 77,586

Foreign sales = $1,12,500 \times \frac{8,10,000}{26,10,000}$ = 34,914

2. Projected Income Statement

Particulars	***₹***
Raw Materials	6,75,000
Wages	5,40,000
Manufacturing Expenses (in cash)	7,65,000
Administration Expenses (in cash)	1,80,000
Cash Cost of Goods Sold	***21,60,000***
Sales Promotion Expenses (in cash)	1,12,500
Cash Cost of Sales	***22,72,500***

Assumption: Administrative expenses is related to production.

BQ 16

M.A. Limited is commencing a new project of a plastic component. The following cost information has been ascertained for annual production of 12,000 units which is the full capacity.

	(Cost per unit)
Materials	₹40
Direct labour and variable expenses	₹20
Fixed manufacturing expenses	₹6
Depreciation	₹10
Fixed administrative expenses	₹4

The selling price per unit is expected to be ₹96 and the selling expenses ₹5 per unit 80% of which is variable. In the first two years of operation, productivity and sales are expected to be as follows:

Year	*Productivity No. of units*	*Sales No. of units*
1	6,000	5,000
2	9,000	8,500

To assess the working capital requirement, the following additional information is available:

(a)	Stock of Materials	2.25 months average
(b)	Work-in-Progress	Nil
(c)	Debtors	1 month's average sales
(d)	Cash balance	₹10,000
(e)	Creditors for supply of materials	1 month's average purchase
(f)	Creditors for expenses	1 month average of all expenses

Prepare for two years:

(1) Projected Statement of Profit and Loss (ignoring taxation) and
(2) Projected Statement of working capital requirements.

Answer

(1) M.A. Limited
Projected Statement of Profit and Loss

Particulars	*Year 1*	*Year 2*
Production (in units)	6,000	9,000
Sales (in units)	5,000	8,500
Materials	2,40,000	3,60,000
Direct labour and variable expenses	1,20,000	1,80,000
Fixed manufacturing expenses	72,000	72,000
Depreciation	1,20,000	1,20,000
Fixed administrative expenses	48,000	48,000
Cost of production	***6,00,000***	***7,80,000***
Add: Opening FG (Year 1: Nil; Year 2: 1,000 units)	Nil	1,00,000
Total cost of goods available for sale	6,00,000	8,80,000
Less: Closing FG (Year 1: 1,000; Year 2: 1,500 units)	(1,00,000)	(1,32,000)
Cost of goods sold	***5,00,000***	***7,48,000***
Selling expenses: Variable @ ₹4 per unit sold	20,000	34,000
Fixed	12,000	12,000
Cost of sales	***5,32,000***	***7,94,000***
Profit or loss	(52,000)	22,000
Sales	***4,80,000***	***8,16,000***

(2) Projected Statement of Working Capital Requirement

Particulars	*Year 1*	*Year 2*
(A) Current Assets:		
Raw materials	45,000	67,500
Finished goods	1,00,000	1,32,000
Debtors (on sales value)	40,000	68,000

Cash	10,000	10,000
Total (A)	***1,95,000***	***2,77,500***
(B) Current Liabilities:		
Creditors (Purchase = RMC + CS - OS)	23,750	31,875
Outstanding expenses	22,667	28,833
Total (B)	***46,417***	***60,708***
Working Capital (A - B)	***1,48,583***	***2,16,792***

Assumptions:

1. Administrative expenses is related to production.
2. Stock of finished goods is valued as per weighted average method.

BQ 17

Following are cost information of KG Ltd. which has commenced a new project for an annual production of 24,000 units which is the full capacity.

	(Cost per unit)
Materials	₹80
Direct labour and variable expenses	₹40
Fixed manufacturing expenses	₹12
Depreciation	₹20
Fixed administrative expenses	₹8

The selling price per unit is expected to be ₹192 and the selling expenses ₹10 per unit 80% of which is variable. In the first two years of operation, productivity and sales are expected to be as follows:

Year	***Productivity No. of units***	***Sales No. of units***
1	12,000	10,000
2	18,000	17,000

To assess the working capital requirement, the following additional information is available:

(a)	Stock of Materials	2 months average consumption
(b)	Work-in-Progress	Nil
(c)	Debtors	2 month's average sales
(d)	Cash balance	₹1,00,000
(e)	Creditors for supply of materials	1 month's average purchase
(f)	Creditors for expenses	1 month average of all expenses

Prepare for two years:

(1) Projected Statement of Profit and Loss (ignoring taxation) and
(2) Projected Statement of working capital requirements.

Answer

(1) KG Ltd.
Projected Statement of Profit and Loss

Particulars	***Year 1***	***Year 2***
Production (in units)	12,000	18,000
Sales (in units)	10,000	17,000
Materials	9,60,000	14,40,000
Direct labour and variable expenses	4,80,000	7,20,000
Fixed manufacturing expenses	2,88,000	2,88,000
Depreciation	4,80,000	4,80,000
Fixed administrative expenses	1,92,000	1,92,000
Cost of production	***24,00,000***	***31,20,000***
Add: Opening FG (Year 1: Nil; Year 2: 2,000 units)	Nil	4,00,000

Total cost of goods available for sale	24,00,000	35,20,000
Less: Closing FG (Year 1: 2,000; Year 2: 3,000 units)	(4,00,000)	(5,28,000)
Cost of goods sold	***20,00,000***	***29,92,000***
Selling expenses: Variable @ ₹4 per unit sold	80,000	1,36,000
Fixed	48,000	48,000
Cost of sales	***21,28,000***	***31,76,000***
Profit or loss	(2,08,000)	88,000
Sales	***19,20,000***	***32,64,000***

(2) Projected Statement of Working Capital Requirement

Particulars	*Year 1*	*Year 2*
(A) Current Assets:		
Raw materials	1,60,000	2,40,000
Finished goods	4,00,000	5,28,000
Debtors (on sales value)	3,20,000	5,44,000
Cash	1,00,000	1,00,000
Total (A)	***9,80,000***	***14,12,000***
(B) Current Liabilities:		
Creditors (Purchase = RMC + CS - OS)	93,333	1,26,667
Outstanding expenses	90,667	1,15,333
Total (B)	***1,84,000***	***2,42,000***
Working Capital (A - B)	***7,96,000***	***11,70,000***

Assumptions:

1. Administrative expenses is related to production.
2. Stock of finished goods is valued as per weighted average method.

BQ 18

The following annual figures relate to manufacturing entity:

Sales at one month credit	₹84,00,000
Material consumption	60% of sales value
Wages (paid in a lag of 15 days)	₹12,00,000
Cash Manufacturing Expenses	₹3,00,000
Administrative Expenses	₹2,40,000
Creditors extend	3 months credit for payment
Cash manufacturing and administrative expenses	1 months in arrear

The company maintains stock of raw material equal to economic order quantity. The company incurs ₹100 as per ordering cost per order and opportunity cost of capital is 15% p.a. The optimum cash balance is determined using Baumol's model. The bank charges ₹10 for each cash withdrawal. Finished goods are held in stock for 1 month. The company maintains a bank balance of ₹12,00,000 on an average. Creditors are paid through net banking and all other expenses are incurred in cash which is withdrawn from bank.

Assuming a 20% safety margin, you are required to estimate the amount of working capital that needs to be invested by the Company (1 Year of 360 Days).

Answer

Statement of Working Capital Requirement (Cash Cost Basis)

Particulars	*₹*
(A) Current Assets:	
Raw Materials	81,976
Finished Goods (65,40,000 × $^{1}/_{12}$)	5,45,000
Debtors (67,80,000 × $^{1}/_{12}$)	5,65,000
Cash	15,232
Bank	12,00,000
Total (A)	***24,07,208***

(B) Current Liabilities:	
Creditors (50,40,000 × $^{3}/_{12}$)	12,60,000
Outstanding labour (12,00,000 × $^{15}/_{360}$)	50,000
Outstanding Manufacturing Expenses (3,00,000 × $^{1}/_{12}$)	25,000
Outstanding Administrative Expenses (2,40,000 × $^{1}/_{12}$)	20,000
Total (B)	***13,55,000***
Working Capital Before Safety Margin (A - B)	***10,52,208***
Add : Safety Margin @ 20% of 10,52,208	2,10,442
Working Capital	***12,62,650***

Working Notes:

1. Projected Income Statement (Cash cost)

Particulars	***₹***
Raw Materials Consumed (₹84,00,000 × 60%)	50,40,000
Wages	12,00,000
Manufacturing Expenses	3,00,000
Cash Cost of Production	***65,40,000***
Administration Expenses	2,40,000
Cash Cost of Sales	***67,80,000***

2. Computation of Stock of Materials:

A = ₹50,40,000
O = ₹100
C = ₹0.15

$$EOQ = \sqrt{\frac{2AO}{C}} = \sqrt{\frac{2\times 50,40,000\times 100}{.15}} = ₹81,976$$

3. Computation of Cash Balance:

U = ₹12,00,000 + 3,00,000 + 2,40,000 (Payment to creditors through net banking)
= ₹17,40,000
P = ₹10
S = ₹0.15

$$\text{Optimum Cash Balance} = \sqrt{\frac{2UP}{S}} = \sqrt{\frac{2\times 17,40,000\times 10}{.15}} = ₹15,232$$

BQ 19

A firm has the following data for the year ending 31st March, 2023:

Sales (1,00,000 @ ₹20)	₹20,00,000
Earnings before Interest and Taxes	₹2,00,000
Fixed Assets	₹5,00,000

The three possible current assets holdings of the firm are ₹5,00,000, ₹4,00,000 and ₹3,00,000. It is assumed that fixed assets level is constant and profits do not vary with current assets levels.

Explain the effect of the three alternative current assets policies.

Answer

Effect of Alternative Working Capital Policy

Particulars	***Conservative***	***Moderate***	***Aggressive***
Sales	20,00,000	20,00,000	20,00,000
Earnings before interest and tax (EBIT)	2,00,000	2,00,000	2,00,000
Current Assets	5,00,000	4,00,000	3,00,000
Fixed Assets	5,00,000	5,00,000	5,00,000
Total Assets	***10,00,000***	***9,00,000***	***8,00,000***

Return on Total Assets (EBIT ÷ Total Assets)	20%	22.22%	25%
Current Assets/Fixed Assets	1.00	0.80	0.60

The aforesaid calculation shows that the conservative policy provides greater liquidity (solvency) to the firm, but lower return on total assets. On the other hand, the aggressive policy gives higher return, but low liquidity and thus is very risky. The moderate policy generates return higher than Conservative policy but lower than aggressive policy. This is less risky than aggressive policy but riskier than conservative policy.

DOUBLE SHIFT

BQ 20

Samreen Enterprises has been operating its manufacturing facilities till 31.03.2022 on a single shift working with the following cost structure:

	Per unit
Cost of Materials	₹6.00
Wages (out of which 40% fixed)	₹5.00
Overheads (out of which 80% fixed)	₹5.00
Profit	₹2.00
Selling price	***₹18.00***
Sales during 2021-2022	₹4,32,000

As at 31.03.22 the company held:

Stock of raw materials (at cost)	₹36,000
Work-in-progress (valued at prime cost)	₹22,000
Finished goods (valued at total cost)	₹72,000
Sundry debtors	₹1,08,000

In view of increased market demand, it is proposed to double production by working an extra shift. It is expected that a 10% discount will be available from suppliers of raw materials in view of increased volume of business. Selling price will remain the same. The credit period allowed to customers will remain unaltered. Credit availed of from suppliers will continue to remain at the present level i.e. 2 months. Lag in payment of wages and expenses will continue to remain half a month.

You are required to assess the additional working capital requirement, if the policy to increase output is implemented.

Answer

Statement of Working Capital for Single Shift and Double Shift Working

Particulars	Single Shift (24,000)			Double Shift (48,000)		
	P. U.	Units	Total	P. U.	Units	Total
(A) Current Assets:						
Raw Materials Stock	6.00	6,000	36,000	5.40	12,000	64,800
WIP Stock	11.00	2,000	22,000	9.40	2,000	18,800
FG Stock	16.00	4,500	72,000	12.40	9,000	1,11,600
Debtors	16.00	6,000	96,000	12.40	12,000	1,48,800
Total (A)	-	-	***2,26,000***	-	-	***344,000***
(B) Current Liabilities:						
Creditors	6.00	4,000	24,000	5.40	8,000	43,200
Outstanding Wages	5.00	1,000	5,000	4.00	2,000	8,000
Outstanding Overheads	5.00	1,000	5,000	3.00	2,000	6,000
Total (B)	-	-	***34,000***	-	-	***57,200***
Working Capital (A - B)	-	-	***1,92,000***	-	-	***2,86,800***

Increase in working capital requirement is ₹94,800 (₹2,86,800 - ₹1,92,000).

Working Notes:

1. Statement of Cost at Single Shift and Double Shift Working

Particulars	Single Shift (24,000)		Double Shift (48,000)	
	P. U.	Total	P. U.	Total
Raw Materials	6.00	1,44,000	5.40	2,59,200
Wages Variable	3.00	72,000	3.00	1,44,000
Wages Fixed	2.00	48,000	1.00	48,000
Prime Cost	***11.00***	***2,64,000***	***9.40***	***4,51,200***
Overhead Variable	1.00	24,000	1.00	48,000
Overhead Fixed	4.00	96,000	2.00	96,000
Total Cost	***16.00***	***3,84,000***	***12.40***	***5,95,200***
Profit	2.00	48,000	5.60	2,68,800
Sales Value	***18.00***	***4,32,000***	***18.00***	***8,64,000***

2. Sales units in 2021-2022 = Sales ÷ Sale Price per unit
= ₹4,32,000 ÷ ₹18
= 24,000 units

3. Raw Material units on 31.03.2022 = Raw Material Stock ÷ Raw Material cost per unit
= ₹36,000 ÷ ₹6
= 6,000 units

4. WIP units on 31.03.2022 = WIP Stock ÷ Prime cost per unit
= ₹22,000 ÷ ₹11
= 2,000 units

5. Finished Goods units on 31.03.2022 = Finished Goods Stock ÷ Total cost per unit
= ₹72,000 ÷ ₹16
= 4,500 units

6. Debtors units on 31.03.2022 = Sundry debtors ÷ Sale Price per unit
= ₹1,08,000 ÷ ₹18
= 6,000 units

7. Credit allowed to Customers = 6,000 ÷ (24,000 units ÷ 12 months)
= 3 months

BQ 21

MT Ltd has been operating its manufacturing facilities till 31.03.2022 on a single shift working with the following cost structure:

	Per unit
Cost of Materials	₹24.00
Wages (out of which 60% variable)	₹20.00
Overheads (out of which 20% variable)	₹20.00
Profit	₹8.00
Selling price	***₹72.00***
Sales during 2021-2022	₹17,28,000

As at 31.03.22 the company held:

Stock of raw materials (at cost)	₹1,44,000
Work-in-progress (valued at prime cost)	₹88,000
Finished goods (valued at total cost)	₹2,88,000
Sundry debtors	₹4,32,000

In view of increased market demand, it is proposed to double production by working an extra shift. It is expected that a 10% discount will be available from suppliers of raw materials in view of increased volume of business. Selling price will remain the same. The credit period allowed to customers will remain unaltered.

Credit availed of from suppliers will continue to remain at the present level i.e. 2 months. Lag in payment of wages and expenses will continue to remain at one month.

You are required to calculate the additional working capital requirement, if the policy to increase output is implemented.

Answer

Statement of Working Capital for Single Shift and Double Shift Working

Particulars	Single Shift (24,000)			Double Shift (48,000)		
	P. U.	Units	Total	P. U.	Units	Total
(A) Current Assets:						
Raw Materials Stock	24.00	6,000	1,44,000	21.60	12,000	2,59,200
WIP Stock	44.00	2,000	88,000	37.60	2,000	75,200
FG Stock	64.00	4,500	2,88,000	49.60	9,000	4,46,400
Debtors	64.00	6,000	3,84,000	49.60	12,000	5,95,200
Total (A)	-	-	**9,04,000**	-	-	**13,76,000**
(B) Current Liabilities:						
Creditors	24.00	4,000	96,000	21.60	8,000	1,72,800
Outstanding Wages	20.00	2,000	40,000	16.00	4,000	64,000
Outstanding Overheads	20.00	2,000	40,000	12.00	4,000	48,000
Total (B)	-	-	**1,76,000**	-	-	**2,84,800**
Working Capital (A - B)	-	-	**7,28,000**	-	-	**10,91,200**

Increase in working capital requirement is ₹3,63,200 (₹10,91,200 - ₹7,28,000).

Working Notes:

1. Statement of Cost at Single Shift and Double Shift Working

Particulars	Single Shift (24,000)		Double Shift (48,000)	
	P. U.	Total	P. U.	Total
Raw Materials	24.00	5,76,000	21.60	10,36,800
Wages Variable	12.00	2,88,000	12.00	5,76,000
Wages Fixed	8.00	1,92,000	4.00	1,92,000
Prime Cost	**44.00**	**10,56,000**	**37.60**	**18,04,800**
Overhead Variable	4.00	96,000	4.00	1,92,000
Overhead Fixed	16.00	3,84,000	8.00	3,84,000
Total Cost	**64.00**	**15,36,000**	**49.60**	**23,80,800**
Profit	8.00	1,92,000	22.40	10,75,200
Sales Value	**72.00**	**17,28,000**	**72.00**	**34,56,000**

2. Sales units in 2021-2022 = Sales ÷ Sale Price per unit
= ₹17,28,000 ÷ ₹72
= 24,000 units

3. Raw Material units on 31.03.2022 = Raw Material Stock ÷ Raw Material cost per unit
= ₹1,44,000 ÷ ₹24
= 6,000 units

4. WIP units on 31.03.2022 = WIP Stock ÷ Prime cost per unit
= ₹88,000 ÷ ₹44
= 2,000 units

5. Finished Goods units on 31.03.2022 = Finished Goods Stock ÷ Total cost per unit
= ₹2,88,000 ÷ ₹64
= 4,500 units

6. Debtors units on 31.03.2022 = Sundry debtors ÷ Sale Price per unit

		=	₹4,32,000 ÷ ₹72
		=	6,000 units
7.	Credit allowed to Customers	=	6,000 ÷ (24,000 units ÷ 12 months)
		=	3 months

PAST YEARS QUESTIONS

PYQ 1

Aneja Limited, a newly formed company, has applied to the commercial bank for the first time for financing its working capital requirements.

The following information is available about the projections for the current year:

Estimated level of activity is 1,04,000 completed units of production plus 4,000 units of work-in-progress.

Based on the above activity, estimated cost per unit is:

Raw material	₹80
Direct wages	₹30
Overheads (exclusive of depreciation)	₹60
Total cost	***₹170***
Selling price	₹200

Raw materials in stock: average 4 weeks consumption, work-in-progress (assume 50% completion stage in respect of conversion cost but materials issued at the start of the processing).

Finished goods in stock	8,000 units
Credit allowed by suppliers	Average 4 weeks
Credit allowed to debtors	Average 8 weeks
Lag in payment of wages	Average 1.5 weeks
Cash at banks (for smooth operation)	₹25,000

Assume that production is carried on evenly throughout the year (52 weeks) and wages and overheads accrue similarly. All sales are on credit basis only.

Find out:

(a) The net working capital required;

(b) The maximum permissible bank finance under first and second methods of financing as per Tandon Committee Norms.

[(12 Marks) Nov 1998]

Answer

(a) Statement of Working Capital Requirement

Particulars	***₹***
(1) Current Assets:	
Raw materials (86,40,000 × $^{4}/_{52}$)	6,64,615
Work in progress [4,000 units × (80 + 15 + 30)]	5,00,000
Finished goods (8,000 units × 170)	13,60,000
Debtors (1,63,20,000 × $^{8}/_{52}$)	25,10,769
Cash	25,000
Total (1)	***50,60,384***
(2) Current Liabilities:	
Creditors (86,40,000 + 6,64,615) × $^{4}/_{52}$	7,15,740
Outstanding labour (31,80,000 × $^{1.5}/_{52}$)	91,731
Total (2)	***8,07,471***
Working Capital (1 - 2)	***42,52,913***

(b) Calculation of MPBF under the suggestion of Tandon Committee Norms:

Method 1 = 75% (50,60,384 – 8,07,471) = 75% of 46,95,990 = ***₹31,89,685***

Method 2 = (75% CA) – CL = (75% 50,60,384) – 8,07,471 = ***₹29,87,817***

Working Notes:

Projected Income Statement

Particulars	₹
Raw materials (1,08,000 × 80)	86,40,000
Direct labour (1,04,000 + ½ × 4,000) × 30	31,80,000
Overheads (1,04,000 + ½ × 4,000) × 60	63,60,000
Cost Upto Factory	***1,81,80,000***
Less: Closing WIP 4,000 units × (80 + 15 + 30)	(5,00,000)
Cost of Production (1,08,000 units)	***1,76,80,000***
Less: Closing FG 8,000 units × 170	(13,60,000)
Cost of Goods Sold (96,000 units)	***1,63,20,000***
Profit	28,80,000
Sales (96,000 × 200)	***1,92,00,000***

PYQ 2

Q Ltd. sells goods at a uniform rate of gross profit of 20% on sales including depreciation as part of cost of production.

Its annual figures are as under:

Sales (at 2 months' credit)	₹24,00,000
Materials consumed (suppliers credit 2 months)	₹6,00,000
Wages paid (monthly at the beginning of the subsequent month)	₹4,80,000
Manufacturing expenses (cash expenses are paid one month in arrear)	₹6,00,000
Administration expenses (cash expenses are paid one month in arrear)	₹1,50,000
Sales promotion expenses (paid quarterly in advance)	₹75,000

The company keeps one month stock each of raw materials and finished goods. A minimum cash balance of ₹80,000 is always kept. The company wants to adopt a 10% safety margin in the maintenance of working capital. The company has no work-in-progress.

Find out the requirements of working capital of the company on cash cost basis.

[(8 Marks) May 1994, 1999]

Answer

Statement of Working Capital Requirement (Cash Cost Basis)

Particulars	₹
(1) Current Assets:	
Raw Materials (6,00,000 × $^{1}/_{12}$)	50,000
Finished Goods (16,80,000 × $^{1}/_{12}$)	1,40,000
Debtors (19,05,000 × $^{2}/_{12}$)	3,17,500
Cash	80,000
Prepaid Sales Promotion Expenses (75,000 × $^{1}/_{4}$)	18,750
Total (1)	***6,06,250***
(2) Current Liabilities:	
Creditors (6,00,000 × $^{2}/_{12}$)	1,00,000
Outstanding labour (4,80,000 × $^{1}/_{12}$)	40,000
Outstanding Manufacturing Expenses (6,00,000 × $^{1}/_{12}$)	50,000
Outstanding Administrative Expenses (1,50,000 × $^{1}/_{12}$)	12,500
Total (2)	***2,02,500***
Working Capital Before Provision (1 - 2)	***4,03,750***
Add : Safety Margin @ 10% of 4,03,750	40,375
Working Capital	***4,44,125***

Working Notes:

Projected Income Statement

Particulars	₹
Raw Materials	6,00,000

Wages	4,80,000
Manufacturing Expenses (in cash)	6,00,000
Cash Cost of Goods Sold	***16,80,000***
Administration Expenses (in cash)	1,50,000
Sales Promotion Expenses (in cash)	75,000
Cash Cost of Sales	***19,05,000***

PYQ 3

A company is considering its working capital investment and financial policies for the next year. Estimated fixed assets and current liabilities for the next year are ₹2.60 crores and ₹2.34 crores respectively. Estimated sales and EBIT depends on current assets investment, particularly inventories and book-debts.

The Financial Controller of the company is examining the following alternative Working Capital Policies:

(₹Crore)

Working capital policy	*Investment in CA*	*Estimated sales*	*EBIT*
Conservative	4.50	12.30	1.23
Moderate	3.90	11.50	1.15
Aggressive	2.60	10.00	1.00

After evaluating the working capital policy, the Financial Controller has advised the adoption of the moderate working capital policy. The company is now examining the use of long term and short term borrowings for financing its assets. The company will use ₹2.50 crores of the equity funds. The corporate tax rate is 35%.

The company is considering the following debt alternatives: ***(₹Crore)***

Financing policy	*Short term debt*	*Long term debt*
Conservative	0.54	1.12
Moderate	1.00	0.66
Aggressive	1.50	0.16
Interest rate	12%	16%

You are required to calculate the following:

(1) Working Capital Investment for each policy:

a. Net working capital position, ***b.*** Rate of return on total assets, ***c.*** Current ratio.

(2) Financing for each policy:

a. Net working capital position, ***b.*** Rate of return on shareholder's equity, ***c.*** Current ratio.

[(8 Marks) Nov 2001]

Answer

(1) Statement Showing Working Capital Investment for Each Policy (₹Crore)

Particulars	*Conservative*	*Moderate*	*Aggressive*
(a) Net working capital position (CA – CL)	4.50 – 2.34 ***2.16***	3.90 – 2.34 ***1.56***	2.60 – 2.34 ***0.26***
(b) Rate of return on total assets $\left(\frac{\text{EBIT}}{\text{Total assets}}\times 100\right)$	$\frac{1.23}{2.60+4.50}\times 100$ ***17.32%***	$\frac{1.15}{2.60+3.90}\times 100$ ***17.69%***	$\frac{1.00}{2.60+2.60}\times 100$ ***19.23%***
(c) Current ratio (CA ÷ CL)	4.50 ÷ 2.34 ***1.92 : 1***	3.90 ÷ 2.34 ***1.67 : 1***	2.60 ÷ 2.34 ***1.11 : 1***

(2) Statement Showing Effect of Financing Policies (₹Crore)

Particulars	*Conservative*	*Moderate*	*Aggressive*
(a) Net working capital position (CA – CL) CL includes short term borrowings	3.90 – *2.88 ***1.02***	3.90 – 3.34 ***0.56***	3.90 – 3.84 ***0.06***

(b) Rate of return on shareholder's equity $\left(\frac{\text{PAT}}{\text{Equity}} \times 100\right)$	$\frac{0.589}{2.50} \times 100$ ***23.56%***	$\frac{0.601}{2.50} \times 100$ ***24.04%***	$\frac{0.614}{2.50} \times 100$ ***24.56%***
(c) Current ratio (CA ÷ CL)	3.90 ÷ 2.88 ***1.35 : 1***	3.90 ÷ 3.34 ***1.167 : 1***	3.90 ÷ 3.84 ***1.016 : 1***
Calculation of PAT:			
EBIT	1.15	1.15	1.15
Less: interest @ 12% on short term	0.065	0.12	0.18
Less: interest @ 16% on long term	0.179	0.106	0.026
EBT	***0.906***	***0.924***	***0.944***
Less: Tax @ 35%	0.317	0.323	0.330
PAT	***0.589***	***0.601***	***0.614***

* CL = CL + Short term borrowings = 2.34 + 0.54 = 2.88

PYQ 4

The following information has been extracted from the records of a Company, estimated cost per unit is:

Raw material	₹45
Direct wages	₹20
Overheads	₹40
Total cost	***₹105***
Profit	₹15
Selling price	***₹120***

(a) Raw materials are in stock on an average of two months.
(b) The materials are in process on an average for 4 weeks. The degree of completion is 50%.
(c) Finished goods stock on an average is for one month.
(d) Time lag in payment of wages and overheads is 1-½ weeks.
(e) Time lag in receipt of proceeds from debtors is 2 months.
(f) Credit allowed by suppliers is 1 month.
(g) 20% of the output is sold against cash.
(h) The company expects to keep a cash balance of ₹1,00,000.
(i) Take 52 weeks per annum.
(j) The company is poised for a manufacture of 1,44,000 units in the year.

You are required to prepare a statement showing the working capital requirements of the company.

[(8 Marks) Nov 2002]

Answer

Statement of Working Capital Requirement

Particulars	***₹***
(1) Current Assets:	
Raw Materials (1,44,000 units × ₹45 × $^{2}/_{12}$)	10,80,000
WIP (1,44,000 units × ₹105 × 50% × $^{4}/_{52}$)	5,81,538
Finished Goods (1,44,000 units × ₹105 × $^{1}/_{12}$)	12,60,000
Debtors (1,44,000 units × ₹105 × 80% × $^{2}/_{12}$)	20,16,000
Cash	1,00,000
Total (1)	***50,37,538***
(2) Current Liabilities:	
Creditors (1,44,000 units × ₹45 × $^{1}/_{12}$)	5,40,000
Outstanding labour (1,44,000 units × ₹20 × $^{1.5}/_{52}$)	83,077
Outstanding Overhead (1,44,000 units × ₹40 × $^{1.5}/_{52}$)	1,66,154
Total (2)	***7,89,231***
Working Capital (1 - 2)	***42,48,307***

PYQ 5

An engineering company is considering its working capital investment for the year 2003-04. The estimated fixed assets and current liabilities for the next year are ₹6.63 crores and ₹5.967 crores respectively. The sales and earnings before interest and taxes (EBIT) depend on investment in its current assets particularly inventory and receivables.

The company is examining the following alternative working capital policies: ***(₹Crore)***

Working capital policy	Investment in CA	Estimated sales	EBIT
Conservative	11.475	31.365	3.1365
Moderate	9.945	29.325	2.9325
Aggressive	6.63	25.50	2.55

You are required to calculate the following for each policy:

(a) Rate of return on total assets.
(b) Net working capital position.
(c) Current assets to fixed assets ratio.
(d) Discuss the risk-return trade off of each working capital policy.

[(8 Marks) May 2003]

Answer

Statement Showing Working Capital Investment for Each Policy (₹Crore)

Particulars	Conservative	Moderate	Aggressive
(a) Rate of return on total assets $\left(\frac{\text{EBIT}}{\text{Total assets (CA + FA)}} \times 100\right)$	$\frac{3.1365}{11.475+6.63} \times 100$ ***17.32%***	$\frac{2.9325}{9.945+6.63} \times 100$ ***17.69%***	$\frac{2.55}{6.63+6.63} \times 100$ ***19.23%***
(b) Net working capital position (CA – CL)	11.475 – 5.967 ***5.508***	9.945 – 5.967 ***3.978***	6.63 – 5.967 ***0.663***
(c) Current assets to fixed assets ratio (CA ÷ Fixed assets)	11.475 ÷ 6.63 ***1.73 : 1***	9.945 ÷ 6.63 ***1.50 : 1***	6.63 ÷ 6.63 ***1 : 1***

(d) Risk-return trade off: The net working capital or current ratio is a measure of risk. Rate of return on total assets is a measure of return. The expected risk and return are minimum in the case of conservative investment policy and maximum in case of aggressive investment policy. The firm can improve profitability by reducing investment in working capital.

PYQ 6

The following annual figures relate to MNP Limited:

Sales (at 3 months credit)	₹90,00,000
Materials consumed (suppliers credit one and half months)	₹22,50,000
Wages paid (one month in arrear)	₹18,00,000
Manufacturing expenses outstanding (cash expenses are paid one month in arrear)	₹2,00,000
Administration expenses (cash expenses are paid one month in arrear)	₹6,00,000
Sales promotion expenses (paid quarterly in advance)	₹12,00,000

The company sells its products on gross profit of 25% of assuming depreciation as a part of cost of production. It keeps two month's stock of finished goods and one month's stock of raw materials as inventory. It keeps cash balance of ₹2,50,000.

Assume a 5% safety margin, work out the working capital requirements of the company on cash cost basis. Ignore work-in-process

[(8 Marks) May 2004]

Answer

Statement of Working Capital Requirement (Cash Cost Basis)

Particulars	₹

(A) Current Assets:	
Raw Materials (22,50,000 × $^{1}/_{12}$)	1,87,500
Finished Goods (64,50,000 × $^{2}/_{12}$)	10,75,000
Debtors (82,50,000 × $^{3}/_{12}$)	20,62,500
Cash	2,50,000
Prepaid Sales Promotion Expenses (12,00,000 × $^{1}/_{4}$)	3,00,000
Total (A)	***38,75,000***
(B) Current Liabilities:	
Creditors (22,50,000 × $^{1.5}/_{12}$)	2,81,250
Outstanding labour (18,00,000 × $^{1}/_{12}$)	1,50,000
Outstanding Manufacturing Expenses	2,00,000
Outstanding Administrative Expenses (6,00,000 × $^{1}/_{12}$)	50,000
Total (B)	***6,81,250***
Working Capital Before Provision (A - B)	***31,93,750***
Add : Safety Margin @ 5% of 31,93,750	1,59,688
Working Capital	***33,53,438***

Working Notes:

Projected Income Statement

Particulars	***₹***
Raw Materials	22,50,000
Wages	18,00,000
Manufacturing Expenses in cash (2,00,000 × 12 months)	24,00,000
Cash Cost of Goods Sold	***64,50,000***
Administration Expenses (in cash)	6,00,000
Sales Promotion Expenses (in cash)	12,00,000
Cash Cost of Sales	***82,50,000***

PYQ 7

XYZ Company Ltd. is a pipe manufacturing company. Its production cycle indicates that materials are introduced in the beginning of the production cycle; wages and overhead accrue evenly throughout the period of the cycle. Wages are paid in the next month following the month of accrual. Work in process includes full units of raw materials used in the beginning of the production process and 50% of wages and overheads are supposed to be conversion costs.

Details of production process and the components of working capital are as follows:

Production of pipes	12,00,000 units
Duration of the production cycle	1 month
Raw materials inventory held	1 month consumption
Finished goods inventory held for	2 months
Credit allowed by creditors	1 months
Credit given to debtors	2 months
Cost price of raw materials	₹60 per units
Direct wages	₹10 per unit
Overheads	₹20 per unit
Selling price of finished pipes	₹100 per unit

Required to calculate:

(1) The amount of working capital required for the company.

(2) Its maximum permissible bank finance under all the three methods of lending norms as suggested by the Tandon Committee, assuming the value of core current assets ₹1,00,00,000.

[(8 Marks) May 2005]

Answer

(1) Statement of Working Capital Requirement

Particulars	***₹***

(A) Current Assets:	
Raw Materials (12,00,000 units × ₹60 × $^{1}/_{12}$)	60,00,000
WIP:	
Materials (12,00,000 units × ₹60 × 100% × $^{1}/_{12}$)	60,00,000
Wages and Overheads (12,00,000 units × ₹30 × 50% × $^{1}/_{12}$)	15,00,000
Finished Goods (12,00,000 units × ₹90 × $^{2}/_{12}$)	1,80,00,000
Debtors (12,00,000 units × ₹90 × $^{2}/_{12}$)	1,80,00,000
Total (A)	***4,95,00,000***
(B) Current Liabilities:	
Creditors (12,00,000 units × ₹60 × $^{1}/_{12}$)	60,00,000
Outstanding labour (12,00,000 units × ₹10 × $^{1}/_{12}$)	10,00,000
Total (B)	***70,00,000***
Working Capital (A - B)	***4,25,00,000***

(2) Calculation of MPBF:

Method 1	=	75% (CA - CL) =	75% of 4,25,00,000	=	***₹3,18,75,000***
Method 2	=	(75% CA) – CL =	(75% of 495 Lacs) – 70 Lacs	=	***₹3,01,25,000***
Method 3	=	(75% CA other than core current assets) - CL			
	=	75% (4,95,,00,000 – 1,00,00,000) – 70,00,000		=	***₹2,26,25,000***

PYQ 8

A Proforma cost sheet of a company provides the following particulars, estimated cost per unit is:

Raw material	₹100.00
Direct wages	₹37.50
Overheads	₹75.00
Total cost	***₹212.50***
Profit	₹37.50
Selling price	***₹250.00***

The Company keeps raw material in stock, on an average for one month; work in progress, on an average for one week; and finished goods in stock, on an average for two weeks. The credit allowed by supplier is three weeks and company allows four weeks credit to its debtors. The lag in payment of wages in one week and lag in payment of overhead expenses is two weeks. The company sells one fifth of the output against cash and maintains cash in hand and at bank put together at ₹37,500.

Prepare a statement showing estimate of Working Capital needed of finance an activity level of 1,30,000 units of production. Assume that production is carried on evenly throughout the year and wages and overheads accrue similarly work in progress stock is 80% complete in all respects.

[(8 Marks) Nov 06]

Answer

Statement of Working Capital Requirement

Particulars	***₹***
(A) Current Assets:	
Raw Materials (1,30,000 units × ₹100 × $^{1}/_{12}$)	10,83,333
WIP (1,30,000 units × ₹212.50 × 80% × $^{1}/_{52}$)	4,25,000
Finished Goods (1,30,000 units × ₹212.50 × $^{2}/_{52}$)	10,62,500
Debtors (1,30,000 units × ₹212.50 × $^{4}/_{5}$ × $^{4}/_{52}$)	17,00,000
Cash and Bank Balance	37,500
Total (A)	***43,08,333***
(B) Current Liabilities:	
Creditors (1,30,000 units × ₹100 × $^{3}/_{52}$)	7,50,000
Outstanding labour (1,30,000 units × ₹37.50 × $^{1}/_{52}$)	93,750
Outstanding Overheads (1,30,000 units × ₹75 × $^{2}/_{52}$)	3,75,000
Total (B)	***12,18,750***
Working Capital (A - B)	***30,89,583***

PYQ 9

A newly formed company has applied to the commercial bank for the first time for financing its working capital requirements.

The following information is available about the projected cost per unit for the current year:

Raw material	₹40
Direct labour	₹15
Overhead	₹30
Total cost	***₹85***
Profit	₹15
Sales	***₹100***

Raw material in stock: average 4 weeks consumption, Work in progress (completion stage 50 percent), on an average half a month. Finished goods in stock: on an average one month. Credit allowed by suppliers is one month. Credit allowed to debtors is two months. Average time lag in payment of wages is 1.5 weeks and 4 weeks in overhead expenses. Cash in hand and at bank is desired to be maintained at ₹50,000. All Sales are on credit basis only.

Required:

(1) Prepare statement showing estimate of working capital needed to finance an activity level of 96,000 units of production. Assume that production is carried on evenly throughout the year and wages and overhead accrue similarly. For the calculation purpose 4 weeks may be taken as equivalent to a month and 52 weeks in a year.

(2) From the above information calculate the maximum permissible bank finance by all the three methods for working capital as per Tandon Committee norms; assume the core current assets constitute 25% of the current assets.

[(8 Marks) Nov 2007]

Answer

(1) Statement of Working Capital Requirement

Particulars	***₹***
(A) Current Assets:	
Raw materials (39,20,000 × $^{4}/_{52}$)	3,01,538
Work in progress	1,70,000
Finished goods	6,80,000
Debtors (74,80,000 × $^{2}/_{12}$)	12,46,667
Cash	50,000
Total (A)	***24,48,205***
(B) Current Liabilities:	
Creditors (39,20,000 + 3,01,538) × $^{1}/_{12}$	3,51,795
Outstanding wages (14,70,000 × $^{1.5}/_{52}$)	42,404
Outstanding overheads (29,40,000 × $^{4}/_{52}$)	2,26,154
Total (B)	***6,20,353***
Working Capital (A - B)	***18,27,852***

Note: one may use 4 weeks instead of 1 month for the purpose of calculations.

(2) Calculation of MPBF under the suggestion of Tandon Committee Norms:

Method 1	=	75% of (CA – CL)	=	75% of 18,27,852	=	***₹13,70,889***
Method 2	=	(75% of CA) – CL	=	(75% of 24,48,205) – 6,20,353	=	***₹12,15,801***
Method 3	=	(75% of CA other than core CA) - CL				
	=	[75% of (24,48,205 – 25%)] – 6,20,353			=	***₹7,56,762***

Working Notes:

Activity level	=	96,000 units of production (Excluding WIP)		
FG Stock	=	on an average one month		
	=	96,000 × 1/12	=	8,000 units

Units sold	=	96,000 – 8,000	=	88,000 units
WIP	=	on an average half a month		
	=	$96{,}000 \times \frac{.5}{12}$	=	4,000 units

Projected Income Statement

Particulars	***₹***
Raw materials (96,000 + ½ × 4,000) × 40	39,20,000
Direct labour (96,000 + ½ × 4,000) × 15	14,70,000
Overheads (96,000 + ½ × 4,000) × 30	29,40,000
Cost Upto Factory	***83,30,000***
Less: Closing WIP 4,000 units × (20 + 7.50 + 15)	(1,70,000)
Cost of Production (96,000 units)	***81,60,000***
Less: Closing FG 8,000 units × 85	(6,80,000)
Cost of Goods Sold (88,000 units)	***74,80,000***
Profit	13,20,000
Sales (88,000 × 100)	***88,00,000***

PYQ 10

MN Ltd. is commencing a new project for manufacturing of electric toys. The following cost information has been ascertained for annual production of 60,000 units at full capacity:

	Cost per unit
Raw materials	₹20
Direct labour	₹15
Manufacturing overheads:	
Variable	₹15
Fixed	₹10
Selling and Distribution overheads:	
Variable	₹3
Fixed	₹1
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 material	3 months consumption
(ii)	Credit allowable for debtors	1-½ months
(iii)	Credit allowable by creditors	4 months
(iv)	Lag in payment of wages	1 month
(v)	Lag in payment of overheads	½ month
(vi)	Cash in hand and bank is expected to	₹60,000

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 operation. Debtors are taken at cost.

[(8 Marks) Nov 2008]

Answer

Statement of Working Capital Requirement

Particulars	***₹***
(A) Current Assets:	
Raw materials (8,00,000 × $^{3}/_{12}$)	2,00,000
Finished goods	3,25,000
Debtors (24,40,000 × $^{1.5}/_{12}$)	3,05,000
Cash	60,000

Total (A)	***8,90,000***
(B) Current Liabilities:	
Creditors (8,00,000 + 2,00,000) × $^{4}/_{12}$	3,33,333
Outstanding labour (6,00,000 × $^{1}/_{12}$)	50,000
Outstanding overheads (13,65,000 × $^{0.5}/_{12}$)	56,875
Total (B)	***4,40,208***
Gross Working Capital (A - B)	***4,49,792***
Add: Provision for contingencies @ 10% of Working Capital	49,977
Working Capital	***4,99,769***

WN:

Projected Income Statement

Particulars	***₹***
Raw Materials (40,000 × 20)	8,00,000
Direct Labour (40,000 × 15)	6,00,000
Manufacturing Overheads: Variable (40,000 × 15)	6,00,000
Fixed (60,000 × 10)	6,00,000
Cost of Production (40,000 units)	***26,00,000***
Less: Closing FG (26,00,000 × $^{5,000}/_{40,000}$)	(3,25,000)
Cost of Goods Sold (35,000 units)	***22,75,000***
Selling and Distribution Overheads: Variable (35,000 × 3)	1,05,000
Fixed (60,000 × 1)	60,000
Cost of Sales	***24,40,000***
Profit	3,60,000
Sales (35,000 × 80)	***28,00,000***

PYQ 11

The management of MNP Company Ltd. is planning to expand its business and consult you to prepare an estimated working capital statement.

The records of the company revealed the following annual information:

Sales:	
Domestic at one month's credit	₹24,00,000
Export at three month's credit	₹10,80,000
(Sales price 10% below Domestic price)	
Material used (suppliers extend two months credit)	₹9,00,000
Lag in payment of wages - ½ month	₹7,20,000
Lag in payment of manufacturing expenses (cash) - 1 month	₹10,80,000
Lag in payment of administrative expenses - 1 month	₹2,40,000
Sales promotion expenses payable quarterly in advance	₹1,50,000
Income tax payable in four installments (of which one falls in the next financial year)	₹2,25,000

Rate of gross profit is 20%. Ignore work-in-progress and depreciation. The company keeps one month's stock of raw materials and finished goods (each) and believes in keeping ₹2,50,000 available to it including the overdraft limit of ₹75,000 not yet utilized by the company. The management is also of the opinion to make 12% margin for contingencies on computed figure.

You are required to prepare the estimated working capital statement for next year.

[(16 Marks) May 2011]

Answer

Statement of Working Capital Requirement (Cash Cost Basis)

Particulars	***₹***
(A) Current Assets:	
Raw Materials (9,00,000 × $^{1}/_{12}$)	75,000
Finished Goods (29,40,000 × $^{1}/_{12}$)	2,45,000
Debtors:	
Domestic (19,60,000 + 1,03,448) × $^{1}/_{12}$	1,71,954

Export (9,80,000 + 46,552) × $^{3}/_{12}$	2,56,638
Cash (2,50,000 – 75,000)	1,75,000
Prepaid Sales Promotion Expenses (1,50,000 × $^{1}/_{4}$)	37,500
Total (A)	***9,61,092***
(B) Current Liabilities:	
Creditors (9,00,000 × $^{2}/_{12}$)	1,50,000
Outstanding labour (7,20,000 × $^{0.5}/_{12}$)	30,000
Outstanding Manufacturing Expenses (10,80,000 × $^{1}/_{12}$)	90,000
Outstanding Administrative Expenses (2,40,000 × $^{1}/_{12}$)	20,000
Income Tax Payable (2,25,000 × $^{1}/_{4}$)	56,250
Total (B)	***3,46,250***
Working Capital Before Provision (A - B)	***6,14,842***
Add : Safety Margin @ 12% of 6,14,842	73,781
Working Capital	***6,88,623***

Working Notes:

1. Calculation of Cash cost of Debtors:

Export sales (10% below domestic sales price) = 10,80,000

Export sales equivalent to domestic sales = $10,80,000 \times \frac{100}{90}$ = 12,00,000

Total equivalent domestic sales = 24,00,000 + 12,00,000 = 36,00,000

Apportionment of cash cost of sales except sales promotion expenses in proportion of equivalent domestic sales between Domestic and Foreign Sales:

Domestic sales = $29,40,000 \times \frac{24,00,000}{36,00,000}$ = 19,60,000

Foreign sales = $29,40,000 \times \frac{12,00,000}{36,00,000}$ = 9,80,000

Apportionment of sales promotion expenses between Domestic and Foreign Sales in sales ratio:

Domestic sales = $1,50,000 \times \frac{24,00,000}{34,80,000}$ = 1,03,448

Foreign sales = $1,50,000 \times \frac{10,80,000}{34,80,000}$ = 46,552

2. Projected Income Statement

Particulars	***₹***
Raw Materials	9,00,000
Wages	7,20,000
Manufacturing Expenses (in cash)	10,80,000
Administration Expenses (in cash)	2,40,000
Cash Cost of Goods Sold	***29,40,000***
Sales Promotion Expenses (in cash)	1,50,000
Cash Cost of Sales	***30,90,000***

Assumption: Administrative expenses is related to production.

PYQ 12

The Trading and Profit and Loss Account of Beta Ltd. for the year ended 31st March, 2011 is given below:

Particulars	***₹***	***Particulars***	***₹***
To Opening Stock:		By Seles (credit)	20,00,000
Raw materials	1,80,000	By Closing Stock:	
Work-in-progress	60,000	Raw materials	2,00,000
Finished goods	2,60,000	Work-in-progress	1,00,000
To Purchases (credit)	11,00,000	Finished Goods	3,00,000

To Wages	3,00,000		
To Production Expenses	2,00,000		
To Gross Profit	5,00,000		
	26,00,000		***26,00,000***
To Administration Expenses	1,75,000	By Gross Profit	5,00,000
To Selling Expenses	75,000		
To Net Profit	2,50,000		
	5,00,000		***5,00,000***

The opening and closing balances of debtors were ₹1,50,000 and ₹2,00,000 respectively whereas opening and closing creditors were ₹2,00,000 and ₹2,40,000 respectively.

You are required to ascertain the working capital requirement by operating cycle method.
[(8 Marks) Nov 2011]

Answer

Working Capital = Annual cost of sales $\times \frac{\text{Operating cycle}}{\text{365 Days}}$

= (₹20,00,000 – ₹2,50,000) $\times \frac{110.24}{365}$ = ***₹5,28,548***

Operating cycle = R + W + F + D – C

= 64.21 + 18.96 + 68.13 + 31.94 – 73 = ***110.24 Days***

Calculations:

Raw materials storage period = $\frac{\text{Average stock of raw materials}}{\text{Average cost of raw materials consumption per day}}$

= $\frac{1,90,000}{10,80,000 \div 365}$ = ***64.21 days***

Raw materials consumed = Opening RM + Purchases - Closing RM

= 1,80,000 + 11,00,000 – 2,00,000 = 10,80,000

WIP holding period = $\frac{\text{Average stock of WIP}}{\text{Average cost of production per day}}$ = $\frac{80,000}{15,40,000 \div 365}$

= ***18.96 days***

Cost of production = RMC + Wages + Production expenses + Op. WIP - Closing WIP

= 10,80,000 + 3,00,000 + 2,00,000 + 60,000 – 1,00,000

= 15,40,000

Finished Goods storage period = $\frac{\text{Average stock of FG}}{\text{Average cost of goods sold per day}}$ = $\frac{2,80,000}{15,00,000 \div 365}$

= ***68.13 days***

Cost of goods sold = COP + Opening FG - Closing FG

= 15,40,000 + 2,60,000 – 3,00,000 = 15,00,000

Debtors collection period = $\frac{\text{Average debtors}}{\text{Average credit sales per day}}$ = $\frac{1,75,000}{20,00,000 \div 365}$

= ***31.94 days***

Credit period availed = $\frac{\text{Average trade creditors}}{\text{Average credit purchases per day}}$ = $\frac{2,20,000}{11,00,000 \div 365}$

= ***73 days***

Calculation of averages:

Average stock of raw materials	=	(1,80,000 + 2,00,000) ÷ 2	=	1,90,000
Average stock of WIP	=	(60,000 + 1,00,000) ÷ 2	=	80,000
Average stock of FG	=	(2,60,000 + 3,00,000) ÷ 2	=	2,80,000
Average debtors	=	(150,000 + 2,00,000) ÷ 2	=	1,75,000
Average trade creditors	=	(2,00,000 + 2,40,000) ÷ 2	=	2,20,000

PYQ 13

STN Ltd. is a readymade garment manufacturing company. Its production cycle indicates that materials are introduced in the beginning of the production phase; wages and overhead accrue evenly throughout the period of cycle.

The following figures for the 12 months ending 31st December 2011 are given:

Production of shirts	54,000 units
Selling price per unit	₹200
Duration of the production cycle	1 month
Raw material inventory held	2 month's consumption
Finished goods stock held for	1 month
Credit allowed to debtors	1.5 months
Credit allowed by creditors	1 month

Wages are paid in the next month following the month of accrual. In the work in progress 50% of wages and overheads are supposed to be conversion costs. The ratios of cost to sales price are raw materials 60%, direct wages 10% and overheads 20%. Cash is to be held to the extent of 40% of current liabilities and safety margin of 15% will be maintained.

Calculate amount of working capital required for the company on a cash cost basis.

[(8 Mark) May 12]

Answer

Statement of Working Capital Requirement (Cash Cost Basis)

Particulars	*₹*
(A) Current Assets:	
Raw Materials (64,80,000 × $^{2}/_{12}$)	10,80,000
WIP:	
Materials (64,80,000 units × $^{1}/_{12}$ × 100%)	5,40,000
Wages and Overheads (32,40,000 units × $^{1}/_{12}$ × 50%)	1,35,000
Finished Goods (97,20,000 × $^{1}/_{12}$)	8,10,000
Debtors (97,20,000 × $^{1.5}/_{12}$)	12,15,000
Cash (40% of 6,30,000)	2,52,000
Total (A)	***40,32,000***
(B) Current Liabilities:	
Creditors (64,80,000 × $^{1}/_{12}$)	5,40,000
Outstanding Wages (10,80,000 × $^{1}/_{12}$)	90,000
Total (B)	***6,30,000***
Working Capital Before Provision (A - B)	***34,02,000***
Add : Safety Margin @ 15% of 34,02,000	5,10,300
Working Capital	***39,12,300***

Working Notes:

Projected Income Statement

Particulars	*₹*
Raw Materials (54,000 units × ₹200 × 60%)	64,80,000
Wages (54,000 units × ₹200 × 10%)	10,80,000
Overheads treated as cash (54,000 units × ₹200 × 20%)	21,60,000
Cash Cost of Goods Sold/ Cash Cost of Sales	***97,20,000***

PYQ 14

The following information is provided by the DPS Limited for the year ending 31st March, 2013

Raw material storage period	55 days
Work-in progress conversion period	18 days
Finished Goods storage period	22 days
Debt collection period	45 days
Creditor's payment period	60 days
Annual Operating cost (including depreciation of ₹2,10,000)	₹21,00,000
1 year	360 days

You are required to calculate:

I. Operating Cycle period.
II. Number of Operating Cycle in a year.
III. Amount of working capital required of the company on a cash cost basis.
IV. The company is a market leader in its product, there is virtually no competitor in the market. Based on a market research it is planning to discontinue sales on credit and deliver products based on pre-payment. Thereby, it can reduce its working capital requirement substantially. What would be the reduction in working capital requirement due to such decision?

[(Marks 8) May 2013, May 2015]

Answer

I. Operating cycle = R + W + F + D – C = 55 + 18 + 22 + 45 – 60
= ***80 Days***

II. No. of operating cycle = $\frac{360}{80}$ = ***4.5 times***

III. Working Capital = Annual cash operating cost × $\frac{\text{Operating cycle}}{360 \text{ Days}}$

= (₹21,00,000 – ₹2,10,000) × $\frac{80 \text{ Days}}{360 \text{ Days}}$ = ***₹4,20,000***

IV. In case of cash sales operating cycle period will reduce by 45 Days (Debt collection period).

Reduction in working capital = (₹21,00,000 – ₹2,10,000) × $\frac{80 \text{ Days} - 35 \text{ Days}}{360 \text{ Days}}$

= ***₹2,36,250***

PYQ 15

Black Limited has furnished the following cost sheet:

	Per Unit
Raw Material	₹98
Direct Labour	₹53
Factory Overhead	₹88
Total Cost	***₹239***
Profit	₹43
Selling Price	***₹282***

Factory overheads includes depreciation of ₹15 per unit at budgeted level of activity

Additional Information:

(i)	Average raw material in stock	3 weeks
(ii)	Average work-in-progress (% of completion with respect to Materials 75% and Labour and Overhead 70%)	2 weeks
(iii)	Finished goods in stock	4 weeks
(iv)	Credit allowed to debtors	2.5 weeks
(v)	Credit allowed by creditors	3.5 weeks
(vi)	Time lag in payment of labour	2 weeks
(vii)	Time lag in payment of factory overheads	1.5 weeks

(viii) Company sells, 25% of the output against cash

(ix) Cash in hand and bank is desired to be maintained ₹2,25,000

(x) Provision for contingencies is required @ 4% of working capital requirement including that provision.

You are required to prepare a statement showing estimate of working capital needed to finance a budgeted activity level of 1,04,000 units of production. Finished stock, debtors and overheads are taken at cash cost.

[(8 Marks) May 2014]

Answer

Statement of Working Capital Requirement (Cash Cost Basis)

Particulars	₹
(A) Current Assets:	
Raw Materials (1,01,92,000 × $^{3}/_{52}$)	5,88,000
Work-in-progress:	
Materials (1,01,92,000 × 75%) × $^{2}/_{52}$	2,94,000
Labour and Overhead [(55,12,000 + 75,92,000) × 70%] × $^{2}/_{52}$	3,52,800
Finished Goods (2,32,96,000 × $^{4}/_{52}$)	17,92,000
Debtors (2,32,96,000 × 75% × $^{2.5}/_{52}$)	8,40,000
Cash	2,25,000
Total (A)	***40,91,800***
(B) Current Liabilities:	
Creditors (1,01,92,000 × $^{3.5}/_{52}$)	6,86,000
Outstanding labour (55,12,000 × $^{2}/_{52}$)	2,12,000
Outstanding Factory Overhead (75,92,000 × $^{1.5}/_{52}$)	2,19,000
Total (B)	***11,17,000***
Working Capital Before Provision (A - B)	***29,74,800***
Add : Provision for contingencies @ 4% of wc including provision	1,23,950
Working Capital (29,74,800 ÷ 96%)	***30,98,750***

Working Notes:

Projected Income Statement (Production of 1,04,000 units)

Particulars	₹
Raw Materials (1,04,000 × 98)	1,01,92,000
Wages (1,04,000 × 53)	55,12,000
Factory Overhead in cash [1,04,000 × 73 (88 - 15)]	75,92,000
Cash Cost	***2,32,96,000***

PYQ 16

The following data relating to an auto component manufacturing company is available for the year 2014:

Raw material held in storage	20 days
Debtors collection period	30 days
Conversion process period (raw materials 100%, other cost 50%)	10 days
Finished Goods storage period	45 days
Credit period from supplier	60 days
Advance payment to supplier	5 days
Total cash operating expenses per annum	₹800 Lakhs
1 year	360 days

75% of total cash operating expenses for raw materials. 360 days assumed in a year.

You are required to calculate:

(a) Each item of current assets and current liabilities,

(b) The working capital requirement, if the company wants to maintain a cash balance of ₹10 Lakhs at all the times. ***[(Marks 8) June 2015]***

Answer

(a) Calculation of each item of current assets and current liabilities:

Stock of Raw Materials	=	₹600 Lacs × $^{20}/_{360}$	=	***₹33.33 Lacs***
Debtors	=	₹800 Lacs × $^{30}/_{360}$	=	***₹66.67 Lacs***
Stock of WIP	=	[(₹600 Lacs ×100%) + (₹200 Lacs ×50%)] × $^{10}/_{360}$		
	=	***₹19.44 Lacs***		
Stock of Finished Goods	=	₹800 Lakhs × $^{45}/_{360}$	=	***₹100 Lacs***
Advance to Supplier	=	₹600 Lakhs × $^{5}/_{360}$	=	***₹8.33 Lacs***
Creditors	=	₹600 Lakhs × $^{60}/_{360}$	=	***₹100 Lacs***

(b) Calculation of working capital requirement:

Working Capital	=	Current Assets – Current Liabilities
	=	(Raw Materials Stock + Debtors + WIP Stock + Finished Goods Stock + Advance to Supplier + Cash Balance) - Creditors
	=	(₹33.33 + ₹66.67 + ₹19.44 + ₹100 + ₹8.33 + ₹10) – ₹100
	=	***₹137.77 Lakhs***

Projected Income Statement

Particulars	***₹ (in Lakhs)***
Raw Materials (75% of 800)	600
Other Operating Expenses (25% of 800)	200
Cash Cost	***800***

PYQ 17

PQ Limited wants to expand its business and has applied for a loan from a commercial bank for its growing financial requirements.

The records of the company reveals that the company sells goods in the domestic market at a gross profit of 25% not counting depreciation as part of the cost of goods sold.

The following additional information is also available for you:

Sales:	
Home at one month's credit	₹1,20,00,000
Export at three month's credit (Sales price 10% below Home price)	₹54,00,000
Material used (suppliers extend two months' credit)	₹45,00,000
Wages paid ½ month in arrear	₹36,00,000
Manufacturing expenses (cash) paid (1 month in arrear)	₹54,00,000
Administrative expenses paid 1 month in arrear	₹12,00,000
Income tax payable in four installments (of which one falls in the next financial year)	₹15,00,000

The company keeps one month's stock of raw materials and finished goods (each) and believes in keeping ₹10,00,000 available to it including the overdraft limit of ₹5,00,000 not yet utilized by the company. Assume a 15% margin for contingencies.

You are required to ascertain the requirement of the working capital of the company.

[(8 Marks) May 2017]

Answer

Statement of Working Capital Requirement (Cash Cost Basis)

Particulars	***₹***
(A) Current Assets:	

Raw Materials (45,00,000 × $^{1}/_{12}$)	3,75,000
Finished Goods (1,47,00,000 × $^{1}/_{12}$)	12,25,000
Debtors:	
Home (98,00,000 × $^{1}/_{12}$)	8,16,667
Export (49,00,000 × $^{3}/_{12}$)	12,25,000
Cash (10,00,000 – 5,00,000)	5,00,000
Total (A)	***41,41,667***
(B) Current Liabilities:	
Creditors (45,00,000 × $^{2}/_{12}$)	7,50,000
Outstanding labour (36,00,000 × $^{0.5}/_{12}$)	1,50,000
Outstanding Manufacturing Expenses (54,00,000 × $^{1}/_{12}$)	4,50,000
Outstanding Administrative Expenses (12,00,000 × $^{1}/_{12}$)	1,00,000
Income Tax Payable (15,00,000 × $^{1}/_{4}$)	3,75,000
Total (B)	***18,25,000***
Working Capital Before Provision (A - B)	***23,16,667***
Add: Contingency Margin @ 15% of 23,16,667	3,47,500
Working Capital	***26,64,167***

Working Notes:

1. Calculation of Cash cost of Debtors:

Export sales (10% below home sales price) = 54,00,000

Export sales equivalent to home sales = $54,00,000 \times \frac{100}{90}$ = 60,00,000

Total equivalent home sales = 1,20,00,000 + 60,00,000 = 1,80,00,000

Apportionment of cash cost of COGS in proportion of equivalent home sales between Home and Foreign Sales:

Home sales = $1,47,00,000 \times \frac{1,20,00,000}{1,80,00,000}$ = 98,00,000

Foreign sales = $1,47,00,000 \times \frac{60,00,000}{1,80,00,000}$ = 49,00,000

2. Projected Income Statement

Particulars	***₹***
Raw Materials	45,00,000
Wages	36,00,000
Manufacturing Expenses (in cash)	54,00,000
Administration Expenses	12,00,000
Cash Cost of Goods Sold	***1,47,00,000***

Assumption: Administrative expenses is related to production.

PYQ 18

Day Ltd., a newly formed company has applied to the Private bank for the first time for financing its working capital requirements.

The following information is available about the projection for the current year:

Estimated level of activity	Completed units of production 31,200 units Plus units of WIP 12,000
Raw material cost	₹40 per unit
Direct wages cost	₹15 per unit
Overhead (Inclusive Depreciation ₹10 per unit)	₹40 per unit
Selling price	***₹130***
Raw material in stock	Average 30 days consumption
Work in progress stock	Material 100% and conversion cost 50%

Finished goods stock	24,000 units
Credit allowed by suppliers	30 days
Credit allowed to purchasers	60 days
Direct wages (lag in payment)	15 days
Expected cash balance	₹2,00,000

Assume that production is carried on evenly throughout the year (360 days) and wages and overhead accrue similarly. All sales are on credit basis.

You are required to calculate the Net Working Capital requirement on Cash Cost Basis.

[(10 Marks) May 2018]

Answer

Statement of Working Capital Requirement

Particulars		₹
(A) Current Assets:		
Raw Materials Stock	(17,28,000 × $^{30}/_{360}$)	1,44,000
Work in progress		7,50,000
Finished goods		20,40,000
Debtors	(6,12,000 × $^{60}/_{360}$)	1,02,000
Cash		2,00,000
Total (A)		***32,36,000***
(B) Current Liabilities:		
Creditors	(17,28,000 + 1,44,000) × $^{30}/_{360}$	1,56,000
Outstanding wages	(5,58,000 × $^{15}/_{360}$)	23,250
Total (B)		***1,79,250***
Working Capital (A - B)		***30,56,750***

Projected Cost of Goods Sold

Particulars		₹
Raw Materials	(31,200 × 40 + 12,000 × 40)	17,28,000
Direct Wages	(31,200 × 15 + 12,000 × 7.5)	5,58,000
Overheads excluding Depreciation	(31,200 × 30 + 12,000 × 15)	11,16,000
Cost Upto Factory		***34,02,000***
Less: Closing WIP	12,000 units × (40 + 7.50 + 15)	(7,50,000)
Cost of Production (31,200 units)		***26,52,000***
Less: Closing FG	24,000 units × (40 + 15 + 30)	(20,40,000)
Cost of Goods Sold (7,200 units)		***6,12,000***

PYQ 19

Following information has been extracted from the books of ABS Limited:

	01.04.17	***31.03.18***
Raw Material	1,00,000	70,000
Work-in-process	1,40,000	2,00,000
Finished goods	2,30,000	2,70,000
Average Receivables		2,10,000
Average Payables		3,14,000
Purchases		15,70,000
Wages and overheads		17,50,000
Selling expenses		3,20,000
Sales		42,00,000

All purchases and sales are on credit basis. Company is willing to know:

(1) Net operating cycle period.

(2) Amount of working capital requirement (Assume 360 days in a year).

[(8 Marks) Nov 2018]

Answer

(1) Operating cycle = **R + W + F + D – C**

= 19 + 19 + 28 + 18 – 72 = **12 Days**

Calculations:

Raw materials storage period (R) = $\frac{\text{Average stock of raw materials}}{\text{Average cost of raw materials consumption per day}}$

= $\frac{(1,00,000 + 70,000) \div 2}{16,00,000 \div 360}$ = **19 days**

Raw materials consumption = Opening RM + Purchases – Closing RM

= 1,00,000 + 15,70,000 – 70,000 = **16,00,000**

WIP holding period = $\frac{\text{Average stock of WIP}}{\text{Average cost of production per day}}$

= $\frac{(1,40,000 + 2,00,000) \div 2}{32,90,000 \div 360}$ = **19 days**

Cost of Production = RM consumed + Wages and OH + Opening WIP – Closing WIP

= 16,00,000 + 17,50,000 + 1,40,000 – 2,00,000

= **32,90,000**

Finished Goods storage period = $\frac{\text{Average stock of FG}}{\text{Average cost of goods sold per day}}$

= $\frac{(2,30,000 + 2,70,000) \div 2}{32,50,000 \div 360}$ = **28 days**

Cost of Goods Sold = Cost of Production + Opening FG – Closing FG

= 32,90,000 + 2,30,000 – 2,70,000

= **32,50,000**

Debtors collection period = $\frac{\text{Average book debts}}{\text{Average credit sales per day}}$

= $\frac{2,10,000}{42,00,000 \div 360}$ = **18 days**

Credit period availed = $\frac{\text{Average trade creditors}}{\text{Average credit purchases per day}}$

= $\frac{3,14,000}{15,70,000 \div 360}$ = **72 days**

(2) Amount of working capital required:

Working Capital = $\frac{\text{Annual Cost of Sales}}{360} \times \text{Operating Cycle Period}$

= $\frac{35,70,000}{360} \times 12$ = **₹1,19,000**

Cost of Sales = Cost of Goods Sold + Selling expenses

= 32,50,000 + 3,20,000 = **35,70,000**

PYQ 20

Bita Limited manufactures a product used in the steel industry. The following information regarding the company is given for your consideration:

(1) The cost structure for Bita Limited's product is as follows:

	Per Unit
Raw Material	₹80
Direct Labour	₹20

Overhead (including depreciation ₹20)	₹80
Total Cost	***₹180***
Profit	₹20
Selling Price	***₹200***

(2) Expected level of production 9,000 units per annum.

(3) Raw materials are expected to remain in stores for an average of two months before issue to production.

(4) Work-in-progress (50% complete as to conversion cost) will approximately to ½ month's production.

(5) Finished goods remain in warehouse on an average for one month.

(6) Credit allowed by supplier is one month.

(7) Two month's credit is normally allowed to debtors.

(8) A minimum cash balance of ₹67,500 is expected to be maintained.

(9) Cash sales are 75% less than the credit sales.

(10) Safety margin of 20% to cover unforeseen contingencies.

(11) The production pattern is assumed to be even during the year.

You are required to estimate the working capital requirement of Bita Limited.

[(10 Marks) May 2019]

Answer

Statement of Working Capital Requirement

Particulars	***₹***
(A) Current Assets:	
Raw Materials (7,20,000 × $^{2}/_{12}$)	1,20,000
Work-in-progress:	
Materials (7,20,000 × $^{0.5}/_{12}$ × 100%)	30,000
Labour and Overhead [(1,80,000 + 7,20,000) × 50%] × $^{0.5}/_{12}$	18,750
Finished Goods (16,20,000 × $^{1}/_{12}$)	1,35,000
Debtors (16,20,000 × $^{4}/_{5}$ × $^{2}/_{12}$)	2,16,000
Cash	67,500
Total (A)	***5,87,250***
(B) Current Liabilities:	
Creditors (7,20,000 × $^{1}/_{12}$)	60,000
Total (B)	***60,000***
Working Capital Before Provision (A - B)	***5,27,250***
Add : Safety margin @ 20%	1,05,450
Working Capital	***6,32,700***

Working Notes:

1. Projected Income Statement (Production of 9,000 units)

Particulars			***₹***
Raw Materials	(9,000 × 80)		7,20,000
Direct Labour	(9,000 × 20)		1,80,000
Overhead : in cash	(9,000 × 60)	5,40,000	
: Depreciation	(9,000 × 20)	1,80,000	7,20,000
Cost of Goods Sold			***16,20,000***
Profit	(9,000 × 20)		1,80,000
Sales			***18,00,000***

2. Proportion between cash and credit sales:

Let Credit sales be x then cash sales will be 0.25 x (x – 75%)

Cash Sales : Credit Sales = x : .25x = 1 : .25 = ***4 : 1***

PYQ 21

PK Ltd. a manufacturing company, provides the following information:

Particulars	₹
Sales	1,08,00,000
Raw material consumed	27,00,000
Labour paid	21,60,000
Manufacturing overhead (including depreciation for the year ₹3,60,000)	32,40,000
Administrative and Selling overheads	10,80,000

Additional information:

(a) Receivables are allowed 3 months' credit.
(b) Raw material supplier extends 3 months' credit.
(c) Lag in payment of labour is 1 month.
(d) Manufacturing overheads are paid one month in arrear.
(e) Administrative and Selling overhead is paid 1 month advance.
(f) Inventory holding period of raw material and finished goods are of 3 months.
(g) Work-in-progress is Nil.
(h) PK Ltd. sells goods at cost plus 33⅓%.
(i) Cash balance ₹3,00,000.
(j) Safety margin 10%.

You are required to compute the working capital requirements of PK Ltd. on cash cost basis.
[(10 Marks) Nov 2020]

Answer

Statement of Working Capital Requirement (Cash Cost Basis)

Particulars	₹
(A) Current Assets:	
Raw Materials (27,00,000 × $^{3}/_{12}$)	6,75,000
Finished Goods (77,40,000 × $^{3}/_{12}$)	19,35,000
Debtors (88,20,000 × $^{3}/_{12}$)	22,05,000
Cash balance	3,00,000
Prepaid Administrative and Selling overhead (10,80,000 × $^{1}/_{12}$)	90,000
Total (A)	***52,05,000***
(B) Current Liabilities:	
Creditors (27,00,000 × $^{3}/_{12}$)	6,75,000
Outstanding labour (21,60,000 × $^{1}/_{12}$)	1,80,000
Outstanding Manufacturing Expenses (28,80,000 × $^{1}/_{12}$)	2,40,000
Total (B)	***10,95,000***
Working Capital Before Provision (A - B)	***41,10,000***
Add : Safety Margin @ 10% of 41,10,000	4,11,000
Working Capital	***45,21,000***

Working Notes:

Projected Income Statement (Cash Cost Basis)

Particulars	₹
Raw Materials	27,00,000
Labour	21,60,000
Manufacturing overhead (32,40,000 – 3,60,000)	28,80,000
Cash Cost of Goods Sold	***77,40,000***
Administrative and Selling overhead	10,80,000
Cash Cost of Sales	***88,20,000***

PYQ 22

The following information is provided by MNP Ltd. for the year ending 31st March, 2020:

Raw material storage period	45 days
Work-in progress conversion period	20 days
Finished Goods storage period	25 days
Debt collection period	30 days
Creditor's payment period	60 days
Annual Operating cost (including depreciation of ₹2,50,000)	₹25,00,000

Assume 360 days in a year.

You are required to calculate:

I. Operating Cycle period.
II. Number of Operating Cycle in a year.
III. Amount of working capital required of the company on a cash cost basis.
IV. The company is a market leader in its product, there is virtually no competitor in the market. Based on a market survey it is planning to discontinue sales on credit and deliver products based on pre-payment in order to reduce its working capital requirement substantially. You are required to compute the reduction in working capital requirement in such a scenario.

[(5 Marks) Jan 2021]

Answer

I. Operating cycle = R + W + F + D – C
= 45 + 20 + 25 + 30 – 60 = ***60 Days***

II. No. of operating cycle = $\frac{360}{60}$ = ***6 times***

III. Working Capital = Annual cash operating cost × $\frac{\text{Operating cycle}}{360 \text{ Days}}$
= (₹25,00,000 – ₹2,50,000) × $\frac{60 \text{ Days}}{360 \text{ Days}}$
= ***₹3,75,000***

IV. Reduction in working capital = (₹25,00,000 – ₹2,50,000) × 30 days/360 days
= ***₹1,87,500***

PYQ 23

Balance sheet of X Ltd for the year ended 31st March, 2022 is given below:

(₹ in lakhs)

Liabilities	***Amount***	***Assets***	***Amount***
Equity Shares ₹10 each	200	Fixed Assets	500
Retained Earnings	200	Raw Materials	150
11% Debentures	300	WIP	100
Public Deposits (Short-term)	100	Finished Goods	50
Trade Creditors	80	Debtors	125
Bills Payable	100	Cash and Bank	55
	980		***980***

Calculate the amount of maximum permissible bank finance under three methods as per Tandon Committee lending norms.

Total core current assets are assumed to be ₹30 Lakhs.

[(5 Marks) May 2022]

Answer

Calculation of MPBF:

Method 1 = 75% (CA - CL) = 75% (480 – 280) = ***₹150 Lakhs***

Method 2	=	(75% CA) – CL = (75% 480) – 280	=	***₹80 lakhs***
Method 3	=	(75% CA other than core CA) – CL		
	=	75% (480 – 30) – 280	=	***₹57.50 Lakhs***
Current Assets	=	Raw Materials + WIP + Finished Goods + Debtors + Cash and Bank		
	=	150 + 100 + 50 + 125 + 55	=	₹480 Lakhs
Current Liabilities	=	Public deposit (Short term) + Trade Creditors + Bills Payable		
	=	100 + 80 + 100	=	₹280 Lakhs

SUGGESTED REVISION

Ques. No.	Observations or KEY Points (Note down during revisions)	Page No. of Practical Register	1st & 2nd Revision	3rd, 4th & 5th Revision	Revision during Exams
BQ (Book Questions covering Study Module of ICAI, PM, RTP's, MTP's and Important Questions)					
1			Y	-	-
2			Y	-	-
3			Y	Y	Y
4			Y	Y	-
5			Y	-	-
6			Y	Y	-
7			Y	Y	Y
8			Y	-	-
9			Y	Y	-
10			Y	Y	Y
11			Y	Y	-
12			Y	Y	Y
13			Y	Y	Y
14			Y	-	-
15			Y	Y	Y
16			Y	Y	Y
17			Y	-	-
18			Y	Y	Y
19			Y	Y	-
20			Y	Y	Y
21			Y	-	-
PYQ (Past Year Questions)					
1			Y	Y	-
2			Y	Y	-
3			Y	Y	Y
4			Y	-	-
5			Y	-	-
6			Y	Y	Y
7			Y	Y	-
8			Y	Y	-
9			Y	Y	Y
10			Y	Y	Y
11			Y	Y	Y
12			Y	Y	Y
13			Y	-	-
14			Y	Y	Y
15			Y	Y	-
16			Y	-	-
17			Y	Y	-
18			Y	Y	-
19			Y	Y	-
20			Y	Y	Y
21			Y	-	-
22			Y	-	-
23			Y	Y	-

CHAPTER - 5

TREASURY AND CASH MANAGEMENT

LEARNING OBJECTIVES

After studying this chapter you will be able to:

- ***Discuss in details about cash management, its meanings and its significance to any business.***
- ***Understand the concept of cash budget and the estimation of cash needs.***
- ***Understand the decision making in case of excess cash balance or in case of deficiency of cash.***
- ***Know why it is important to manage efficiently the cash?***
- ***Discuss the cash models as suggested by Baumol, Miller & Orr.***

CASH BUDGET FOR SHORT PERIOD

BQ 1

Prepare a cash budget for the three months ended 30th September, 2023 based on the following information:

Cash at bank on 1st July, 2023	₹25,000
Monthly salaries and wages (estimated)	₹10,000
Interest payable in August, 2023	₹5,000

Particulars	June	July	August	September
Cash sales	1,20,000	1,40,000	1,52,000	1,21,000
Credit sales	1,00,000	80,000	1,40,000	1,20,000
Purchases	1,60,000	1,70,000	2,40,000	1,80,000
Other expenses	18,000	20,000	22,000	21,000

Credit sale are collected 50% in the month of sale and 50% in the month following. Collection from credit sales are subject to 10% discount if received in the month of sale and to 5% if received in the month following. 10% of the purchases are in cash and balance is paid in next month.

[July: ₹57,500; August: ₹96,500; September: ₹73,000]

BQ 2

Prepare monthly cash budget for six months beginning from April 2023 on the basis of the following information:

(a) Estimated monthly sales are as follows:

January	₹1,00,000	June	₹80,000
February	₹1,20,000	July	₹1,00,000
March	₹1,40,000	August	₹80,000
April	₹80,000	September	₹60,000
May	₹60,000	October	₹1,00,000

(b) Wages and salaries are estimated to be payable as follows:

April	₹9,000	July	₹10,000
May	₹8,000	August	₹9,000
June	₹10,000	September	₹9,000

(c) Of the sales, 80% is on credit and 20% for cash. 75% of the credit sales are collected within one month and the balance in two months. There are no bad debts losses.

(d) Purchase amount to 80% of sales and are made and paid for in the month preceding the sales.

(e) The firm has 10% debenture of ₹1,20,000. Interest on these has to be paid quarterly in January, April and so on.

(f) The firm is to make an advance payment of tax of ₹5,000 in July 2023.

(g) The firm had a cash balance of ₹20,000 on April 1, 2023, which is the minimum desired level of cash balance. Any cash surplus or deficit above or below this level is made up by temporary investment or liquidation of temporary investment or temporary borrowing at the end of each month (interest on these to be ignored).

Answer

Monthly Cash Budget for Six Months, April to September 2023

Particulars	April	May	June	July	August	Sept
Opening balance	20,000	20,000	20,000	20,000	20,000	20,000
Cash sales	16,000	12,000	16,000	20,000	16,000	12,000
Collection from debtors	1,08,000	76,000	52,000	60,000	76,000	68,000
Cash available (A)	***1,44,000***	***1,08,000***	***88,000***	***1,00,000***	***1,12,000***	***1,00,000***
Payment for purchases	48,000	64,000	80,000	64,000	48,000	80,000
Wages and salaries	9,000	8,000	10,000	10,000	9,000	9,000
Interest on debentures	3,000	-	-	3,000	-	-
Tax payment	-	-	-	5,000	-	-
Total payments (B)	***60,000***	***72,000***	***90,000***	***82,000***	***57,000***	***89,000***

Balance (A - B)	84,000	36,000	(2,000)	18,000	55,000	11,000
Less: Temporary Invest	(64,000)	(16,000)	-	-	(35,000)	-
Add: Liquidation of Invest or borrowings	-	-	22,000	2,000	-	9,000
Closing balance	***20,000***	***20,000***	***20,000***	***20,000***	***20,000***	***20,000***

WN: Collection from debtors: ***(₹in Thousands)***

Particulars	***Feb***	***March***	***April***	***May***	***June***	***July***	***August***	***Sept***
Sales	120	140	80	60	80	100	80	60
Credit sales (80% of total sales)	96	112	64	48	64	80	64	48
Collections:								
75% in one month		72	84	48	36	48	60	48
25% in two months			24	28	16	12	16	20
Total collection			108	76	52	60	76	68

BQ 3

Gold Stone Ltd. has given the following particulars. You are required to prepare a cash budget for three months ended 31st December, 2023 and in Total.

Months	***Sales***	***Materials***	***Wages***	***Overheads***
August	40,000	20,400	7,600	3,800
September	42,000	20,000	7,600	4,200
October	46,000	19,600	8,000	4,600
November	50,000	20,000	8,400	4,800
December	60,000	21,600	9,000	5,000

(a) Credit terms are:

Sales: 10% Sales are on cash basis. 50% of the credit sales are collected next month and the balance following months.

Creditors: Materials 2 months, Wages $^1/_5$ month and Overheads $^1/_2$ month

(b) Cash balance on 1st October, 2023 is expected to be ₹8,000

(c) A machinery will be installed in August, 2023 at a cost of ₹1,00,000 and the monthly instalment of ₹5,000 is payable from October onwards.

(d) Dividend at 10% on preference share capital of ₹3,00,000 will be paid on 1st December, 2023.

(e) Advance to be received for sale of vehicle ₹20,000 in December.

(f) Income-tax (advance) to be paid in December ₹5,000.

Answer

Cash Budget
(From October to December)

Particulars	***October***	***November***	***December***	***Total***
Opening balance	8,000	11,780	18,360	8,000
Cash sales & Debtors collection	41,500	44,600	49,200	1,35,300
Advance against sale of vehicle	-	-	20,000	20,000
Total A	***49,500***	***56,380***	***87,560***	***1,63,300***
Payments to creditors (2 months credit)	20,400	20,000	19,600	60,000
Wages	7,920	8,320	8,880	25,120
Overheads	4,400	4,700	4,900	14,000
Preference dividend	-	-	30,000	30,000
Machine installments	5,000	5,000	5,000	15,000
Income tax	-	-	5,000	5,000
Total B	***37,720***	***38,020***	***73,380***	***1,49,120***
Closing balance (A - B)	***11,780***	***18,360***	***14,180***	***14,180***

Working Note 1: Cash Sales and Collection from Debtors:

Month	Sales	Cash Sales 10%	From Debtors		Total Collection
			50%	50%	
August	40,000	4,000	-	-	-
September	42,000	4,200	18,000	-	-
October	46,000	4,600	18,900	18,000	41,500
November	50,000	5,000	20,700	18,900	44,600
December	60,000	6,000	22,500	20,700	49,200

Working Note 2: Payment of wages:

Month	Wages	Payment		Total Payment	Overheads	Payment		Total Payment
		4/5	1/5			50%	50%	
September	7,600	6,080	-	-	4,200	2,100	-	-
October	8,000	6,400	1,520	7,920	4,600	2,300	2,100	4,400
November	8,400	6,720	1,600	8,320	4,800	2,400	2,300	4,700
December	9,000	7,200	1,680	8,880	5,000	2,500	2,400	4,900

BQ 4

From the information and the assumption that the cash balance in hand on 1st January 2023 is ₹72,500 prepare a cash budget.

Assume that 50% of total sales are cash sales. Assets are to be acquired in the months of February and April. Therefore, provisions should be made for the payment of ₹8,000 and ₹25,000 for the same. An application has been made to the bank for the grant of a loan of ₹30,000 and it is hoped that the loan amount will be received in the month of May.

It is anticipated that a dividend of ₹35,000 will be paid in June. Debtors are allowed one month's credit. Creditors for materials purchased and overheads grant one month's credit. Sales commission at 3% on sales is paid to the salesman each month.

Months	Sales	Materials Purchases	Salaries & Wages	Production Overheads	Office & Selling OH
January	72,000	25,000	10,000	6,000	5,500
February	97,000	31,000	12,100	6,300	6,700
March	86,000	25,500	10,600	6,000	7,500
April	88,600	30,600	25,000	6,500	8,900
May	1,02,500	37,000	22,000	8,000	11,000
June	1,08,700	38,800	23,000	8,200	11,500

Answer

Monthly Cash Budget for Six Months, January to June 2023

Particulars	Jan	Feb	March	April	May	June	Total
Opening balance	72,500	96,340	1,21,330	1,55,650	1,51,292	2,05,767	72,500
Receipts:							
Cash sales	36,000	48,500	43,000	44,300	51,250	54,350	2,77,400
Collection from debtors	-	36,000	48,500	43,000	44,300	51,250	2,23,050
Bank Loan	-	-	-	-	30,000	-	30,000
Cash available (A)	***1,08,500***	***1,80,840***	***2,12,830***	***2,42,950***	***2,76,842***	***3,11,367***	***6,02,950***
Payments:							
Payment for purchases	-	25,000	31,000	25,500	30,600	37,000	1,49,100
Salaries and wages	10,000	12,100	10,600	25,000	22,000	23,000	1,02,700
Production OH	-	6,000	6,300	6,000	6,500	8,000	32,800
Selling and Office OH	-	5,500	6,700	7,500	8,900	11,000	39,600
Sales commission	2,160	2,910	2,580	2,658	3,075	3,261	16,644
Purchase of Assets	-	8,000	-	25,000	-	-	33,000
Dividend paid	-	-	-	-	-	35,000	35,000
Total payments (B)	***12,160***	***59,510***	***57,180***	***91,658***	***71,075***	***1,17,261***	***4,08,844***
Closing balance (A - B)	***96,340***	***1,21,330***	***1,55,650***	***1,51,292***	***2,05,767***	***1,94,106***	***1,94,106***

BQ 5

The following information relates to Zeta Limited, a publishing company:

The selling price of a book is ₹15, and sales are made on credit through a book club and invoiced on the last day of the month. Variable costs of production per book are materials (₹5), labour (₹4), and overhead (₹2). The sales manager has forecasted the following volumes:

Month	No. of Books
November	1,000
December	1,000
January	1,000
February	1,250
March	1,500
April	2,000
May	1,900
June	2,200
July	2,200
August	2,300

Customers are expected to pay as follows:

One month after sale	40%
Two months after the sale	60%.

The company produces the books two months before they are sold and the creditors for materials are paid two months after production. Variable overheads are paid in the month following production and are expected to increase by 25% in April; 75% of wages are paid in the month of production and 25% in the following month. A wage increase of 12.5% will take place on 1st March.

The company is going through a restructuring and will sell one of its freehold properties in May for ₹25,000, but it is also planning to buy a new printing press in May for ₹10,000. Depreciation is currently ₹1,000 per month, and will rise to ₹1,500 after the purchase of the new machine.

The company's corporation tax (of ₹10,000) is due for payment in March. The company presently has a cash balance at bank on 31st December 2023, of ₹1,500.

You are required to prepare a cash budget for the six months from January to June, 2023.

Answer

Monthly Cash Budget for Six Months, January to June 2023

Particulars	Jan	Feb	March	April	May	June
Opening balance	1,500	3,250	1,500	(11,912)	(15,024)	576
Receipts:						
Sales receipts	15,000	15,000	16,500	20,250	25,500	29,400
Sell of property	-	-	-	-	25,000	-
Cash available (A)	**16,500**	**18,250**	**18,000**	**8,338**	**35,476**	**29,976**
Payments:						
Payment for purchases	5,000	6,250	7,500	10,000	9,500	11,000
Variable overheads	2,500	3,000	4,000	3,800	5,500	5,500
Wages	5,750	7,500	8,412	9,562	9,900	10,237
Printing press	-	-	-	-	10,000	-
Corporation tax	-	-	10,000	-	-	-
Total payments (B)	**13,250**	**16,750**	**29,912**	**23,362**	**34,900**	**26,737**
Closing balance (A - B)	**3,250**	**1,500**	**(11,912)**	**(15,024)**	**576**	**3,239**

Working note:

Calculation of Sales receipts, payment for Purchases, Variable overheads and Wages:

Particulars	Nov	Dec	Jan	Feb	March	April	May	June

Forecast sales in units (no. of books)	1,000	1,000	1,000	1,250	1,500	2,000	1,900	2,200
1. Sales receipts:								
Sales @ ₹15/unit	15,000	15,000	15,000	18,750	22,500	30,000	28,500	33,000
1 month 40%	-	6,000	6,000	6,000	7,500	9,000	12,000	11,400
2 months 60%	-	-	9,000	9,000	9,000	11,250	13,500	18,000
	-	**-**	***15,000***	***15,000***	***16,500***	***20,250***	***25,500***	***29,400***
2. Pay for purchase:								
Quantity produced (2 months before sales)	1,000	1,250	1,500	2,000	1,900	2,200	2,200	2,300
Materials cost @ ₹5 p.u.	5,000	6,250	7,500	10,000	9,500	11,000	11,000	11,500
Payment after 2 month	**-**	**-**	***5,000***	***6,250***	***7,500***	***10,000***	***9,500***	***11,000***
3. Pay for variable oh:								
Quantity produced	1,000	1,250	1,500	2,000	1,900	2,200	2,200	2,300
Variable oh @ ₹2 and ₹2.50 p.u. from April	2,000	2,500	3,000	4,000	3,800	5,500	5,500	5,750
Payment next month	**-**	***2,000***	***2,500***	***3,000***	***4,000***	***3,800***	***5,500***	***5,500***
4. Pay for wages:								
Quantity produced	1,000	1,250	1,500	2,000	1,900	2,200	2,200	2,300
Wages @ ₹4 and ₹4.50 p.u. from March	4,000	5,000	6,000	8,000	8,550	9,900	9,900	10,350
Same month 75%	3,000	3,750	4,500	6,000	6,412	7,425	7,425	7,762
Next month 25%	-	1,000	1,250	1,500	2,000	2,137	2,475	2,475
	-	***4,750***	***5,750***	***7,500***	***8,412***	***9,562***	***9,900***	***10,237***

BQ 6

Consider the balance sheet of Maya Limited as on 31st December, 2023:

[₹ in Thousand]

Equity & Liabilities	***₹***	***Assets***	***₹***
Equity shares capital	100	Net fixed assets	1,836
Retained earnings	1,439	Inventories	545
Long-term borrowings	450	Accounts receivables	530
Accounts payables	360	Cash and bank	50
Loan from banks	400		
Other liabilities	212		
	2,961		***2,961***

The company has received a large order and anticipates the need to go to its bank to increase its borrowings. As a result, it has to forecast its cash requirements for January, February and March, 2023. Typically, the company collects 20 per cent of its sales in the month of sale, 70 per cent in the subsequent month, and 10 per cent in the second month after the sale. All sales are credit sales.

Actual sales in November and December and projected sales for January through April are as follows (in thousands):

Month	***₹***	***Month***	***₹***	***Month***	***₹***
November	500	January	600	March	650
December	600	February	1,000	April	750

Purchases of raw materials are made in the month prior to the sale and amounts to 60 per cent of sales. It is paid in the subsequent month. Payments for these purchases occur in the month after the purchase. Labour costs, including overtime, are expected to be ₹1,50,000 in January, ₹2,00,000 in February, and ₹1,60,000 in March. Selling, administrative, taxes, and other cash expenses are expected to be ₹1,00,000 per month for January through March.

On the basis of this information:

(a) Prepare a cash budget for the months of January, February, and March and determine the amount of additional bank borrowings necessary to maintain a cash balance of ₹50,000 at all times.

(b) Prepare a proforma balance sheet for 31st March, 2024.

Answer

(a) Cash Budget
(From January to March)
(₹ in Thousand)

Particulars	January	February	March
Opening balance	50	50	50
Debtors Collection:			
20% in month of sales	120	200	130
70% of sales in 1 Month	420	420	700
10% of sales in 2 Month	50	60	60
Total (A)	***640***	***730***	***940***
Payments to creditors	360	600	390
Labour cost	150	200	160
Selling, administrative, taxes and other cash expenses	100	100	100
Total (B)	***610***	***900***	***650***
Balance (A - B)	30	(170)	290
Add: Additional Borrowing/(Repayment)	20	220	(240)
Closing balance	***50***	***50***	***50***

(b) Proforma Balance Sheet, 31st March, 2024

[₹ in Thousand]

Equity & Liabilities	₹	Assets	₹
Equity shares capital	100	Net fixed assets	1,836
Retained earnings	1,529	Inventories	635
Long-term borrowings	450	Accounts receivables	620
Accounts payables	450	Cash and bank	50
Loan from banks	400		
Other liabilities	212		
	3,141		***3,141***

Working notes:

Accounts receivable = Sales in March × 80% + Sales in February × 10%
= 6,50,000 × 80% + 10,00,000 × 10% = ***₹6,20,000***

Inventories = ₹5,45,000 + Total purchases from January to March − Total sales from January to March × 60%
= ₹5,45,000 + (10,00,000 + 6,50,000 + 7,50,000) × 60% - (6,00,000 + 10,00,000 + 6,50,000) × 60% = ***₹6,35,000***

Accounts payable = Purchases in March
= ₹7,50,000 × 60% = ***₹4,50,000***

Retained earnings = ₹14,39,000 + Sales – Material Cost – Labour costs and Other expenses, all for January to March

= ₹14,39,000 + (6,00,000 + 10,00,000 + 6,50,000) - (6,00,000 + 10,00,000 + 6,50,000) × 60% - (1,50,000 + 2,00,000 + 1,60,000) (1,00,000 × 3 months)

= ₹14,39,000 + (₹22,50,000 - ₹13,50,000 - ₹5,10,000 – ₹3,00,000)
= ***₹15,29,000***

BQ 7

On 30th September, 2023, the balance sheet of Maharaja Ltd. (retailer) was as under:

Liabilities	₹	Assets		₹
Equity share of ₹10 each	20,000	Equipment (at cost)	20,000	
Reserves	10,000	Less: Depreciation	(5,000)	15,000
Trade creditors	40,000	Stock		20,000
Proposed dividend	15,000	Trade debtors		15,000
		Balance at bank		35,000
	85,000			**85,000**

The company is developing a system of forward planning and on 1st October 2023 it supplies the following information:

Months	Sales		Purchases
	Credit	Cash	
September	15,000	14,000	40,000
October	18,000	5,000	23,000
November	20,000	6,000	27,000
December	25,000	8,000	26,000

All trade debtors are allowed one month's credit and are expected to settle promptly. All trade creditors are paid in the months following delivery.

On 1st October'23 all equipments were replaced at a cost of ₹30,000 and ₹14,000 was allowed in exchange for the old equipment and a net payment of ₹16,000 was made. The proposed dividend will be paid in December, 2023.

The following expenses will be paid:

Wages	₹3,000 per month
Administration	₹1,500 per month
Rent (to be paid in October'23)	₹3,600 for the year upto 30th September'24

You are required to prepare a cash budget for the months of October, November and December, 2023.

Answer

Cash Budget of Maharaja Ltd. for the quarter ending 31st December, 2023

Particulars	October	November	December	Total
Opening Balance	35,000	(9,100)	(12,600)	35,000
Cash Sales	5,000	6,000	8,000	19,000
Collection of credit sales	15,000	18,000	20,000	53,000
Total A	**55,000**	**14,900**	**15,400**	**1,07000**
Payments of creditors	40,000	23,000	27,000	90,000
Wages	3,000	3,000	3,000	9,000
Payment of new equipment	16,000	-	-	16,000
Administration expenses	1,500	1,500	1,500	4,500
Rent	3,600	-	-	3,600
Dividend	-	-	15,000	15,000
Total B	**64,100**	**27,500**	**46,500**	**1,38,100**
Closing balance (A - B)	**(9,100)**	**(12,600)**	**(31,100)**	**(31,100)**

BQ 8

Vivek and Company are manufactures of check valves which are sold at ₹50 each.

The cost data are:

(a)	Variable manufacturing cost	:	₹25 per unit.
(b)	Variable selling expenses	:	₹5 per unit.
(c)	Fixed manufacturing cost paid in cash	:	₹1,50,000 per month
	Fixed selling expenses	:	₹1,00,000 p.m. payable in cash
(d)	Depreciation	:	₹30,000 per month.

Other data:

(1) The company's policy is to hold at the end of each month an inventory of finished goods representing targeted sales for next two months. Opening inventory on 1st January was 30,000 units.

(2) The raw material required each month is purchased in cash which is the included in variable manufacturing cost of ₹25. No inventory of raw material is held.

(3) All sales are on credit. Collection is 50% in the same month and the balance in the following month. The Debtors balance was ₹4,00,000 on 1st January.

(4) All manufacturing costs are paid in cash in the month of production.

(5) The company pays 80% of its variable selling expenses in the month of sale and the balance in the following month. On 1st January the company owed ₹25,000 for December expenses.

(6) The minimum desired cash balance is ₹50,000 which is held on 1st January.

(7) The company borrows at the beginning of the month and repays at the end amount available in excess of ₹50,000. Ignore interest.

(8) The sales budget is:

Month	***Units***	***Month***	***Units***
January	15,000	February	20,000
March	25,000	April	27,000
May	30,000	June	30,000

Prepare cash budget of the company (i) for January, February and March; and (ii) in total.

Answer

Cash Budget of Vivek & Company for the period January to March

Particulars	***January***	***February***	***March***	***Total***
Opening Balance	50,000	50,000	50,000	50,000
Collection from debtors:				
50% of current month	3,75,000	5,00,000	6,25,000	15,00,000
Previous period	4,00,000	3,75,000	5,00,000	12,75,000
Total A	***8,25,000***	***9,25,000***	***11,75,000***	***28,25,000***
Variable manufacturing cost @ ₹25 each	7,50,000	6,75,000	7,50,000	21,75,000
Fixed manufacturing cost				
Fixed selling expenses	1,50,000	1,50,000	1,50,000	4,50,000
Variable selling expenses:	1,00,000	1,00,000	1,00,000	3,00,000
Current month 80%	60,000	80,000	1,00,000	2,40,000
Next month 20%	25,000	15,000	20,000	60,000
Total B	***10,85,000***	***10,20,000***	***11,20,000***	***32,25,000***
Balance (A - B)	***(2,60,000)***	***(95,000)***	***55,000***	***(4,00,000)***
Add: Borrowing	***3,10,000***	***1,45,000***	***-***	***4,50,000***
Less: Repayment	***-***	***-***	***(5,000)***	***-***
Closing balance	***50,000***	***50,000***	***50,000***	***50,000***

Working Notes: ***Calculation of units to be produced***

Particulars	***January***	***February***	***March***
Sales	15,000	20,000	25,000
Add: Closing stock (next two months requirements)	45,000	52,000	57,000
	60,000	72,000	82,000
Less: Opening stock	(30,000)	(45,000)	(52,000)
Production	***30,000***	***27,000***	***30,000***

BQ 9

From the following information relating to a departmental store, you are required to prepare for the three months ending 31st March, 2023:

(a) Month-wise cash budget on receipts and payments basis; and

(b) Statement of Sources and uses of funds for the three months period.

It is anticipated that the working capital at 1st January, 2023 will be as follows:

Particulars			₹in '000's
Cash in hand and at bank			545
Short term investments			300
Debtors			2,570
Stock			1,300
Trade creditors			2,110
Other creditors			200
Dividends payable			485
Tax due			320
Plant			800

Budgeted Profit Statement			₹in '000's
	January	February	March
Sales	2,100	1,800	1,700
Cost of sales	1,635	1,405	1,330
Gross Profit	465	395	370
Administrative, Selling and Distribution Expenses	315	270	255
Net Profit before tax	150	125	115

Budgeted balances at the end of each months			₹in '000's
	31st Jan.	28th Feb.	31st March
Short term investments	700	-	200
Debtors	2,600	2,500	2,350
Stock	1,200	1,100	1,000
Trade creditors	2,000	1,950	1,900
Other creditors	200	200	200
Dividends payable	485	-	-
Tax due	320	320	320
Plant (depreciation ignored)	800	1,600	1,550

Depreciation amount to ₹60,000 is included in the budgeted expenditure for each month.

Answer

(a) Cash Budget
(3 months ending 31st March, 2023)

Particulars			₹in '000's
	Jan.	Feb.	March
Opening Cash Balances	545	315	65
Add: Receipts:			
From Debtors	2,070	1,900	1,850
Sale of Investments	-	700	-
Sale of Plant	-	-	50
Total (A)	**2,615**	**2,915**	**1,965**
Payments:			
Creditors	1,645	1,355	1,280
Cash Expenses (Exp – 60,000 for depreciation)	255	210	195
Purchase of Plant	-	800	-
Payment of dividend	-	485	-
Purchase of Investments	400	-	200
Total (B)	**2,300**	**2,850**	**1,675**
Closing Cash Balance (A - B)	**315**	**65**	**290**

(b) Statement of Sources and uses of Funds
(3 months ending 31st March, 2023)

Sources of Funds		₹in '000's
Funds from Operations:		
Net profit (150 + 125 + 115)	390	

Add: Depreciation (60 × 3)	180	570
Sale of Plant		50
Decrease in Working Capital (W.N.)		665
Total (A)		***1,285***
Uses of Funds		***₹in '000's***
Purchase of Plant		800
Dividend Payment		485
Total (B)		***1,285***

Working Note:

1. Calculation of receipts from debtors and payment to creditors:

Workings			***₹in '000's***
	Jan' 23	***Feb' 23***	***March' 23***
Opening balance of debtors	2,570	2,600	2,500
Add: Sales	2,100	1,800	1,700
Less: Closing balance of debtors	(2,600)	(2,500)	(2,350)
Receipts from debtors	***2,070***	***1,900***	***1,850***
Cost of sales	1,635	1,405	1,330
Add: Closing stock	1,200	1,100	1,000
Less: Opening stock	(1,300)	(1,200)	(1,100)
Purchases	1,535	1,305	1,230
Add: Opening balance of creditors	2,110	2,000	1,950
Less: Closing balance of creditors	(2,000)	(1,950)	(1,900)
Payment to creditors	***1,645***	***1,355***	***1,280***

2. Statement of Changes in Working Capital

Particulars	***₹in '000's***	
	January' 23	***March' 23***
(A) Current Assets:		
Cash in hand and at Bank	545	290
Short term Investments	300	200
Debtors	2,570	2,350
Stock	1,300	1,000
Total (A)	***4,715***	***3,840***
(B) Current Liabilities:		
Trade Creditors	2,110	1,900
Other Creditors	200	200
Tax Due	320	320
Total (B)	***2,630***	***2,420***
Working Capital (A - B)	***2,085***	***1,420***
Decrease in Working Capital	***-***	***(665)***

CASH BUDGET FOR LONG PERIOD

BQ 10

You are given below the Profit & Loss Accounts for two years for a company:

Particulars	***Year 1***	***Year 2***	***Particulars***	***Year 1***	***Year 2***
To Opening stock	80,00,000	1,00,00,000	By Sales	8,00,00,000	10,00,00,000
To Raw materials	3,00,00,000	4,00,00,000	By Closing stock	1,00,00,000	1,50,00,000
To Stores	1,00,00,000	1,20,00,000	By Misc. Income	10,00,000	10,00,000
To Manufacturing exps	1,00,00,000	1,60,00,000			
To Other expenses	1,00,00,000	1,00,00,000			
To Depreciation	1,00,00,000	1,00,00,000			
To Net Profit	***1,30,00,000***	***1,80,00,000***			
	9,10,00,000	***11,60,00,000***		***9,10,00,000***	***11,60,00,000***

Sales are expected to be ₹12,00,00,000 in year 3.

As a result, other expenses will increase by ₹50,00,000 besides other charges. Only raw materials are in stock. Assume sales and purchases are in cash terms and the closing stock is expected to go up by the same amount as between year 1 and 2. You may assume that no dividend is being paid. The Company can use 75% of the cash generated to service a loan.

Compute how much cash from operations will be available in year 3 for the purpose? Ignore income tax.

Answer

Projected Profit and Loss Account for the year 3

(₹in Lakhs)

Particulars	*Year 2 (Actual)*	*Year 3 (Projected)*	*Particulars*	*Year 2 (Actual)*	*Year 3 (Projected)*
To Raw Materials Consumed	350	420	By Sales	1,000	1,200
To Stores	120	144	By Misc. Income	10	10
To Manufacturing Expenses	160	192			
To Other Expenses	100	150			
To Depreciation	100	100			
To Net Profit	*180*	*204*			
	1,010	*1,210*		*1,010*	*1,210*

Cash Flow:

Particulars	*(₹in Lakhs)*
Net Profit	204
Add: Depreciation	100
	304
Less: Cash required for increase in stock (50 Lakhs same as between year 1 and 2)	(50)
Net Cash Inflow	*254*

Available for servicing the loan: 75% of ₹2,54,00,000 = ₹1,90,50,000

Note: The above also shows how a projected profit and loss account is prepared

Working Notes:

(a) Material consumed in year 2 = ₹350 Lakhs ÷ ₹1,000 lakhs = 35% of sales

Likely consumption in year 3 = ₹1,200 Lakhs × 35% = ₹420 Lakhs

(b) Stores are 12% of sales, as in year 2

(c) Manufacturing expenses are 16% of sales

BQ 11

You are given below the Profit & Loss Accounts for two years for a company:

Particulars	*Year 1*	*Year 2*	*Particulars*	*Year 1*	*Year 2*
To Opening stock	32,00,000	40,00,000	By Sales	3,20,00,000	4,00,00,000
To Raw materials	1,20,00,000	1,60,00,000	By Closing stock	40,00,000	60,00,000
To Stores	38,40,000	48,00,000	By Misc. Income	4,00,000	4,00,000
To Manufacturing exps	51,20,000	64,00,000			
To Other expenses	40,00,000	40,00,000			
To Depreciation	40,00,000	40,00,000			
To Net Profit	*42,40,000*	*72,00,000*			
	3,64,00,000	*4,64,00,000*		*3,64,00,000*	*4,64,00,000*

Sales are expected to be ₹4,80,00,000 in year 3.

As a result, other expenses will increase by ₹20,00,000 besides other charges. Only raw materials are

in stock. Assume sales and purchases are in cash terms and the closing stock is expected to go up by the same amount as between year 1 and 2. You may assume that no dividend is being paid. The Company can use 75% of the cash generated to service a loan.

Compute how much cash from operations will be available in year 3 for the purpose? Ignore income tax.

Answer

Projected Profit and Loss Account for the year 3

(₹in Lakhs)

Particulars	*Year 2 (Actual)*	*Year 3 (Projected)*	*Particulars*	*Year 2 (Actual)*	*Year 3 (Projected)*
To Raw Materials Consumed	140	168	By Sales	400	480
To Stores	48	57.60	By Misc. Income	4	4
To Manufacturing Expenses	64	76.80			
To Other Expenses	40	60			
To Depreciation	40	40			
To Net Profit	*72*	*81.60*			
	404	*484*		*404*	*484*

Cash Flow:

Particulars	*(₹in Lakhs)*
Net Profit	81.60
Add: Depreciation	40
	121.60
Less: Cash required for increase in stock (20 Lakhs same as between year 1 and 2)	(20)
Net Cash Inflow	*101.60*

Available for servicing the loan: 75% of ₹1,01,60,000 = ₹76,20,000

Working Notes:

(a) Material consumed in year 2 = ₹140 Lakhs ÷ ₹400 lakhs = 35% of sales

Likely consumption in year 3 = ₹480 Lakhs × 35% = ₹168 Lakhs

(b) Stores are 12% of sales, as in year 2

(c) Manufacturing expenses are 16% of sales

CASH CYCLE AND CASH TURNOVER

BQ 12

The following information is available in respect of Sai trading company:

1. On an average, debtors are collected after 45 days; inventories have an average holding period of 75 days and creditor's payment period on an average is 30 days.
2. The firm spends a total of ₹ 120 lakhs annually at a constant rate.
3. It can earn 10 per cent on investments.

From the above information, you are required to Calculate:

(a) The cash cycle and cash turnover,

(b) Minimum amounts of cash to be maintained to meet payments as they become due,

(c) Savings by reducing the average inventory holding period by 30 days.

Answer

(a) Cash cycle = F + D – C = 75 days + 45 days – 30 days

= ***90 days (3 months)***

Cash turnover = 12 months (365 days) ÷ 3 months (90 days) = ***4 times***

(b) Minimum operating cash = Total operating annual outlay ÷ Cash turnover
= ₹120 lakhs ÷ 4 times = ***₹30 lakhs***

(c) Revised Cash cycle = F + D – C = 45 days + 45 days – 30 days
= ***60 days (2 months)***

Revised Cash turnover = 12 months (365 days) ÷ 2 months (60 days) = ***6 times***

Revised Minimum operating cash = Total operating annual outlay ÷ Cash turnover
= ₹120 lakhs ÷ 6 times = ***₹20 lakhs***

Reduction in investments = ₹30 lakhs – ₹20 lakhs = ***₹10 lakhs***

Savings = 0.10 × ₹10 lakhs = ***₹1 lakh***

CLEAR AND UNCLEARED FUNDS

BQ 13

Prachi Ltd is a manufacturing company producing and selling a range of cleaning products to wholesale customers. It has three suppliers and two customers. Prachi Ltd relies on its cleared funds forecast to manage its cash.

You are an accounting technician for the company and have been asked to prepare a cleared funds forecast for the period Monday 7 August to Friday 11 August 2023 inclusive. You have been provided with the following information:

(1) Receipts from customers:

Customers	Credit terms	Payment method	7 Aug 2023 sales	7 July 2023 sales
W Ltd	1 Calendar month	BACS	₹1,50,000	₹1,30,000
X Ltd	None	Cheque	₹1,80,000	₹1,60,000

(a) Receipt of money by BACS (Bankers' Automated Clearing Services) is instantaneous.

(b) X Ltd's cheque will be paid into Prachi Ltd's bank account on the same day as the sale is made and will clear on the third day following this (excluding day of payment).

(2) Payments to suppliers:

Supplier	Credit terms	Payment method	7 Aug 2023 Purchase	7 July 2023 purchases	7 June 2023 purchases
A Ltd	1 Calendar month	BACS	₹65,000	₹55,000	₹45,000
B Ltd	2 Calendar months	Cheque	₹85,000	₹80,000	₹75,000
C Ltd	None	Cheque	₹95,000	₹90,000	₹85,000

(a) Prachi Ltd has set up a standing order for ₹45,000 a month to pay for supplies from A Ltd. This will leave Prachi's bank account on 7 August.

Every few months, an adjustment is made to reflect the actual cost of supplies purchased (you do not need to make this adjustment).

(b) Prachi Ltd will send out, by post, cheques to B Ltd and C Ltd on 7 August. The amounts will leave its bank account on the second day following this (excluding the day of posting).

(3) Wages and salaries:

	July 2023	August 2023
Weekly wages	₹12,000	₹13,000
Monthly salaries	₹56,000	₹59,000

(a) Factory workers are paid cash wages (weekly). They will be paid one week's wages, on 11 August, for the last week's work done in July (i.e. they work a week in hand).

(b) All the office workers are paid salaries (monthly) by BACS. Salaries for July will be paid on 7 August.

(4) Other miscellaneous payments:

(a) Every Monday morning, the petty cashier withdraws ₹200 from the company bank account for the petty cash. The money leaves Prachi's bank account straight away.

(b) The room cleaner is paid ₹30 from petty cash every Wednesday morning.

(c) Office stationery will be ordered by telephone on Tuesday 8 August to the value of ₹300. This is paid for by company debit card. Such payments are generally seen to leave the company account on the next working day.

(d) Five new softwares will be ordered over the Internet on 10 August at a total cost of ₹6,500. A cheque will be sent out on the same day. The amount will leave Prachi Ltd's bank account on the second day following this (excluding the day of posting).

(5) Other information: The balance on Prachi's bank account will be ₹200,000 on 7 August 2023. This represents both the book balance and the cleared funds.

Prepare a cleared funds forecast for the period Monday 7 August to Friday 11 August 2023 inclusive using the information provided. Show clearly the uncleared funds float each day.

Answer

Clear Fund Forecast

Particulars	***7 Aug 23 (Monday)***	***8 Aug 23 (Tuesday)***	***9 Aug 23 (Wednesday)***	***10 Aug 23 (Thursday)***	***11 Aug 23 (Friday)***
Receipts:					
W Ltd	1,30,000	-	-	-	-
X Ltd	-	-	-	1,80,000	-
Total A	***1,30,000***	***-***	***-***	***1,80,000***	***-***
Payments:					
A Ltd	45,000	-	-	-	-
B Ltd	-	-	75,000	-	-
C Ltd	-	-	95,000	-	-
Wages	-	-	-	-	12,000
Salaries	56,000	-	-	-	-
Petty Cash	200	-	-	-	-
Stationery	-	-	300	-	-
Total B	***1,01,200***	***-***	***1,70,300***	***-***	***12,000***
Cleared Excess Receipts (A - B)	28,800	-	(1,70,300)	1,80,000	(12,000)
Add: Opening Cleared Balance	2,00,000	2,28,800	2,28,800	58,500	2,38,500
Closing Cleared Balance (C)	***2,28,800***	***2,28,800***	***58,500***	***2,38,500***	***2,26,500***
Uncleared Float:					
Uncleared receipts	1,80,000	1,80,000	1,80,000	-	-
Less: Uncleared Payments	(1,70,000)	(1,70,300)	-	(6,500)	(6,500)
Uncleared Balance (D)	***10,000***	***9,700***	***1,80,000***	***(6,500)***	***(6,500)***
Total Book Balance (C + D)	***2,38,800***	***2,38,500***	***2,38,500***	***2,32,000***	***2,20,000***

*1,70,000 = Cheque to B Ltd for ₹75,000 and Cheque to C Ltd for ₹95,000

WILLIAM J. BAUMOL'S EOQ MODEL (1952)

BQ 14

Tarus Ltd. has an estimated cash payments of ₹8,00,000 for a one month period and the payments are expected to steady over the period. The fixed cost per transaction is ₹250 and the interest rate on marketable securities is 12% p.a.

Calculate the optimal transaction size, average cash and number of transactions during one month.

Answer

Optimal transaction size = $\sqrt{\frac{2 \times 8,00,000 \times 12 \times 250}{0.12}}$ = ***₹2,00,000***

Number of transactions p.m. = Monthly cash requirement ÷ Transaction size
= ₹8,00,000 ÷ ₹2,00,000 = ***4 transactions***

BQ 15

A firm maintains a separate account for cash disbursement. Total disbursement are ₹1,05,000 per month or ₹12,60,000 per year. Administrative and transaction cost of transferring cash to disbursement account is ₹20 per transfer. Marketable securities yield is 8% per annum.

Determine the optimum cash balance according to William J. Baumol model.

Answer

Optimal Cash Balance (C) = $\sqrt{\frac{2UP}{S}}$

= $\sqrt{\frac{2 \times 12,60,000 \times 20}{0.08}}$ = ***₹25,100***

PAST YEARS QUESTIONS

PYQ 1

JPL has two dates when it receives its cash inflows i.e. February 15 and August 15. On each of these dates, it expects to receive ₹15 crores. Cash expenditures are expected to be steady throughout the subsequent 6 months period.

Presently the ROI in marketable securities is 8% per annum, and the cost of transfer from securities to cash is ₹125 each time a transfer occurs.

(a) What is the optimal transfer size using the EOQ model? What is the average cash balance?

(b) What would be your Solution to part (a), if the ROI were 12% per annum and the transfer costs were ₹75? Why do they differ from those in part (a)?

[(10 Marks) May 2001]

Answer

(a) ***Optimal transfer size and average cash:***

Optimal transfer size = $\sqrt{\frac{2UP}{S}}$

Where,

U = Total annual cash required.

P = Transaction cost per transfer.

S = Interest rate per annum.

Optimal transfer size = $\sqrt{\frac{2\times 30,00,00,000\times 125}{0.08}}$ = ***9,68,246***

Average cash balance = $^1/_2 \times 9,68,246$ = ***4,84,123***

(b) ***Revised optimum transfer and average cash:***

Optimal transfer size = $\sqrt{\frac{2\times 30,00,00,000\times 75}{0.12}}$ = ***6,12,372***

Average cash balance = $^1/_2 \times 6,12,372$ = ***3,61,186***

Causes of difference in figure (b) from the figure of part (a):

(i) Transaction cost is lower as comparison to part ***(a)***,

(ii) Higher opportunity cost of holding as comparison to part ***(a)***.

PYQ 2

A firm maintains a separate account for cash disbursement. Total disbursements are ₹2,62,500 per month. Administrative and transaction cost of transferring cash to disbursement account is ₹25 per transfer. Marketable securities yield is 7.5% per annum.

Determine the optimum cash balance according to William J Baumol model.

[(3 Marks) May 2009]

Answer

Optimal transfer size = $\sqrt{\frac{2UP}{S}}$ = $\sqrt{\frac{2\times 2,62,500\times 12\times 25}{0.075}}$ = ***45,826***

PYQ 3

The following details are forecasted by a company for the purpose of effective utilization and management of cash:

(i) Estimated sales and manufacturing costs:

Month	Sales ₹	Materials ₹	Wages ₹	Overheads ₹
April	4,20,000	2,00,000	1,60,000	45,000
May	4,50,000	2,10,000	1,60,000	40,000
June	5,00,000	2,60,000	1,65,000	38,000
July	4,90,000	2,82,000	1,65,000	37,500
August	5,40,000	2,80,000	1,65,000	60,800
September	6,10,000	3,10,000	1,70,000	52,000

(ii) Credit terms:

20% sales are on cash, 50% of the credit sales are collected next month and the balance in the following month.

Credit allowed by suppliers is 2 months and delay in payment of wages is $^1/_2$ month and of overheads is 1 month.

(iii) Interest on 12 percent debentures of ₹5,00,000 is to be paid half yearly in June and December.

(iv) Dividends on investments amounting to ₹25,000 are expected to be received in June, 2010.

(v) A new machinery will be installed in June, 2010 at a cost of ₹4,00,000 which is payable in 20 monthly installments from July, 2010 onwards.

(vi) Advance income-tax to be paid in August, 2010 is ₹15,000.

(vii) Cash balance on 1st June, 2010 is expected to be ₹45,000 and the company wants to keep it at the end of every month around this figure, the excess cash (in multiple of thousand rupees) being put in fixed deposit.

You are required to prepare monthly cash budget on the basis of above information for four months beginning from June, 2010.

[(7 Marks) May 2010]

Answer

Cash Budget
(From July to September)

Particulars	June	July	August	September
Opening Balance	45,000	45,500	45,500	45,000
Cash Sales & Debtors Collection	4,48,000	4,78,000	5,04,000	5,34,000
Dividend	25,000	-	-	-
Total A	***5,18,000***	***5,23,500***	***5,49,500***	***5,79,000***
Payments to creditors	2,00,000	2,10,000	2,60,000	2,82,000
Wages	1,62,500	1,65,000	1,65,000	1,67,500
Overheads	40,000	38,000	37,500	60,800
Interest	30,000	-	-	-
Machine installments	-	20,000	20,000	20,000
Advance tax	-	-	15,000	-
Total B	***4,32,500***	***4,33,000***	***4,97,500***	***5,30,300***
Balance (A – B)	85,500	90,500	52,000	48,700
Less: Fixed deposit	40,000	45,000	7,000	3,000
Closing balance	***45,500***	***45,500***	***45,000***	***45,700***

Working Note 1:

Cash Sales and Collection from Debtors:

Month	Sales	Cash Sales 20%	From Debtors		Total Collection
			50%	50%	
April	4,20,000	-	-	-	-
May	4,50,000	-	-	-	-
June	5,00,000	1,00,000	1,80,000	1,68,000	4,48,000
July	4,90,000	98,000	2,00,000	1,80,000	4,78,000
August	5,40,000	1,08,000	1,96,000	2,00,000	5,04,000
September	6,10,000	1,22,000	2,16,000	1,96,000	5,34,000

Working Note 2: ***Payment of wages:***

Month	Wages	Payment		Total Payment
		50%	50%	
May	1,60,000	-	-	-
June	1,65,000	80,000	82,500	1,62,500
July	1,65,000	82,500	82,500	1,65,000
August	1,65,000	82,500	82,500	1,65,000
September	1,70,000	82,500	85,000	1,67,500

PYQ 4

Following information relates to ABC company for the year 2016:

(a) Projected sales (₹ in lakhs)

August	September	October	November	December
35	40	40	45	46

(b) Gross profit margin will be 20% on sale.

(c) 10% of projected sale will be cash sale. Out of credit sale of each month, 50% will be collected in the next month and the balance will be collected during the second month following the month of sale.

(d) Creditors will be paid in the first month following credit purchase. There will be credit purchase only.

(e) Wages and salaries will be paid on the first day of the next month. The amount will be ₹3 lakhs each month.

(f) Interim dividend of ₹2 lakhs will be paid in December 2016.

(g) Machinery costing ₹10 lakhs will be purchased in September 2016. Repayment by instalment of ₹50,000 p.m. will start from October 2016.

(h) Administrative expenses of ₹1,00,000 per month will be paid in the month of their incurrence.

(i) Assume no minimum cash balance is required. Opening cash balance as on 01.10.2016 is estimated at ₹10 lakhs.

You are required to prepare the monthly cash budget for the 3 month period (October 2016 to December 2016).

[(8 Marks) Nov 2016]

Answer

Cash Budget
(From Oct 2016 to December 2016)

Particulars	October	November	December
Opening Balance	10,00,000	14,25,000	21,25,000
Cash Sales @ 10% of Sales	4,00,000	4,50,000	4,60,000
Debtors Collection:			
50% of Credit Sales 1 Month	18,00,000	18,00,000	20,25,000
50% of Credit Sales 2 Month	15,75,000	18,00,000	18,00,000
Total A	***47,75,000***	***54,75,000***	***64,10,000***
Payments to creditors (1 Month Credit)	29,00,000	29,00,000	33,00,000
Purchase = Sales – GP - Wages	(40L – 20% - 3L)	(40L – 20% - 3L)	(45L – 20% - 3L)
Wages & Salaries	3,00,000	3,00,000	3,00,000
Admin Expenses	1,00,000	1,00,000	1,00,000
Interim dividend	-	-	2,00,000
Machine installments	50,000	50,000	50,000
Total B	***33,50,000***	***33,50,000***	***39,50,000***
Closing Balance (A - B)	***14,25,000***	***21,25,000***	***24,60,000***

PYQ 5

VK Co. Ltd. has total cash disbursement amounting ₹22,50,000 in the year 2017 and maintains a separate account for cash disbursements. Company has an administrative and transaction cost on transferring cash to disbursement account ₹15 per transfer. The yield rate on marketable securities is 12% per annum.

Determine the optimum cash balance according to William J Baumol model. ***[(5 Marks) May 2017]***

Answer

Optimal transfer size $= \sqrt{\frac{2UP}{S}} = \sqrt{\frac{2 \times 22,50,000 \times 15}{0.12}} =$ **23,717**

PYQ 6

Slide Ltd is preparing a cash flow forecast for the three months period from January to the end of March. The following sales volumes have been forecasted:

	December	January	February	March	April
Sales (units)	1,800	1,875	1,950	2,100	2,250

Selling price per unit is ₹600. Sales are all on one month credit. Production of goods for sales takes place one month before sales. Each unit produced requires two units of raw material costing ₹150 per unit. No raw material inventory is held. Raw materials purchases are on one month credit. Variable overheads and wages equal to ₹100 per unit are incurred during production and paid in the month of production. The opening cash balance on 1st January is expected to be ₹35,000. A long term loan of ₹2,00,000 is excepted to be received in the month of March. A machine costing ₹3,00,000 will be purchased in March.

(a) Prepare a cash budget for the months of January, February and March and calculate the cash balance at the end of each month in the three month period.

(b) Calculate the forecast current ratio at the end of the three months period.

[(10 Marks) Nov 2019]

Answer

(a) Cash Budget
(for three months period January to March)

Particulars	January	February	March
Opening Balance	35,000	3,57,500	6,87,500
Collection from debtors	10,80,000	11,25,000	11,70,000
Loan receivable	-	-	2,00,000
Total A	**11,15,000**	**14,82,500**	**20,57,500**
Payments to creditors	5,62,500	5,85,000	6,30,000
Variable overheads and wages	1,95,000	2,10,000	2,25,000
Purchase of machine	-	-	3,00,000
Total B	**7,57,500**	**7,95,000**	**11,55,000**
Closing Balance (A - B)	**3,57,500**	**6,87,500**	**9,02,500**

Working note:
Calculation of Collection from debtors, payment for Purchases, Variable overheads and Wages:

Particulars	December	January	February	March
Forecast sales in units	1,800	1,875	1,950	2,100
1. Sales receipts:				
Sales @ ₹600 per unit	10,80,000	11,25,000	11,70,000	12,60,000
Collection from debtors	-	**10,80,000**	**11,25,000**	**11,70,000**
2. Payment for purchase:				
Quantity produced (1 months before sales)	1,875	1,950	2,100	2,250
Materials cost @ ₹300 p.u. (150 × 2)	5,62,500	5,85,000	6,30,000	6,75,000
Payment after 1 month	-	**5,62,500**	**5,85,000**	**6,30,000**
3. Payment for variable OH and wages:				
Quantity produced	-	1,950	2,100	2,250
Variable OH and wages @ ₹100 per unit	-	**1,95,000**	**2,10,000**	**2,25,000**

(b) Forecast Current Ratio:

Forecast Current Ratio = $\frac{\text{Expected Current Assets}}{\text{Expected Current Liabilities}}$

Current Assets = Cash and bank balance + Sundry debtors + Stock of Finished Goods

= ₹9,02,500 + ₹12,60,000 + ₹9,00,000 = ₹30,62,500

Value of stock of Finished Goods = 2,250 units × [(2 units of raw material × ₹150) + ₹100]

= ₹9,00,000

Current Liabilities = Sundry creditors = ₹6,75,000

Forecast Current Ratio = $\frac{30,62,500}{6,75,000}$ = ***4.537 times***

PYQ 7

A garment trader is preparing cash forecast for first three months of calendar year 2021. His estimated sales for the forecasted periods are as below:

	January (₹'000)	*February (₹'000)*	*March (₹'000)*
Total sales	600	600	800

(i) The trader sells directly to public against cash payments and to other entities on credit. Credit sales are expected to be four times the value of direct sales to public. He expects 15% customers to pay in the month in which credit sales are made, 25% to pay in the next month and 58% to pay in the next to next month. The outstanding balance is expected to be written off.

(ii) Purchase of goods are made in the month prior to sales and it amounts to 90% of sales and are made on credit. Payments of these occur in the month after the purchase. No inventories of goods held.

(iii) Cash balance as on 1st January, 2021 is ₹50,000.

(iv) Actual sales for the last two months of calendar year 2020 are as below:

	November (₹'000)	*December (₹'000)*
Total sales	640	880

You are required to prepare a monthly cash budget for the three months from January to March, 2021.
[(5 Marks) Dec 2021]

Answer

Cash Budget
(From January to March, 2021)

Particulars	*January*	*February*	*March*
Opening Balance	50,000	1,74,960	3,55,280
Cash Sales & Debtors Collection	6,64,960	7,20,320	6,54,400
Total A	***7,14,960***	***8,95,280***	***10,09,680***
Payments to creditors (90% of sales)	5,40,000	5,40,000	7,20,000
Total B	***5,40,000***	***5,40,000***	***7,20,000***
Closing balance (A - B)	***1,74,960***	***3,55,280***	***2,89,680***

Working Note: Cash Sales and Collection from Debtors:

(₹'000)

Month	*Sales*	*Cash Sales 20%*	*Credit Sales 80%*	*From Debtors*			*Total Collection*
				15%	*25%*	*58%*	
November	640	128	512	76.8	-	-	-
December	880	176	704	105.6	128	-	-
January	600	120	480	72	176	296.96	664.96
February	600	120	480	72	120	408.32	720.32
March	800	160	640	96	120	278.4	654.4

PYQ 8

K Ltd. has a Quarterly cash outflow of ₹9,00,000 arising uniformly during the Quarter. The company has an Investment portfolio of Marketable Securities. It plans to meet the demands for cash by periodically selling marketable securities. The marketable securities are generating a return of 12% p.a. Transaction cost of converting investments to cash is ₹60. The company uses Baumol model to find out the optimal transaction size for converting marketable securities into cash.
Consider 360 days in a year.

You are required to calculate:

(a) Company's average cash balance,
(b) Number of conversions each year and
(c) Time interval between two conversions.

[(5 Marks) Nov 2022]

Answer

(a) Average cash balance = ½ of ₹60,000
= ***₹30,000***

(b) Number of conversions p.a. = $\frac{\text{Annual Cash Requirement}}{\text{Optimal Transaction Size}}$ = $\frac{9,00,000 \times 4}{60,000}$

= ***60 conversions per annum***

(c) Time interval between two conversions = $\frac{360}{\text{No.of Coversions}}$ = $\frac{360}{60}$

= ***6 Days***

Working Note:

Optimal Cash Balance (C) = $\sqrt{\frac{2UP}{S}}$ = $\sqrt{\frac{2 \times 9,00,000 \times 4 \times 60}{0.12}}$ = ₹60,000

SUGGESTED REVISION

Ques. No.	Observations or KEY Points (Note down during revisions)	Page No. of Practical Register	1st & 2nd Revision	3rd, 4th & 5th Revision	Revision during Exams
BQ (Book Questions covering Study Module of ICAI, PM, RTP's, MTP's and Important Questions)					
1			Y	Y	-
2			Y	Y	Y
3			Y	Y	Y
4			Y	Y	-
5			Y	Y	Y
6			Y	Y	-
7			Y	Y	-
8			Y	Y	Y
9			Y	Y	Y
10			Y	Y	Y
11			Y	-	-
12			Y	Y	-
13			Y	Y	Y
14			Y	Y	-
15			Y	-	-
PYQ (Past Year Questions)					
1			Y	Y	-
2			Y	-	-
3			Y	Y	Y
4			Y	Y	Y
5			Y	-	-
6			Y	Y	Y
7			Y	Y	Y
8			Y	Y	Y

CHAPTER – 6

RATIO ANALYSIS

LEARNING OBJECTIVES

Learning Outcomes:

- ***Discuss Sources of financial data for Analysis.***
- ***Discuss financial ratios and its Types.***
- ***Discuss use of financial ratios to analyse the financial statement.***
- ***Analyse the ratios from the perspective of investors, lenders, suppliers, managers etc. to evaluate the profitability and financial position of an entity.***
- ***Describe the users and objective of Financial Analysis (A Birds Eye View).***
- ***Discuss Du Pont analysis***
- ***State the limitations of Ratio Analysis.***

PROFITABILITY RATIOS

BQ 1

Income Statement

Particulars	₹	Particulars	₹
To Opening Stock	4,00,000	By Sales	40,00,000
To Purchases	15,00,000	By Closing Stock	3,00,000
To Wages	6,00,000		
To Other Direct Expenses	8,00,000		
To Gross profit	10,00,000		
	43,00,000		***43,00,000***
To Administrative Expenses	2,00,000	By Gross Profit b/d	10,00,000
To Selling Expenses	1,00,000	By Non Operating Income	3,00,000
To Non Operating Expenses	50,000		
To Interest on Debt	1,50,000		
To Provision for Tax	3,20,000		
To Net Profit	4,80,000		
	13,00,000		***13,00,000***

Calculate (a) Gross Profit Ratio, (b) COGS Ratio, (c) Operating Expenses Ratio, (d) Operating Ratio, (e) Operating Profit Ratio, (f) Net Profit Ratio.

[(a) 25% (b) 75% (c) 7.50% (d) 82.50% (e) 17.50% (f) 12%]

BQ 2

Balance Sheet as at 31st March

Liabilities	₹	Assets	₹
Equity Share Capital	10,00,000	Fixed Assets	14,00,000
(1,00,000 Shares @ ₹10 each)		Investment (trade)	4,00,000
General Reserve	2,00,000	Capital Work-in-progress	2,00,000
Profit and Loss	1,00,000	Current Assets	2,50,000
15% Preference Share Capital	6,00,000	Miscellaneous Expenditure	1,00,000
10% Debenture	4,00,000		
Current Liabilities	50,000		
	23,50,000		***23,50,000***

Note: Market Price of Equity Share (MPS) is ₹18.

Income Statement

Particulars	₹
Earning Before Interest and tax (EBIT)	6,00,000
Less: Interest @ 10% of ₹4,00,000	40,000
Earnings Before Tax (EBT)	***5,60,000***
Less: Tax @ 40%	2,24,000
Earnings After Tax (EAT)	***3,36,000***
Less: Preference Dividend @ 15% of ₹6,00,000	90,000
Earnings Available for Equity Shareholders	***2,46,000***
Less: Equity Dividend	1,47,600
Retained Earnings	***98,400***

Calculate: (a) Return on Capital Employed, (b) Return on Equity (ROE), (c) Return on Shareholders Fund, (d) Return on Total Assets, (e) Earning Per Share (EPS), (f) Dividend Per Share (DPS), (g) Dividend Payout Ratio, (h) Earning Retention Ratio, (i) Price Earning Ratio (PE), (j) Earning Yield Ratio, (k) Dividend Yield Ratio, (l) MVBV Ratio.

[(a) 30% (b) 20.50% (c) 18.67% (d) 16% (e) ₹2.46 (f) ₹1.476 (g) 60% (h) 40% (i) 7.317 times (j) 13.67% (k) 8.20% (l) 1.5 times]

ACTIVITY RATIOS

BQ 3

Sales:	
Cash	₹4,00,000
Credit	₹6,00,000
Cost of goods sold	₹8,00,000
Opening stock	₹80,000
Closing stock	₹1,20,000
Year end debtors (before provision)	₹60,000
Provision for doubtful debt	₹5,000

Calculate (a) Stock Turnover Ratio, (b) Debtors Turnover Ratio, (c) Stock Holding Period, and (d) Debtors Collection Period (360 days a year).

[(a) 8 times (b) 10 times (c) 45 Days (d) 36 Days]

BQ 4

Purchase for the year	₹30,00,000
Purchase return	₹5,00,000
Sundry creditors as on 31.03.22	₹4,00,000
Sundry creditors as on 31.03.23	₹5,00,000
Bills payable as on 31.03.22	₹70,000
Bills payable as on 31.03.23	₹30,000

Taking year for 360 days, calculate (i) Creditors Turnover Ratio, (ii) Average Payment Period.

Answer

(i) Creditors Turnover Ratio $= \dfrac{\text{Credit Purchase (Net)}}{\text{Average Payables}}$

$= \dfrac{30,00,000 - 5,00,000}{5,00,000} = $ ***5 times***

(ii) Average Payment Period $= \dfrac{360}{\text{Creditors Turnover Ratio}} = \dfrac{360}{5}$

$=$ ***72 days***

Working Notes:

Average Payables $= \dfrac{\text{Opening Payables} + \text{Closing Payables}}{2}$

$= \dfrac{(4,00,000 + 70,000) + (5,00,000 + 30,000)}{2} = $ ***5,00,000***

Note: Total purchases have been treated as credit purchases.

BQ 5

Sales	₹40,00,000
Capital Employed	₹8,00,000
Fixed Assets	₹6,00,000
Current Assets	₹4,00,000
Current Liabilities	₹2,00,000
Total Assets (Inclusive Miscellaneous Expenditure)	₹11,00,000
Miscellaneous Expenditure (Fictitious Assets)	₹1,00,000

Calculate: (a) Capital Employed Turnover Ratio, ***(b)*** Fixed Assets Turnover Ratio, ***(c)*** Current Assets Turnover Ratio, ***(d)*** Working Capital Turnover Ratio and ***(e)*** Total Assets Turnover Ratio.

[(a) 5 times (b) 6.67 times (c) 10 times (d) 20 times (e) 4 times]

DU PONT (ROI)

BQ 6

Sales	₹20,00,000
Capital Employed	₹10,00,000
Operating Profit	₹3,00,000

Calculate Return on Capital Employed by applying Du Pont model.

Answer

Return on Capital Employed = Operating Profit Ratio × Capital Employed Turnover Ratio

= 15% × 2 times = ***30%***

Working Notes:

Operating Profit Ratio = $\frac{\text{Operating Profit}}{\text{Sales}} \times 100$ = $\frac{3,00,000}{20,00,000} \times 100$

= ***15%***

Capital Employed Turnover Ratio = $\frac{\text{Sales}}{\text{Capital Employed}}$ = $\frac{20,00,000}{10,00,000}$

= ***2 times***

BQ 7

Net Profit Ratio	20%
Asset Turnover	1.2 times
Equity Multiplier	1.5 times

Calculate Return on Equity by applying Du Pont model.

Answer

Return on Equity (ROE) = Net Profit Ratio × Asset Turnover × Equity Multiplier

= 20% × 1.2 times × 1.5 times = ***36%***

LIQUIDITY RATIOS

BQ 8

Calculate Absolute Cash Ratio from following information.

Particulars	2022	2023
Bank balance	50,000	70,000
Cash	15,000	5,000
Investments (total)	1,50,000	1,20,000
Trade investments	20,000	30,000
Non trade investments	1,30,000	90,000
Market value of total investments	1,35,000	96,000
Current liabilities	4,00,000	5,00,000

Answer

Absolute Cash Ratio = $\frac{\text{Cash + Bank + Marketable Securities}}{\text{Current Liabilities}}$

2022 = $\frac{15,000 + 50,000 + 1,17,000}{4,00,000}$ = ***0.455***

2023 = $\frac{5,000 + 70,000 + 72,000}{5,00,000}$ = ***0.294***

Working Notes:

Calculation of Marketable securities (Market value of non trade investment):

2022	=	$\frac{1,35,000}{1,50,000} \times 1,30,000$	=	***1,17,000***
2023	=	$\frac{96,000}{1,20,000} \times 90,000$	=	***72,000***

Comment: Absolute cash ratio has declined from .46 to .29. This indicates that availability of cash to pay firm's current liabilities has sharply declined.

BQ 9

Assuming the current ratio is 2, state and explain in each of the following cases whether the current ratio will improve or decline or will have no change:

(a) Payment of a current liability,
(b) Purchase of fixed assets,
(c) Cash collected from customers,
(d) Bills receivable dishonoured and
(e) Issue of new shares.

[(a) Improve (b) Decline (c) No change (d) No change (e) Improve]

BQ 10

Income Statement (ABC Ltd.)
(For the Year ended at 31st March, 2023)

Particulars	***₹***	***Particulars***	***₹***
To Purchases	18,00,000	By Sales	50,00,000
To Wages	5,00,000		
To Other Direct Expenses	6,00,000		
To Gross profit	21,00,000		
	50,00,000		***50,00,000***
To Salaries, Bonus etc.	1,70,000	By Gross Profit b/d	21,00,000
To Telephone	80,000		
To Internet Charges	50,000		
To Advertisement	1,50,000		
To Commission	1,20,000		
To Depreciation	1,00,000		
To Bad Debts	20,000		
To Goodwill Written off	45,000		
To Loss on Sale of Asset	25,000		
To Provision for Tax	4,96,000		
To Net Profit	8,44,000		
	21,00,000		***21,00,000***

Cash and cash equivalents is ₹2,75,000.

Find out Daily Operating Expenses (cash) and calculate Basic Defense Interval.

Answer

Daily Operating Expenses	=	$\frac{\text{COGS} + \text{Operating Cash Expenses}}{365}$	=	$\frac{34,70,000}{365}$
	=	***9,507***		
Basic Defense Interval	=	$\frac{\text{Cash and Cash Equivalents}}{\text{Daily Operating Expenses}}$	=	$\frac{2,75,000}{9,507}$
	=	***29 Days***		

SOLVENCY RATIOS

BQ 11

Balance Sheet as at 31st March, 2023

Liabilities	₹	Assets	₹
Equity Share Capital (60,000 Shares @ ₹10 each)	6,00,000	Non Current Assets	15,00,000
		Current Assets	4,50,000
Reserve and Surplus	4,00,000		
13% Preference Share Capital	2,00,000		
10% Debenture	6,00,000		
Current Liabilities	1,50,000		
	19,50,000		**19,50,000**

Income Statement
(For the period ended at 31st March, 2023)

Particulars	₹
Earnings Before Interest and Tax (EBIT)	**4,50,000**
Less: Interest @ 10% of ₹6,00,000	60,000
Earnings Before Tax (EBT)	**3,90,000**
Less: Tax @ 50%	1,95,000
Earnings After Tax (EAT)	**1,95,000**
Less: Preference Dividend @ 13% of ₹2,00,000	26,000
Earnings Available for Equity Shareholders	**1,69,000**
Less: Equity Dividend	1,20,000
Retained Earnings	**49,000**

Calculate: (a) Debt to Equity Ratio, (b) Total Assets to Debt Ratio, (c) Proprietary Ratio, (d) Capital Gearing Ratio, (e) Equity Ratio, (f) Debt Ratio, (g) Interest Coverage Ratio, (h) Preference Dividend Coverage Ratio, (i) Equity Dividend Coverage Ratio.

[(a) 6 : 10 (b) 3.25 : 1 (c) 61.54% (d) 0.80 (e) 0.55 (f) .33 (g) 7.5 times (h) 7.5 times (i) 1.41 times]

MISCELLANEOUS

BQ 12

Equity share capital	₹1,00,000

The relevant ratios of the company are as follows:

Current debt to total debt	.40
Total debt to owner's equity	.60
Fixed assets to owner's equity	.60
Total assets turnover	2 Times
Inventory turnover	8 Times

Complete the following balance sheet from the above information:

Balance Sheet

Liabilities	₹	Assets	₹
Current Debt	-	Inventory	-
Long Term Debt	-	Cash	-
Total Debt	-	Total Current Assets	-
Equity Share Capital	-	Fixed Assets	-
	-		-

Answer

Balance Sheet

Liabilities	*₹*	*Assets*	*₹*
Current Debt	24,000	Inventory	40,000
Long Term Debt	36,000	Cash	60,000
Total Debt	60,000	Total Current Assets	1,00,000
Equity Share Capital	1,00,000	Fixed Assets	60,000
	1,60,000		***1,60,000***

Working Notes:

1. Total debt:

0.60 × Owners equity = 0.60 × ₹1,00,000 = ***₹60,000***

2. Current Debt:

Current debt to total debt = 0.40

Current debt = 0.40 × ₹60,000 = ***₹24,000***

3. Fixed assets:

0.60 × Owners equity = 0.60 × ₹1,00,000 = ***₹60,000***

4. Total of liability side:

Total debt + Owners equity = ₹60,000 + ₹1,00,000 = ***₹1,60,000***

5. Total assets consisting of fixed assets and current assets must be equal to ₹1,60,000 hence, current assets should be ₹1,00,000.

6. Total assets turnover is 2 times:

$\frac{\text{Sales}}{\text{Total Assets}}$ = 2 times

Sales = ₹1,60,000 × 2 = ***₹3,20,000***

Inventory turnover is 8 times:

$\frac{\text{Sales}}{\text{Inventory}}$ = 8 times

Inventory = $\frac{\text{Sales}}{8} = \frac{3,20,000}{8}$ = ***₹40,000***

7. Cash: = ₹1,00,000 – ₹40,000 = ***₹60,000***

BQ 13

Using the following information, Prepare this Balance sheet:

Long term debt to net worth	0.5
Total assets turnover	2.5
*Average collection period	18 days
Inventory turnover	9
Gross profit margin	10%
Acid test ratio	1 to 1

*Assume a 360 day year and all sales on credit

	₹		*₹*
Cash	-	Notes and payables	1,00,000
Account receivables	-	Long term debt	-
Inventory	-	Common stock	1,00,000
Plant and equipment	-	Retained earnings	1,00,000
Total Assets	***-***	***Total liabilities and equity***	***-***

Answer

Balance Sheet

	₹		₹
Cash	50,000	Notes and payables	1,00,000
Account receivables	50,000	Long term debt	1,00,000
Inventory	1,00,000	Common stock	1,00,000
Plant and equipment	2,00,000	Retained earnings	1,00,000
Total Assets	***4,00,000***	***Total liabilities and equity***	***4,00,000***

Working Notes:

1. Long term debt to net worth = Long term debt ÷ Net worth = 0.5

Long term debt = Net worth × 0.5

= ₹2,00,000 × 0.5 = ***₹1,00,000***

2. Total Assets Turnover = Sales ÷ Total Assets = 2.5

Sales = Total Assets × 0.5

= ₹4,00,000 × 2.5 = ***₹10,00,000***

3. Debtors = Credit Sales × Average collection period/360

= ₹10,00,000 × 18/360 = ***₹50,000***

4. Inventory turnover ratio = COGS ÷ Inventory = 9

Inventory = (₹10,00,000 × 90%) ÷ 9 = ***₹1,00,000***

5. Acid test ratio = (CA – Inventory) ÷ CL = 1

= (CA – ₹1,00,000) ÷ ₹1,00,000 = 1

Current Assets = ***₹2,00,000***

Current Assets = Cash + Account receivables + Inventory

= Cash + ₹50,000 + ₹1,00,000 = ₹2,00,000

Cash = ***₹50,000***

BQ 14

Complete the following annual financial statements on the basis of ratios given below:

Profit and loss account for the year ended 31st March, 2023

Particulars	***₹***	***Particulars***	***₹***
To Cost of goods sold	6,00,000	By Sales	20,00,000
To Operating expenses	-		
To EBIT	-		
	20,00,000		20,00,000
To Debenture interest	10,000	By EBIT	-
To Income tax	-		
To Net profit	-		
	-		-

Balance Sheet as at 31st March, 2023

Liabilities	***₹***	***Assets***	***₹***
Net worth:		Fixed assets	-
Share capital	-	Current assets:	
Reserve and surplus	-	Cash	-
10% Debenture	-	Stock	-
Sundry creditors	60,000	Debtors	35,000
	-		-

Net Profit to sales 5% Current Ratio 1.5 times

Return on net worth	20%	Share capital to reserves	4 : 1
Rate of Income - tax	50%	Inventory turnover (based on cost of goods sold)	15 times

Answer

Profit and loss account for the year ended 31st March, 2023

Particulars	₹	Particulars	₹
To Cost of goods sold	6,00,000	By Sales	20,00,000
To Operating expenses	11,90,000		
To EBIT	2,10,000		
	20,00,000		***20,00,000***
To Debenture interest	10,000	By EBIT	2,10,000
To Income tax	1,00,000		
To Net profit	1,00,000		
	2,10,000		***2,10,000***

Balance Sheet as at 31st March, 2023

Liabilities	₹	Assets	₹
Net worth:		Fixed assets	5,70,000
Share capital	4,00,000	Current assets:	
Reserve and surplus	1,00,000	Cash	15,000
10% Debenture	1,00,000	Stock	40,000
Sundry creditors	60,000	Debtors	35,000
	6,60,000		***6,60,000***

BQ 15

Using the following data, complete the Balance Sheet of X Ltd. as at 31.03.2023:

Gross profit	25% of Sales	Gross profit	₹1,20,000
Shareholder's equity	₹20,000	Credit Sales to total sales	80%
Total turnover to total assets	4 times	Cost of sales to inventory	10 times
Average collection period	5 days	Long-term debt	?
Current ratio	1.5	Sundry creditors	₹60,000
Assume 365 days in a year			

Balance Sheet of as at 31.03.2023

Liabilities	₹	Assets	₹
Share capital	-	Cash	-
Long term debt	-	Inventory	-
Sundry creditors	-	Debtors	-
		Fixed assets	-
	-		-

BQ 16

From the following information, prepare a summarised balance sheet as at March 31, 2023:

Stock Turnover ratio	6	Fixed assets turnover ratio	4
Capital turnover ratio	2	Gross profit	20%
Debt collection period	2 months	Creditors payment period	73 days
Gross profit	₹60,000		

Closing stock was ₹5,000 in excess of the opening stock.

Answer

Working Notes:

1. Sales = $\frac{\text{Gross Profit}}{\text{GP Ratio}}$ = $\frac{60,000}{20\%}$

= **₹3,00,000**

2. Stock Velocity = $\frac{\text{COGS}}{\text{Average Stock}}$ = 6

Average Stock = $\frac{\text{COGS}}{6}$ = $\frac{2,40,000}{6}$

= **₹40,000**

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

40,000 × 2 = Opening Stock + Closing Stock

80,000 = (Closing – 5,000) + Closing Stock

Closing Stock = **₹42,500** [Opening Stock = Closing – 5,000]

4. Capital Turnover Ratio = $\frac{\text{Turnover}}{\text{Capital}}$ = 2

Capital = $\frac{3,00,000}{2}$ = **₹1,50,000**

5. Fixed Assets Turnover = $\frac{\text{Sales}}{\text{Fixed Assets}}$ = 4

Fixed Assets = $\frac{3,00,000}{4}$ = **₹75,000**

6. Debtors = Credit sales × $\frac{\text{Collection period}}{12}$

= 3,00,000 × $\frac{2}{12}$ = **₹50,000**

7. Creditors = Credit purchase × $\frac{\text{Payment period}}{12}$

= 2,45,000 × $\frac{73}{365}$ = **₹49,000**

Assuming all purchases to be credit purchases, the amount of credit purchase is determined as follows:

Cost of Goods Sold = Opening Stock + Purchases - Closing Stock

= **2,40,000**

Purchase = COGS + Closing Stock – Opening Stock

= 2,40,000 + 42,500 - 37,500 = **₹2,45,000**

Balance Sheet as at 31st March, 2023

Liabilities	₹	Assets	₹
Capital	1,50,000	Fixed assets	75,000
Sundry creditors	49,000	Current assets:	
		Stock	42,500
		Debtors	50,000
		Cash (b.f.)	31,500
	1,99,000		**1,99,000**

BQ 17

From the following particulars prepare the balance sheet:

Current ratio	2	Working capital	₹4,00,000
Capital block to current assets	3 : 2	Fixed assets to turnover	1 : 3

Sales cash/credit	1 : 2	Debentures/share capital	1 : 2
Stock velocity	2 months	Creditors velocity	2 months
Debtors velocity	3 months	Gross profit ratio	25%
Reserve	2 $^1/_2$% of sales	Profit & Loss (Cr. balance)	10% of sales

Answer

Balance Sheet

Liabilities	*₹*	*Assets*	*₹*
Share Capital	6,00,000	Fixed assets	8,00,000
Reserves	60,000	Current assets:	
Profit & Loss A/C	2,40,000	Stock	3,00,000
Debentures	3,00,000	Debtors	4,00,000
Sundry creditors	3,00,000	Cash	1,00,000
Other Current Liabilities	1,00,000		
	16,00,000		***16,00,000***

Working Notes:

(a) ***Working Capital*** = Current Assets – Current Liabilities

= ***4,00,000*** ***(i)***

$\frac{\text{Current Assets}}{\text{Current Liabilities}}$ = 2

Current Assets = 2 Current Liabilities ***(ii)***

CA – CL = 4,00,000

2 CL – CL = 4,00,000

Current Liabilities = ***₹4,00,000***

Current Assets = 2 × ₹4,00,000 = ***₹8,00,000***

(b) Capital Employed/Block = 8,00,000 × $^3/_2$

Capital Employed = ***₹12,00,000***

(c) Total liabilities = 12,00,000 + 4,00,000 = Total Assets

Fixed Assets = 16,00,000 - 8,00,000 = ***₹8,00,000***

(d) Turnover/ Sales = 8,00,000 (FA) × 3

Sales = ***₹24,00,000***

Credit sales and cash sales ₹16,00,000 and ₹8,00,000 respectively.

(e) ***Debtors*** = 16,00,000 × $^3/_{12}$ = ***₹4,00,000***

(f) ***Stock*** = COGS × $^2/_{12}$

= 18,00,000 × $^2/_{12}$ = ***₹3,00,000***

(g) ***Creditors*** = Credit purchase $^2/_{12}$

= 18,00,000 × $^2/_{12}$ = ***₹3,00,000***

[Credit purchase = COGS]

(h) ***Cash Balance*** = 8,00,000 - 7,00,000 = ***₹1,00,000***

(i) ***Reserves*** = 24,00,000 × 2.5% = ***₹60,000***

(j) ***Profit*** = 24,00,000 × 10% = ***₹2,40,000***

(k) ***Block or Fixed Capital*** = ***12,00,000***

Reserve and Profit = ***3,00,000***

Debentures and Share Capital = ***9,00,000***

Share Capital is ₹6,00,000 and Debentures are ₹3,00,000 respectively.

BQ 18

From the following prepare a balance sheet:

Current ratio	1.75	Liquid ratio	1.25
Stock turnover ratio (closing stock)	9 times	Gross profit ratio	25%
Debtors collection period	1.5 months	Reserves to capital	0.2
Turnover fixed Assets	1.2	Capital gearing ratio	0.6
Fixed Assets to net worth	1.25	Sales for the year	₹12,00,000

[Share capital: 6,66,667 Reserve: 1,33,333 Debt: 4,80,000 CL: 2,00,000 CA 3,50,000 Fixed Assets 10,00,000]

BQ 19

From the following particulars you are required to prepare the balance sheet of ABC Ltd:

Fixed Assets (after writing off 30%)	₹10,50,000
Fixed Assets Turnover Ratio (on Cost of Goods Sold)	2 times
Finished goods Turnover Ratio (on Cost of Goods Sold)	6 times
G.P. rate on sales	25%
Net profit (before interest) to sales	8%
Interest coverage (debenture interest 7%)	8 times
Debt collection period	1.5 months
Material consumed to sales	30%
Stock of raw materials (in terms of months consumption)	3 months
Current ratio	2.4 : 1
Quick ratio	1 : 1
Reserve to capital ratio	0.21

Answer

Balance Sheet of ABC Ltd

Liabilities	₹	Assets	₹
Share Capital	10,00,000	Fixed assets	10,50,000
Reserves	2,10,000	Current assets:	
Debentures	4,00,000	Stock of Raw materials	2,10,000
Current Liabilities	4,00,000	Stock of Finished goods	3,50,000
		Debtors	3,50,000
		Cash	50,000
	20,10,000		**20,10,000**

Working notes:

A. COGS/Fixed Assets = 2
Fixed Assets = 10.5 lakhs
Cost of goods sold = **₹21,00,000**

B. COGS/Finished goods = 6

$\frac{21,00,000}{\text{Finished goods}}$ = 6

6 Finished goods = ₹21,00,000
* Finished goods = **₹3,50,000**

C. Gross Profit on sales = 25%
COGS + Profit = Sales
₹21,00,000 + .25X = X
Sales = 21,00,000 ÷ 0.75 = **₹28,00,000**
Gross profit = **₹7,00,000**

D. Net Profit before interest = ₹28,00,000 × 8%

F. Debt collection period = 1.5 times
Sales × $^{1.5}/_{12}$ = **₹3,50,000**

G. Material consumed to sales is 30%
Material consumed = ₹28,00,000 × 30%
= **₹8,40,000**

H. Stock of raw material = ₹8,40,000 × $^{3}/_{12}$
= **₹2,10,000**

I. $\frac{\text{Current Assest}}{\text{Current Liabilities}}$ = 2.4 times

$\frac{\text{Liquid Assets}}{\text{Current Liabilities}}$ = 1 times

∴ Value of Stock = (2.4 - 1) CL = 1.4 CL
Finished goods + Raw material

	= ₹2,24,000
$\frac{\text{Net profit before interest}}{\text{Interest}}$	= 8
Interest charges	= ₹28,000
E. 7% interest charges	= ₹28,000
Debentures = 28,000 ÷ 7%	= ₹4,00,000

= ₹3,50,000 + ₹2,10,000	= 1.4 CL
Current assets	= ₹9,60,000
Current Liabilities	= ₹4,00,000
J. Reserves to capital	= 0.21
If capital is 1.00 then Reserve	= .21
If net worth is	₹12,10,000
then Capital	= ₹10,00,000
Reserve	= ₹2,10,000

BQ 20

From the following information relating to Wise Limited you are required to prepare its summarized Balance Sheet.

Current ratio	2.5	Acid test ratio	1.5
Gross profit to sales ratio	0.2	Sales to net fixed assets ratio	2.0
Sales to net worth ratio	1.5	Sales to debtors ratio	6.0
Reserves to capital ratio	1.0	Stock velocity (in months)	2
Net worth to long term loan	20	Paid up share capital	₹10 lakhs
Net working capital to net worth ratio	0.3		

Answer

Balance Sheet of ABC Ltd

Liabilities	₹	Assets	₹
Share Capital	10,00,000	Fixed assets	15,00,000
Reserves	10,00,000	Stock	4,00,000
Long term Loans	1,00,000	Debtors	5,00,000
Current Liabilities	4,00,000	Other Current Assets	1,00,000
	25,00,000		25,00,000

BQ 21

Following is the abridged Balance Sheet of Alpha Ltd:

Liabilities	₹	Assets	₹	₹
Share Capital	1,00,000	Land and Buildings		80,000
Profit and Loss Account	17,000	Plant and Machineries	50,000	
Current Liabilities	40,000	Less: Depreciation	15,000	35,000
				1,15,000
		Stock	21,000	
		Receivables	20,000	
		Bank	1,000	42,000
	1,57,000			1,57,000

With the help of the additional information furnished below, you are required to prepare trading and profit & loss account and a balance sheet as at 31st march, 2023:

(1) The company went in for reorganisation of capital structure, with share capital remaining the same as follows:

Particulars	%
Share capital	50%
Other shareholders funds	15%
5% Debentures	10%
Payables	25%
	100%

Debentures were issued on 1st April, interest being paid annually on 31st March.

(2) Land and Buildings remained unchanged. Additional plant and machinery has been bought and a further

₹5,000 depreciation written off.
(The total fixed assets then constituted 60% of total fixed and current assets.)

(3) Working capital ratio was 8 : 5.
(4) Quick assets ratio was 1 : 1.
(5) The receivables (four-fifth of the quick assets) to sales ratio revealed a credit period of 2 months. There were no cash sales.
(6) Return on net worth was 10%.
(7) Gross profit was at the rate of 15% of selling price.
(8) Stock turnover was eight times for the year.
(9) Ignore Taxation.

Answer

Projected Profit and Loss account for the year ended 31-03-2023

Particulars	₹	Particulars	₹
To Cost of Goods Sold	2,04,000	By Sales	2,40,000
To Gross profit (15% of ₹2,40,000)	36,000		
	2,40,000		***2,40,000***
To Administration and other expenses (b.f.)	22,000	By Gross Profit	36,000
To Interest on Debenture (5% on ₹20,000)	1,000		
To Net Profit	13,000		
	36,000		***36,000***

Projected Balance Sheet as at 31st March, 2023

Liabilities	₹	*Assets*	₹	₹
Share Capital	1,00,000	Land and Buildings		80,000
Other shareholders funds	30,000	Plant and Machineries	60,000	
5% Debentures	20,000	Less: Depreciation	20,000	40,000
Payables	50,000			1,20,000
		Stock	30,000	
		Receivables	40,000	
		Bank (b.f.)	10,000	80,000
	2,00,000			***2,00,000***

Working Notes:

(1) Total Liabilities:

Share capital = 50% of total liabilities = ₹1,00,000
Total Liabilities = ₹1,00,000 ÷ 50% = ₹2,00,000

(2) Classification of total liabilities:

Particulars	%	(₹)
Share capital	50%	1,00,000
Other shareholders funds	15%	30,000
5% Debentures	10%	20,000
Payables	25%	50,000
	100%	2,00,000

(3) Fixed Assets:

Total liabilities = Total Assets = ₹2,00,000
Fixed Assets = 60% of total fixed assets and current assets
= ₹2,00,000 × 60% = ₹1,20,000

(4) Calculation of Historical cost of Plant & Machinery:

Particulars	₹
Total fixed assets	1,20,000
Less: Land and Buildings	80,000
Plant and Machinery (after providing depreciation)	40,000
Depreciation on Machinery up to 31.03.2018	15,000
Add: Further depreciation	5,000
	20,000
Historical Cost of Plant and Machinery (40,000 + 20,000)	60,000

(5) Current Assets:

Current assets = Total assets – Fixed assets
= ₹2,00,000 – ₹1,20,000 = ₹80,000

(6) Calculation of Stock:

Quick ratio = $\frac{\text{Current assets} - \text{Stock}}{\text{Current liabilities}}$ = 1

= $\frac{80{,}000 - \text{Stock}}{50{,}000}$ = 1

Stock = ₹80,000 – ₹50,000 = ₹30,000

(7) Receivables:

Receivables = 4/5th of quick assets
= (₹80,000 – ₹30,000) × 4/5 = ₹40,000

(8) Receivables turnover ratio:

= $\frac{\text{Receivables}}{\text{Credit Sales}}$ × 12 Months = 12 months

= $\frac{40{,}000}{\text{Credit Sales}}$ × 12 Months = 2 months

Credit sales = 40,000 × 12/2 = ₹2,40,000

(9) Return on net worth (net profit):

Net worth = ₹1,00,000 + ₹30,000 = ₹1,30,000
Net profit = ₹1,30,000 × 10% = ₹13,000

BQ 22

The following accounting information and financial ratios of PQR Ltd. relate to the year ended 31st December, 2022:

Accounting Information:	
Gross profit	15% of sales
Net profit	8% of sales
Raw material consumed	20% of works cost
Direct wages	10% of works cost
Stock of raw materials	3 months' usage
Stock of finished goods	6% of works cost
Debt collection period	60 days
All sales are on credit	
Financial Ratios:	
Fixed assets to Sales	1 : 3
Fixed assets to Current assets	13 : 11
Current ratio	2 : 1
Long term loan to Current liabilities	2 : 1
Capital to Reserve and Surplus	1 : 4

If value of fixed assets as on 31st December, 2022 amounted to ₹26 lakhs, prepare a summarised profit and loss account of the company for the year ended 31st december, 2022 and also the balance sheet as on 31st

december, 2022.

Answer

Profit and Loss account for the year ended 31.12.2022

Particulars	₹	Particulars	₹
To Direct Materials	13,26,000	By Sales	78,00,000
To Direct Wages	6,63,000		
To Works Overheads (b.f.)	46,41,000		
To Gross profit (15% of ₹78,00,000)	11,70,000		
	78,00,000		***78,00,000***
To Administration and Selling expenses (b.f.)	5,46,000	By Gross Profit	11,70,000
To Net Profit (8% of ₹78,00,000)	6,24,000		
	11,70,000		***11,70,000***

Balance Sheet as at 31st December, 2022

Liabilities	₹	Assets	₹
Share Capital	3,00,000	Fixed Assets	26,00,000
Reserves and Surplus	12,00,000	Current Assets:	
Long term loans	22,00,000	Raw Material Stock	3,31,500
Current Liabilities	11,00,000	Finished Goods Stock	3,97,800
		Receivables	12,82,192
		Cash	1,88,508
	48,00,000		***48,00,000***

Working Notes:

(a) Calculation of Sales:

$$\frac{\text{Fixed Assets}}{\text{Sales}} = 1/3 \quad \text{or} \quad \text{Sales} = 3 \times ₹26,00,000$$

Sales = ***₹78,00,000***

(b) Calculation of Current Assets:

$$\frac{\text{Fixed Assets}}{\text{Current Assets}} = 13/11 \quad \text{or} \quad \text{Current Assets} = ₹26,00,000 \times 11/13$$

Current Assets = ***₹22,00,000***

(c) Calculation of Raw Material Consumption and Direct Wages:

Works Cost = Sales – Gross Profit
= 78,00,000 – 15% of Sales = ₹66,30,000

Raw Material Consumption = 20% of ₹66,30,000 = ***₹13,26,000***
Direct Wages = 10% of ₹66,30,000 = ***₹6,63,000***

(d) Calculation of Finished Goods Stock:

Finished Goods Stock = 6% of ₹66,30,000 = ***₹3,97,800***

(e) Calculation of Raw Material Stock:

Raw Material Stock = Raw Material Consumption × 3/12
= ₹13,26,000 × 3/12 = ***₹3,31,500***

(f) Calculation of Current Liabilities:

$$\text{Current Ratio} = \frac{\text{Current Assets}}{\text{Current Liabilities}} = 2$$

Current Liabilities = ₹22,00,000 ÷ 2 = ***₹11,00,000***

(g) Calculation of Receivables:

Receivables = Credit Sales × $\frac{ACP}{365}$ = ₹78,00,000 × $\frac{60}{365}$

= ***₹12,82,192***

(h) Calculation of Long Term Loan:

$\frac{\text{Long Term Loan}}{\text{Current Liabilities}}$ = 2

Long Term Loan = 2 × ₹11,00,000 = ***₹22,00,000***

(i) Calculation of Cash Balance:

Current Assets = Cash + Stock + Receivables

Cash Balance = ₹22,00,000 – (₹3,97,800 + ₹3,31,500 + ₹12,82,192)

= ***₹1,88,508***

(j) Calculation of Net Worth:

Total Liabilities = Total Assets (Fixed Assets + Current Assets)

= ₹22,00,000 + ₹26,00,000 = ₹48,00,000

Net Worth = Total Liabilities – Long Term Loan – Current Liabilities

= ₹48,00,000 - ₹22,00,000 - ₹11,00,000 = ***₹15,00,000***

(k) Calculation of Capital, Reserve and Surplus:

Net Worth = Share Capital + Reserve and surplus

Capital to Reserve and Surplus = 1 : 4

Share Capital = ₹15,00,000 × 1/5 = ₹3,00,000

Reserve and Surplus = ₹15,00,000 × 4/5 = ₹12,00,000

BQ 23

The following figures and ratios are related to a company:

(a)	Sales for the year (all credit)	₹90,00,000
(b)	Gross profit ratio	35 percent
(c)	Fixed assets turnover (basis on cost of goods sold)	1.5
(d)	Stock turnover (basis on cost of goods sold)	6
(e)	Liquid ratio	1.5 : 1
(f)	Current ratio	2.5 : 1
(g)	Debtors collection period	1 month
(h)	Reserve and surplus to Share capital	1 : 1.5
(i)	Capital gearing ratio	0.7875
(j)	Fixed assets to net worth	1.3 : 1

You are required to prepare:

1. Balance Sheet of the company on the basis of above details.
2. The statement showing working capital requirement, if the company wants to make a provision for contingencies @ 15% of net working capital.

Answer

(1) Balance Sheet

Liabilities	*₹*	*Assets*	*₹*
Share Capital	18,00,000	Fixed Assets	39,00,000
Reserve & Surplus	12,00,000	Stock	9,75,000
Debt	23,62,500	Debtors	7,50,000

Current Liabilities	9,75,000	Cash	7,12,500
	63,37,500		**63,37,500**

(2) Statement of Working Capital Requirement

Particulars		₹
Current Assets:	Stock	9,75,000
	Debtors	7,50,000
	Cash	7,12,500
		24,37,500
Less: Current Liabilities		(9,75,000)
Working Capital Before Provision		**14,62,500**
Add: Provision for Contingencies @ 15% of WC		2,19,375
Working Capital Including Provision		**16,81,875**

Working Notes:

a. Cost of Goods Sold = 90,00,000 - 35% = ***58,50,000***

b. Fixed Assets Turnover Ratio = $\frac{\text{COGS}}{\text{Fixed Assets}}$ = 1.5 times

Fixed Assets = $\frac{58,50,000}{1.5}$ = ***₹39,00,000***

c. Fixed Assets to Net Worth = $\frac{\text{Fixed Assets}}{\text{Net Worth}}$ = 1.3 times

Net Worth = $\frac{39,00,000}{1.3}$ = ***₹30,00,000***

d. Capital Gearing = $\frac{\text{Debt} + \text{Preference}}{\text{Equity}}$ = $\frac{\text{Debt} + \text{Nil}}{30,00,000}$

Debt = 0.7875 × ₹30,00,000 = ***₹23,62,500***

Assumption: Preference Share capital is zero.

e. Reserves & Surplus = 30,00,000 × 1/2.5 = ***₹12,00,000***

f. Share Capital = 30,00,000 × 1.5/2.5 = ***₹18,00,000***

g. Stock Turnover = $\frac{\text{COGS}}{\text{Closing Stock}}$ = 6 times

Closing Stock = $\frac{58,50,000}{6}$ = ***₹9,75,000***

h. Debtors = Sales × $\frac{\text{Collection Period}}{12}$ = 90,00,000 × $\frac{1}{12}$

= ***₹7,50,000***

i. Stock = CL (Current ratio – Liquid ratio)

Current Liabilities = Stock ÷ (CR - LR)

= 9,75,000 ÷ (2.5 – 1.5) = ***₹9,75,000***

j. Current Ratio = CA ÷ CL = 2.5 times

Current Assets = 2.5 × 9,75,000 = ***₹24,37,500***

k. Cash in Hand = 24,37,500 – 9,75,000 - 7,50,000

= ***₹7,12,500***

BQ 24

Following information has been provided from the books of Laxmi Pvt. Ltd. for the year ending on 31st March, 2023:

Working capital	₹4,80,000
Bank overdraft	₹80,000
Fixed assets to proprietary ratio	0.75
Reserves and Surplus	₹3,20,000
Current ratio	2.5
Liquid ratio	1.5

You are required to prepare a summarised Balance Sheet as at 31st March, 2023 assuming that there is no long term debt.

Answer

Balance Sheet
As at 31.03.2023

Liabilities	₹	Assets	₹
Share Capital	16,00,000	Fixed Assets	14,40,000
Reserves and Surplus	3,20,000	Stock	3,20,000
Bank Overdraft	80,000	Other Current Assets	4,80,000
Sundry creditors	2,40,000		
	22,40,000		***22,40,000***

Working Notes:

1. Current assets and Current liabilities computation:

$$\frac{CA}{CL} = 2.5$$

$$CA = 2.5\ CL$$

Working capital = CA – CL
4,80,000 = 2.5 CL – CL
CL = ***3,20,000***

CA = 3,20,000 × 2.5 = ***8,00,000***

2. Computation of stock:

$$\text{Liquid ratio} = \frac{\text{Liquid Assets}}{\text{Current Liabilities}}$$

$$1.5 = \frac{\text{Current Assets - Stock}}{3,20,000}$$

1.5 × 3,20,000 = 8,00,000 – Stock
Stock = ***3,20,000***

3. Computation of Proprietary fund, Fixed assets, Capital and Sundry Creditor

$$\frac{\text{Fixed Assets}}{\text{Proprietary Fund}} = 0.75$$

Fixed assets = 0.75 Proprietary fund
Net working capital = 0.25 Proprietary fund
4,80,000 = 0.25 Proprietary fund

Proprietary fund = $\frac{4,80,000}{0.25}$ = ***19,20,000***

Fixed assets = 0.75 Proprietary fund
= 0.75 × 19,20,000 = ***14,40,000***

Share Capital = Proprietary fund – R & S
= 19,20,000 – 3,20,000 = ***16,00,000***

Sundry creditors	=	CL - Bank overdraft		
	=	3,20,000 - 80,000	=	***2,40,000***

BQ 25

Manan Pvt. Ltd. gives you the following information relating to the year ending 31st March, 2023:

Current Ratio	:	2.5 : 1
Debt-Equity Ratio	:	1 : 1.5
Return on Total Assets (After Tax)	:	15%
Total Assets Turnover Ratio	:	2
Gross Profit Ratio	:	20%
Stock Turnover Ratio	:	7
Net Working Capital	:	₹13,50,000
Fixed Assets	:	₹30,00,000
1,80,000 Equity Shares of	:	₹10 each
60,000, 9% Preference Shares of	:	₹10 each
Opening Stock	:	₹11,40,000

You are required to calculate:

(a) Quick Ratio
(b) Fixed Assets Turnover Ratio
(c) Proprietary Ratio
(d) Earnings per Share

Answer

(a) Calculation of Quick Ratio

$$\text{Quick Ratio} = \frac{\text{Quick Assets}}{\text{Current Liabilities}} = \frac{9,90,000}{9,00,000} = \textbf{1.1 : 1}$$

(b) Calculation of Fixed Assets Turnover Ratio

$$\text{Fixed Assets Turnover Ratio} = \frac{\text{Sales}}{\text{Fixed Assets}} = \frac{1,05,00,000}{30,00,000} = \textbf{3.5}$$

(c) Calculation of Proprietary Ratio

$$\text{Proprietary Ratio} = \frac{\text{Proprietary Fund}}{\text{Total Assets}} = \frac{28,50,000}{52,50,000} = \textbf{0.54}$$

(d) Calculation of Earnings per Equity Share (EPS)

$$\text{Earnings per Equity Share (EPS)} = \frac{\text{PAT} - \text{Preference Share Dividend}}{\text{Number of Equity Shares}}$$

$$= \frac{7,87,500 - 9\% \text{ of } 6,00,000}{1,80,000} = \textbf{₹4.075}$$

Workings Notes:

(i)

$$\text{Current Ratio} = \frac{\text{Current Assets}}{\text{Current Liabilities}} = 2.5$$

Current Assets = 2.5 Current Liabilities

Working Capital = Current Assets – Current Liabilities
13,50,000 = 2.5 Current Liabilities – Current Liabilities
Current Liabilities = 13,50,000 ÷ 1.5 = ***9,00,000***

Current Assets = 2.5 Current Liabilities
= 2.5 × 9,00,000 = ***22,50,000***

(ii)

Sales = Total Assets Turnover × Total Assets
= 2 × (Fixed Assets + Current Assets)
2 × (30,00,000 + 22,50,000) = ***1,05,00,000***

(iii)	Cost of Goods Sold	=	80% of Sales		
		=	80% of 1,05,00,000	=	***84,00,000***
(iv)	Average Stock	=	$\frac{\text{Cost of Goods Sold}}{\text{Stock Turnover Ratio}} = \frac{84,00,000}{7}$	=	12,00,000
	Closing Stock	=	(Average Stock × 2) – Opening Stock		
		=	(12,00,000 × 2) – 11,40,000	=	***12,60,000***
	Quick Assets	=	Current Assets – Closing Stock		
		=	22,50,000 – 12,60,000	=	***9,90,000***
	Debt – Equity Ratio	=	$\frac{\text{Debt}}{\text{Equity}}$	=	1 : 1.5
	1.5 Debt	=	Equity		
	Total Assets	=	Equity + Preference Share Capital + Debt + CL		
	52,50,000	=	1.5 Debt + 6,00,000 + Debt + 9,00,000	=	2.5 Debt
	Debt	=	37,50,000 ÷ 2.5	=	***15,00,000***
	Equity	=	15,00,000 × 1.5	=	***22,50,000***
	Proprietary Fund	=	Equity + Preference Share Capital		
		=	22,50,000 + 6,00,000	=	***28,50,000***
(v)	Profit After Tax (PAT)	=	Total Assets × Return on Total Assets		
		=	52,50,000 × 15%	=	***7,87,500***

BQ 26

The Balance Sheets of A Ltd. and B Ltd. as on 31st March 2023 are as follows:

Particulars	***A Ltd***	***B Ltd***
Liabilities:		
Share Capital	40,00,000	40,00,000
Reserve and surplus	32,30,000	25,00,000
Secured Loans	25,25,000	32,50,000
Current Liabilities and provisions:		
Sundry Creditors	15,00,000	14,00,000
Outstanding Expenses	2,00,000	3,00,000
Provision for Tax	3,00,000	3,00,000
Proposed Dividend	6,00,000	-
Unclaimed Dividend	15,000	-
Assets:	***1,23,70,000***	***1,17,50,000***
Fixed Assets (Net)	***80,00,000***	***50,00,000***
Investments	15,00,000	-
Inventory at Cost	23,00,000	45,00,000
Sundry Debtors	-	17,00,000
Cash & Bank	5,70,000	5,50,000
	1,23,70,000	***1,17,50,000***

Additional information available:

(i) 75% of the Inventory in A Ltd. readily saleable at cost plus 20%,

(ii) 50% of Sundry Debtors of B Ltd. are due from C Ltd. which is not in a position to repay the amount B Ltd. agreed to accept 15% debentures of C Ltd.

(iii) B Ltd. had also proposed 15% dividend but that was not shown in the accounts.

(iv) At the year end, B Ltd. sold investments amounting to ₹1,20,000 and repaid Sundry Creditors.

On the basis of the given Balance Sheet and the additional information, you are required to evaluate liquidity of the companies. All working should form part of the answer.

Answer

Particulars	A	B
Current Assets and Liquid Assets:		
Stock (23,00,000 × 75%) + 20%	20,70,000	-
Debtor (17,00,000 × 50%)	-	8,50,000
Cash & Bank	5,70,000	5,50,000
Liquid Assets	**26,40,000**	**14,00,000**
Add: Stock (23,00,000 × 25%)	5,75,000	45,00,000
Total Current Assets	**32,15,000**	**59,00,000**
Current Liabilities:		
Proposed Dividend	6,00,000	6,00,000
Creditor	15,00,000	15,20,000
Out Expenses	2,00,000	3,00,000
Provision for tax	3,00,000	3,00,000
Unclaimed Dividend	15,000	-
	26,15,000	**27,20,000**

Evaluation of Liquidity

RATIO	A	B
1. Current Ratio = $\frac{CA}{CL}$	$\frac{32,15,000}{26,15,000}$ = **1.23**	$\frac{59,00,000}{27,20,000}$ = **2.17**
2. Liquid Ratio = $\frac{LA}{CL}$	$\frac{26,40,000}{26,15,000}$ = **1.009**	$\frac{14,00,000}{27,20,000}$ = **.51**

BQ 27

The following ratios and information relate to the business:

Credit period allowed to debtors	2 months
Stock turnover ratio	8
Lag in payments to suppliers	1 month
Gross profit ratio	25% on turnover
Opening stock	₹1,05,000

Gross profit for the year ended 31.03.2023 amounted to ₹3,00,000.

Find out: (a) Sales; (b) Sundry Debtors; (c) Closing Stock; (d) Sundry Creditors.

Answer

(a) Sales = $\frac{\text{Gross Profit}}{\text{GP Ratio}}$ = $\frac{3,00,000}{25\%}$ = **₹12,00,000**

(b) Sundry Debtors = Credit sales × $\frac{\text{Average collection period}}{12}$ = 12,00,000 × $\frac{2}{12}$

= **₹2,00,000**

(c) Closing Stock:

Average stock = $\frac{COGS}{STR}$ = $\frac{12,00,000 - 25\%}{8}$ = **₹1,12,500**

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

1,12,500 = $\frac{1,05,000 + \text{Closing Stock}}{2}$

Closing Stock = **₹1,20,000**

(d) Creditors = Credit purchase × $\frac{\text{Average payment period}}{12}$ = 9,15,000 × $\frac{1}{12}$

= **₹76,250**

Purchase	=	COGS + Closing Stock – Opening Stock		
	=	9,00,000 + 1,20,000 – 1,05,000	=	***₹9,15,000***

BQ 28

The total sales (all credit) of a firm are ₹6,40,000. It has a gross profit margin of 15 per cent and a current ratio of 2.5. The firm's current liabilities are ₹96,000; inventories ₹48,000 and cash ₹16,000.

(a) Determine the average inventory to be carried by the firm, if an inventory turnover of 5 times is expected? (assume a 360 day year).

(b) Determine the average collection period if the opening balance of debtors is intended to be of ₹80,000? (assume a 360 day year).

Answer

(a) Inventory turnover $= \frac{\text{Cost of goods sold}}{\text{Average inventory}} = \frac{6,40,000 \times 85\%}{\text{Average inventory}} = 5$

Average inventory = ₹5,44,000 ÷ 5 = ***₹1,08,800***

(b) Average collection period:

Current Ratio	=	Current Assets ÷ Current Liabilities	=	2.5
2.5	=	(Closing Debtors + Closing Inventories + Cash) ÷ Current Liabilities		
2.5	=	Closing Debtors + ₹48,000 + ₹16,000) ÷ ₹96,000		
Closing Debtors	=	₹1,76,000		

Average debtors = (80,000 + 1,76,000) ÷ 2 = ₹1,28,000

Average coll. period $= \frac{\text{Average Receivables}}{\text{Annual Credit Sales}} \times 360 = \frac{1,28,000}{6,40,000} \times 360 =$ ***72 Days***

BQ 29

The capital structure of Beta Limited is as follows:

Equity Share Capital of ₹10 each	8,00,000
9% Preference Share Capital of ₹10 each	3,00,000
	11,00,000

Additional information: Profit (after tax at 35 per cent), ₹2,70,000; Depreciation, ₹60,000; Equity dividend paid, 20 per cent; Market price of equity shares, ₹40.

You are required to compute the following, showing the necessary workings:

(a) Dividend yield on the equity shares.
(b) Cover for the preference and equity dividends.
(c) Earnings per shares.
(d) Price-earnings ratio.

Answer

(a) ***Dividend yield on the equity shares:***

Dividend Yield $= \frac{DPS}{MPS} \times 100 = \frac{20\% \text{ of } 10}{40} \times 100 =$ ***5%***

(b) ***Dividend Coverage Ratio:***

Preference $= \frac{PAT}{\text{Preference Dividend}} = \frac{2,70,000}{9\% \text{ of } 3,00,000} =$ ***10 times***

Equity $= \frac{PAT - PD}{\text{Equity Dividend}} = \frac{2,70,000 - 27,000}{20\% \text{ of } 8,00,000} =$ ***1.52 times***

(c) Earning Per Share:

$$\text{EPS} = \frac{\text{PAT} - \text{PD}}{\text{Number of Equity Shares}}$$

$$= \frac{2,70,000 - 27,000}{80,000} = \textbf{₹3.0375}$$

(d) Price Earning Ratio:

$$\text{PE Ratio} = \frac{\text{MPS}}{\text{EPS}} = \frac{40}{3.0375} = \textbf{13.17 times}$$

BQ 30

X Co. has made plans for the next year. It is estimated that the company will employ total assets of ₹8,00,000; 50 per cent of the assets being financed by borrowed capital at an interest cost of 8 per cent per year. The direct costs for the year are estimated at ₹4,80,000 and all other operating expenses are estimated at ₹80,000. The goods will be sold to customers at 150 per cent of the direct costs. Tax rate is assumed to be 50 per cent.

You are required to calculate: (a) Operating profit margin (before tax), (b) Net profit margin (after tax); (c) Return on assets (on operating profit after tax); (d) Asset turnover and (e) Return on owners' equity.

Answer

(a) Operating Profit Margin $= \frac{\text{EBIT}}{\text{Sales}} \times 100 = \frac{1,60,000}{7,20,000} \times 100 = \textbf{22.22\%}$

(b) Net Profit Margin $= \frac{\text{EAT}}{\text{Sales}} \times 100 = \frac{64,000}{7,20,000} \times 100 = \textbf{8.89\%}$

(c) Return on Assets $= \frac{\text{EBIT}\ (1-t)}{\text{Assets}} = \frac{1,60,000\ (1-.50)}{8,00,000} = \textbf{10\%}$

(d) Assets turnover $= \frac{\text{Sales}}{\text{Total Assets}} = \frac{7,20,000}{8,00,000} = \textbf{0.9 times}$

(e) Return on Equity $= \frac{\text{EAT}}{\text{Equity Fund}} \times 100 = \frac{64,000}{4,00,000} \times 100 = \textbf{16\%}$

The Net Profit is calculated as follows:

Particulars	***₹***
Sales Revenue (150% of ₹4,80,000)	7,20,000
Less: Direct Cost	4,80,000
Gross Profit	***2,40,000***
Less: Other operating expenses	80,000
Operating Profit/EBIT	***1,60,000***
Less: Interest on 8% Debt (8,00,000 × 50% × 8%)	32,000
EBT	***1,28,000***
Less: Taxes @ 50%	64,000
EAT	***64,000***

BQ 31

In a meeting held at Solan towards the end of 2022, the Directors of M/s HPCL Ltd. have taken a decision to diversify. At present HPCL Ltd. sells all finished goods from its own warehouse.

The company issued debentures on 01.01.2023 and purchased fixed assets on the same day. The purchase prices have remained stable during the concerned period. Following information is provided to you:

Income Statement

Particulars	2022		2023	
Cash Sales	30,000		32,000	
Credit Sales	2,70,000	3,00,000	3,42,000	3,74,000
Less: Cost of Goods Sold		2,36,000		2,98,000
Gross profit		**64,000**		**76,000**
Less: Operating Expenses:				
Warehousing	13,000		14,000	
Transport	6,000		10,000	
Administrative	19,000		19,000	
Selling	11,000	49,000	14,000	**57,000**
Net Profit		**15,000**		**19,000**

Balance Sheet

Particulars	2022		2023	
Fixed Assets (Net Block)	-	30,000	-	40,000
Receivables	50,000		82,000	
Cash at Bank	10,000		7,000	
Stock	60,000		94,000	
Total Current Assets (CA)	1,20,000		1,83,000	
Payables	50,000		76,000	
Total Current Liabilities (CL)	50,000		76,000	
Working Capital (CA -CL)		70,000		1,07,000
Total Assets		**1,00,000**		**1,47,000**
Represented by:				
Share Capital		75,000		75,000
Reserve and Surplus		25,000		42,000
Debentures		-		30,000
		1,00,000		**1,47,000**

You are required to calculate the following ratios for the years 2022 and 2023.

(1) Gross Profit Ratio
(2) Operating Expenses to Sales Ratio
(3) Operating Profit Ratio
(4) Capital Turnover ratio
(5) Stock Turnover ratio
(6) Net Profit to Net worth Ratio, and
(7) Receivables Collection Period.

Ratio relating to capital employed should be based on the capital at the end of the year. Give the reasons for change in the ratios for 2 years. Assume opening stock of ₹40,000 for the year 2022. Ignore Taxation.

Answer

Computation of Ratios

Particulars	2022	2023
(1) Gross Profit ratio		
Gross Profit ÷ Sales	$\frac{64,000}{3,00,000} \times 100 =$ ***21.3%***	$\frac{76,000}{3,74,000} \times 100 =$ ***20.3%***
(2) Operating Expenses to Sales		
Operating Expenses ÷ Sales	$\frac{49,000}{3,00,000} \times 100 =$ ***16.3%***	$\frac{57,000}{3,74,000} \times 100 =$ ***15.2%***
(3) Operating Profit Ratio		
Operating Profit ÷ Sales	$\frac{15,000}{3,00,000} \times 100 =$ ***5%***	$\frac{19,000}{3,74,000} \times 100 =$ ***5.08%***

(4) Capital Turnover Ratio Sales ÷ Capital employed	$\frac{3,00,000}{1,00,000} = 3$	$\frac{3,74,000}{1,47,000} = 2.54$
(5) Stock Turnover Ratio COGS ÷ Average Stock	$\frac{2,36,000}{50,000} = 4.72$	$\frac{2,98,000}{77,000} = 3.87$
(6) Net profit to Net Worth Net Profit ÷ Net Worth	$\frac{15,000}{1,00,000} \times 100 = 15\%$	$\frac{19,000}{1,17,000} \times 100 = 16.24\%$
(7) Receivable Collection Period Average Receivables ÷ Average Daily Credit Sales	$\frac{50,000}{2,70,000} \times 365 = 67.6$ days	$\frac{82,000}{3,42,000} \times 365 = 87.5$ days

Analysis: The decline in the Gross profit ratio could be either due to a reduction in the selling price or increase in the direct expenses (since the purchase price has remained the same). In this case, cost of goods sold have increased more than proportion of increment in sales & hence impacting gross profit ratio.
Similarly, there is a decline in the ratio of operating expenses to sales. Further analysis reveals that in comparison to increase in sales, there has a lesser proportionate increase in operating expenses. As a result, even the operating profit ratio has remained the same approximately in spite of a decline in the Gross profit ratio.

The company has not been able to deploy its capital efficiently. This is indicated by a decline in the Capital turnover ratio from 3 to 2.54 times.

The decline in stock turnover ratio implies that the company has increased its investment in stock. Net Profit to Net worth ratio has increased indicating that the company's Net worth or Shareholders' capital is efficient in generating profits.

The increase in the Receivables collection period indicates that the company has become liberal in extending credit on sales. There is a corresponding increase in the receivables also due to such credit policy.

BQ 32

ABC Company sells plumbing fixtures on terms of 2/10, net 30. Its financial statements over the last 3 years are as follows:

Particulars	***2020-21***	***2021-22***	***2022-23***
Cash	30,000	20,000	5,000
Accounts receivable	2,00,000	2,60,000	2,90,000
Inventory	4,00,000	4,80,000	6,00,000
	6,30,000	7,60,000	8,95,000
Net fixed assets	8,00,000	8,00,000	8,00,000
	14,30,000	***15,60,000***	***16,95,000***
Account payable	2,30,000	3,00,000	3,80,000
Accruals	2,00,000	2,10,000	2,25,000
Bank loan, short term	1,00,000	1,00,000	1,40,000
	5,30,000	6,10,000	7,45,000
Long term debt	3,00,000	3,00,000	3,00,000
Common stock	1,00,000	1,00,000	1,00,000
Retained earnings	5,00,000	5,50,000	5,50,000
	14,30,000	***15,60,000***	***16,95,000***
Sales	40,00,000	43,00,000	38,00,000
Cost of goods sold	32,00,000	36,00,000	33,00,000
Net profit	3,00,000	2,00,000	1,00,000

Considering opening balance of Accounts Receivable and Inventory as 2,00,000 and 4,00,000 respectively as on 01.04.2020, Analyse the company's financial condition and performance over the last 3 years. Are there any problems?

Answer

Ratios	*2020-21*	*2021-22*	*2022-23*
Current Ratio (Current Assets ÷ Current Liabilities)	1.19 $\left(\frac{6,30,000}{5,30,000}\right)$	1.25 $\left(\frac{7,60,000}{6,10,000}\right)$	1.20 $\left(\frac{8,95,000}{7,45,000}\right)$
Acid Test Ratio (Quick Assets ÷ Current Liabilities)	0.43 $\left(\frac{2,30,000}{5,30,000}\right)$	0.46 $\left(\frac{2,80,000}{6,10,000}\right)$	0.40 $\left(\frac{2,95,000}{7,45,000}\right)$
Receivable Turnover Ratio (Annual Credit Sales ÷ Average Receivables)	20 $\left(\frac{40,00,000}{2,00,000}\right)$	18.70 $\left(\frac{43,00,000}{2,30,000}\right)$	13.82 $\left(\frac{38,00,000}{2,75,000}\right)$
Average Collection Period [(Average Receivables × 365) ÷ Annual Credit Sales]	18.25 days $\left(\frac{2,00,000}{40,00,000} \times 365\right)$	19.52 days $\left(\frac{2,30,000}{43,00,000} \times 365\right)$	26.41 days $\left(\frac{2,75,000}{38,00,000} \times 365\right)$
Inventory Turnover (COGS ÷ Average Inventory)	8 $\left(\frac{32,00,000}{4,00,000}\right)$	8.18 $\left(\frac{36,00,000}{4,40,000}\right)$	6.11 $\left(\frac{33,00,000}{5,40,000}\right)$
Total Debt To Net Worth (*Total Debt ÷ Equity Fund) *Total Debt including CL	1.38 $\left(\frac{8,30,000}{6,00,000}\right)$	1.40 $\left(\frac{9,10,000}{6,50,000}\right)$	1.61 $\left(\frac{10,45,000}{6,50,000}\right)$
Long Term Debt To Total Capitalization (Long Term Debt ÷ Long Term Fund)	0.33 $\left(\frac{3,00,000}{9,00,000}\right)$	0.32 $\left(\frac{3,00,000}{9,50,000}\right)$	0.32 $\left(\frac{3,00,000}{9,50,000}\right)$
Gross Profit Margin [(Gross Profit ÷ Sales) × 100]	20% $\left(\frac{8,00,000}{40,00,000} \times 100\right)$	16.28% $\left(\frac{7,00,000}{43,00,000} \times 100\right)$	13.16% $\left(\frac{5,00,000}{38,00,000} \times 100\right)$
Net Profit Margin [(Net Profit ÷ Sales) × 100]	7.50% $\left(\frac{3,00,000}{40,00,000} \times 100\right)$	4.65% $\left(\frac{2,00,000}{43,00,000} \times 100\right)$	2.63% $\left(\frac{1,00,000}{38,00,000} \times 100\right)$
Asset Turnover (Sales ÷ Total Assets)	2.80 $\left(\frac{40,00,000}{14,30,000}\right)$	2.76 $\left(\frac{43,00,000}{15,60,000}\right)$	2.24 $\left(\frac{38,00,000}{16,95,000}\right)$
Return on Assets [(Net Profit ÷ Total Assets) × 100]	20.98% $\left(\frac{3,00,000}{14,30,000} \times 100\right)$	12.82% $\left(\frac{2,00,000}{15,60,000} \times 100\right)$	5.90% $\left(\frac{1,00,000}{16,95,000} \times 100\right)$

Analysis: The current ratio and quick ratio are less than the ideal ratio (2:1 and 1:1 respectively) indicating that the company is not having enough resources to meet its current obligations.

Receivables are growing slower, although the average collection period is still very reasonable relative to the terms given. Inventory turnover is slowing as well, indicating a relative build-up in inventories. The increase in receivables and inventories, coupled with the fact that net worth has increased very little, has resulted in the total debt-to-net worth ratio increasing to what would have to be regarded on an absolute basis as a high level.

Long-term debt to total capitalization has not changed relatively coupled with the fact that retained earnings of only ₹50,000 is made in year 2021-22, and there is no issuance of new long-term debt in year 2021-22 and 2022-23.

Both the gross profit and net profit margins have declined substantially. The relationship between the two suggests that the company has incurred more relative expenses. The build-up in inventories and receivables has resulted in a decline in the asset turnover ratio, and this, coupled with the decline in profitability, has resulted in a sharp decrease in the return on assets ratio.

BQ 33

Following information are available for Navya Ltd. along with various ratio relevant to the particulars industry it belongs to. Appraise your comments on strength and weakness of Navya Ltd. comparing its ratios with the given industry norms.

Balance Sheet as at 31.03.2023

Liabilities	₹	Assets	₹
Equity Share Capital	48,00,000	Fixed Assets	24,20,000
10% Debentures	9,20,000	Cash	8,80,000
Sundry Creditors	6,60,000	Sundry Debtors	11,00,000
Bills Payable	8,80,000	Stock	33,00,000
Other Current Liabilities	4,40,000		
	77,00,000		***77,00,000***

Statement of Profitability for the year ended 31.03.2023

Particulars	(₹)	(₹)
Sales		1,10,00,000
Less: Cost of Goods Sold:		
Materials	41,80,000	
Wages	26,40,000	
Factory Overheads	12,98,000	81,18,000
Gross Profit		***28,82,000***
Less: Selling and Distribution Cost	11,00,000	
Less: Administrative Cost	12,28,000	23,28,000
Earnings before Interest and Taxes (EBIT)		***5,54,000***
Less: Interest Charges		92,000
Earning before Tax (EBT)		***4,62,000***
Less: Taxes @ 50%		2,31,000
Net Profit (PAT)		***2,31,000***

Industry Norms

Ratio	Norm
Current Ratio	2.5
Receivables Turnover Ratio	8.0
Inventory Turnover Ratio (based on Sales)	9.0
Total Assets Turnover Ratio	2.0
Net Profit Ratio	3.5%
Return on Total Assets (on EBIT)	7.0%
Return on Net worth (Based on Net profit)	10.5%
Total Debt/Total Assets	60.0%

Answer

Computation of Ratios

Ratios	Navya Ltd.	Industry Norms
1. Current Ratio	52,80,000/19,80,000 = 2.67	2.50
2. Receivables Turnover Ratio	1,10,00,000/11,00,000 = 10.00	8.00
3. Inventory Turnover Ratio (based on Sales)	1,10,00,000/33,00,000 = 3.33	9.00
4. Total Assets Turnover Ratio	1,10,00,000/77,00,000 = 1.43	2.00
5. Net Profit Ratio	2,31,000/1,10,00,000 = 2.10%	3.50%
6. Return on Total Assets (on EBIT)	5,54,000/77,00,000 = 7.19%	7.00%
7. Return on Net worth (Based on Net profit)	2,31,000/48,00,000 = 4.81%	10.50%
8. *Total Debt /Total Assets	29,00,000/77,00,000 = 37.66%	60.00%

*Total debt = Liabilities other than shareholder's fund

Comments:

(1) The position of Navya Ltd. is better than the industry norm with respect to Current Ratio and Receivables Turnover Ratio.

(2) However, the Inventory turnover ratio and Total Asset Turnover ratio is poor comparing to industry norm indicating that company is inefficient to utilize its inventory and assets.

(3) The firm also has its net profit ratio and return on net worth ratio much lower than the industry norm.

(4) Total debt to total assets ratio is lower that the industry standard which suggests that the firm is less levered by debt and more by equity resulting in less risky company.

BQ 34

Balance Sheet as at 31st March, 2023

Liabilities	*₹*	*Assets*	*₹*
Equity Share Capital	10,00,000	Goodwill	5,00,000
General Reserve	1,00,000	Plant and Machinery	6,00,000
Profit and Loss	4,00,000	Land and Building	7,00,000
16% Preference Share Capital	5,00,000	Furniture and Fixtures	1,00,000
12% Debenture	5,00,000	Stock in trade	6,00,000
Provision for Tax	1,76,000	Bills Receivable	30,000
Bills Payable	1,24,000	Debtors	1,50,000
Bank Overdraft	20,000	Bank	2,00,000
Creditors	80,000	Marketable Securities	20,000
	29,00,000		***29,00,000***

Calculate (i) Current Ratio, (ii) Quick Ratio, (iii) Absolute Liquidity Ratio, (iv) Ratio of Inventory to Working Capital, (v) Ratio of Current Assets to Fixed Assets, (vi) Debt to Equity Ratio, (vii) Proprietary Ratio, (viii) Capital Gearing Ratio.

Answer

(i) Current Ratio $= \frac{\text{Current Assets}}{\text{Current Liabilities}} = \frac{10,00,000}{4,00,000} =$ ***2.5***

(ii) Quick Ratio $= \frac{\text{Liquid Assets}}{\text{Current Liabilities}} = \frac{4,00,000}{4,00,000} =$ ***1***

(iii) Absolute Liquidity ratio $= \frac{\text{Cash and Cash Equivalent}}{\text{Current Liabilities}} = \frac{2,20,000}{4,00,000} =$ ***0.55***

(iv) Inventory to Working Capital $= \frac{\text{Inventory}}{\text{Working Capital}} = \frac{6,00,000}{6,00,000} =$ ***1***

(v) Current Assets to Fixed Assets $= \frac{\text{Current Assets}}{\text{Fixed Assets}} = \frac{10,00,000}{19,00,000} =$ ***.526***

(vi) Debt to Equity Ratio $= \frac{\text{Long Term Debt}}{\text{Equity}} = \frac{5,00,000}{15,00,000} =$ ***0.33***

(vii) Proprietary Ratio $= \frac{\text{Shareholder's Fund}}{\text{Total Assets}} = \frac{20,00,000}{29,00,000} =$ ***0.69***

(viii) Capital Gearing Ratio $= \frac{\text{Debentures} + \text{Preference Share Capital}}{\text{Equity Shareholder's Fund}}$

$= \frac{10,00,000}{15,00,000} =$ ***0.67***

BQ 35

Given below are estimate for the next year by NITI Ltd.:

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

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

(₹Crore)

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

Assuming corporate tax rate is 30%. Calculate the following for each of the financing policy:

(1) Return on total assets, ***(2)*** Return on owner's equity, ***(3)*** Net working capital and ***(4)*** Current ratio.

Answer

Statement Showing Ratios for Each of the Financing Policy (₹Crore)

Particulars	Conservative	Moderate	Aggressive
(1) Return on total assets $\left(\frac{\text{EBIT}\ (1-t)}{\text{Total Assets}}\times 100\right)$	***12.38%*** $\left(\frac{2.30\ (1-0.3)}{5.20+7.80}\times 100\right)$	***12.38%*** $\left(\frac{2.30\ (1-0.3)}{5.20+7.80}\times 100\right)$	***12.38%*** $\left(\frac{2.30\ (1-0.3)}{5.20+7.80}\times 100\right)$
(2) Return on shareholder's equity $\left(\frac{\text{PAT}}{\text{Equity}}\times 100\right)$	***25.37%*** $\left(\frac{1.2684}{5}\times 100\right)$	***25.88%*** $\left(\frac{1.2942}{5}\times 100\right)$	***26.44%*** $\left(\frac{1.3222}{5}\times 100\right)$
(3) Net working capital (CA – *CL) *CL includes short term debt	***2.04*** (7.80 – 4.68 – 1.08)	***1.12*** (7.80 – 4.68 – 2.00)	***0.12*** (7.80 – 4.68 – 3.00)
(4) Current ratio (Current Assets ÷ Current Liabilities)	***1.35 : 1*** [7.80÷(4.68+1.08)]	***1.17 : 1*** [7.80÷(4.68+2.00)]	***1.02 : 1*** [7.80÷(4.68+3.00)]
Calculation of PAT :			
EBIT	2.3000	2.3000	2.3000
Less: interest @ 12% on short term	0.1296	0.2400	0.3600
Less: interest @ 16% on long term	0.3584	0.2112	0.0512
EBT	***1.8120***	***1.8488***	***1.8888***
Less: Tax @ 30%	0.5436	0.5546	0.5666
PAT	***1.2684***	***1.2942***	***1.3222***

PAST YEARS QUESTIONS

PYQ 1

From the following information, prepare a summarised Balance Sheet as at 31st March, 2002:

Working capital	₹2,40,000
Bank overdraft	₹40,000
Fixed assets to proprietary ratio	0.75
Reserves and Surplus	₹1,60,000
Current ratio	2.5
Liquid ratio	1.5

[(6 Marks) Nov 2002]

Answer

Balance Sheet
As at 31.03.2002

Liabilities	*₹*	*Assets*	*₹*
Share Capital	8,00,000	Fixed Assets	7,20,000
Reserves and Surplus	1,60,000	Stock	1,60,000
Bank Overdraft	40,000	Other Current Assets	2,40,000
Other Current Liabilities	1,20,000		
	11,20,000		***11,20,000***

Working Notes:

1. Current assets and Current liabilities computation:

$$\frac{CA}{CL} = 2.5$$

$$CA = 2.5\ CL$$

Working capital = CA – CL

2,40,000 = 2.5 CL – CL

CL = 1,60,000

CA = 1,60,000 × 2.5 = ***4,00,000***

2. Computation of stock:

$$\text{Liquid ratio} = \frac{\text{Liquid Assets}}{\text{Current Liabilities}}$$

$$1.5 = \frac{\text{Current Assets - Stock}}{1,60,000}$$

1.5 × 1,60,000 = 4,00,000 – Stock

Stock = 1,60,000

3. Computation of Proprietary fund, Fixed assets, Capital and Sundry Creditor

$$\frac{\text{Fixed Assets}}{\text{Proprietary Fund}} = 0.75$$

Fixed assets = 0.75 Proprietary fund

Net working capital = 0.25 Proprietary fund

2,40,000 = Proprietary fund

Proprietary fund = $\frac{2,40,000}{0.25}$ = ***9,60,000***

Fixed assets = 0.75 Proprietary fund

= 0.75 × 9,60,000 = ***7,20,000***

Share Capital = Proprietary fund – R & S

	=	9,60,000 - 1,60,000	=	***8,00,000***
Sundry creditors	=	CL - Bank overdraft		
	=	1,60,000 - 40,000	=	***1,20,000***

PYQ 2

Equity share capital ₹1,00,000

The relevant ratios of the company are as follows:

Current debt to total debt	.40
Total debt to owner's equity	.60
Fixed assets to owner's equity	.60
Total assets turnover	2 Times
Inventory turnover	8 Times

Complete the following balance sheet from the above information:

Balance Sheet

Liabilities	***₹***	***Assets***	***₹***
Current Debt	-	Inventory	-
Long Term Debt	-	Cash	-
Total Debt	-	Total Current Assets	-
Equity Share Capital	-	Fixed Assets	-
	-		-

[(7 Marks) May 2005]

Answer

Balance Sheet

Liabilities	***₹***	***Assets***	***₹***
Current Debt	24,000	Inventory	40,000
Long Term Debt	36,000	Cash	60,000
Total Debt	60,000	Total Current Assets	1,00,000
Equity Share Capital	1,00,000	Fixed Assets	60,000
	1,60,000		***1,60,000***

Working Notes:

1. Total debt:

Owners equity × 0.60	=	0.60 × ₹1,00,000	=	***₹60,000***

2. Current Debt:

Current debt to total debt	=	0.40		
Current debt	=	0.40 × ₹60,000	=	***₹24,000***

3. Fixed assets:

0.60 × Owners equity	=	0.60 × ₹1,00,000	=	***₹60,000***

4. Total of liability side:

Total debt + Owners equity	=	₹60,000 + ₹1,00,000	=	***₹1,60,000***

5. Total assets consisting of fixed assets and current assets must be equal to ₹1,60,000 hence, current assets should be ₹1,00,000.

6. Total assets turnover is 2 times:

$$\frac{\text{Sales}}{\text{Total Assets}} = 2 \text{ times}$$

Sales = ₹1,60,000 × 2 = ***₹3,20,000***

Inventory turnover is 8 times:

$$\frac{\text{Sales}}{\text{Inventory}} = 8 \text{ times}$$

Inventory = $\frac{\text{Sales}}{8} = \frac{3,20,000}{8}$ = **₹40,000**

7. Cash: = ₹1,00,000 – ₹40,000 = **₹60,000**

PYQ 3

Gross profits	₹54,000
Shareholders' funds	₹6,00,000
Gross profit margin	20%
Credit sales to total sales	80%
Total assets turnover	0.3 times
Inventory turnover	4 times
Average collection period	20 days (360 days a year)
Current ratio	1.8
Long term Debt to Equity	40%

Balance Sheet

Liabilities	₹	Assets	₹
Creditors	-	Cash	-
Long Term Debt	-	Debtors	-
Shareholder's Fund	-	Inventory	-
		Fixed Assets	-
	-		-

[(12 Marks) Nov 2005]

Answer

Balance Sheet

Liabilities	₹	Assets	₹
Creditors (b.f.)	60,000	Cash	42,000
Long Term Debt	2,40,000	Debtors	12,000
Shareholder's Fund	6,00,000	Inventory	54,000
		Fixed Assets (b.f.)	7,92,000
	9,00,000		**9,00,000**

Working Notes:

1. Sales:

Gross profit margin = 20% of sales = ₹54,000

Sales = $\frac{54,000}{20\%}$ = **₹2,70,000**

2. Credit Sales:

Credit sales = 80% of total sales
= ₹2,70,000 × 80% = **₹2,16,000**

3. Total Assets:

Total assets turnover = $\frac{\text{Sales}}{\text{Total assets}}$ = 0.3 times

Total assets = $\frac{2,70,000}{0.3}$ = **₹9,00,000**

4. Inventory:

Inventory Turnover = $\frac{\text{COGS}}{\text{Inventory}}$ = 4 times

Inventory = $\frac{2,70,000 - 54,000}{4}$ = **₹54,000**

5. Debtors:

$$\text{Debtors} = \frac{\text{Credit sales}}{360 \text{ Days}} \times 20 \text{ Days}$$

$$= \frac{2,16,000}{360 \text{ Days}} \times 20 \text{ Days} = ₹12,000$$

6. Long term debt:

$$\frac{\text{Long term debt}}{\text{Equity}} = 40\%$$

$$\text{Long term debt} = 40\% \text{ of equity}$$
$$= ₹6,00,000 \times 40\% = ₹2,40,000$$

7. Current Ratio:

$$\text{Current ratio} = \frac{CA}{CL}$$

$$\frac{CA}{\text{Creditors}} = 1.8$$

$$CA = 60,000 \times 1.8 = ₹1,08,000$$

$$\text{Cash + Debtors + Inventory} = ₹1,08,000$$

$$\text{Cash} = 1,08,000 - 12,000 + 54,000 = ₹42,000$$

PYQ 4

JKL Limited has the following Balance Sheets as on March 31, 2006 and March 31, 2005:

Balance Sheet (₹ in Lakh)

Particulars	31.03.2006	31.03.2005
Sources of Funds:		
Shareholder's Fund	2,377	1,472
Loan Funds	3,570	3,083
	5,947	**4,555**
Applications of Funds:		
Fixed Assets	3,466	2,900
Cash and Bank	489	470
Debtors	1,495	1,168
Stock	2,867	2,407
Other Current Assets	1,567	1,404
Less: Current Liabilities	(3,937)	(3,794)
	5,947	**4,555**

The Income Statement of the JKL Ltd. for the year ended is as follows (₹ in Lakh):

Particulars	31.03.2006	31.03.2005
Sales	22,165	13,882
Less: Cost of Goods Sold	20,860	12,544
Gross profit	**1,305**	**1,338**
Less: Selling, General and Administration Expenses	1,135	752
EBIT	**170**	**586**
Less: Interest Expenses	113	105
PBT	**57**	**481**
Less: Tax	23	192
PAT	**34**	**289**

Required:

(1) Calculate for the years 2005 and 2006:

- ***a.*** Inventory turnover ratio
- ***b.*** Financial Leverage
- ***c.*** Return on Investment (ROI)
- ***d.*** Return on Equity (ROE)
- ***e.*** Average Collection period.

(2) Give a brief comment on the financial position of JKL Limited.

[(10+2 Marks) May 2006]

Answer

(1) Computation of Ratios

Particulars	***31.03.2006***	***31.03.2005***
(a) Inventory turnover ratio $\frac{\text{COGS}}{\text{Closing Stock}}$	$\frac{20,860}{2,867}$ = ***7.28***	$\frac{12,544}{2,407}$ = ***5.21***
(b) Financial leverage $\frac{\text{EBIT}}{\text{EBT}}$	$\frac{170}{57}$ = ***2.98***	$\frac{568}{481}$ = ***1.22***
(c) Return on investment $\frac{\text{EBIT}}{\text{Capital Employed}} \times 100$	$\frac{170}{5,947} \times 100$ = ***2.86%***	$\frac{586}{4,555} \times 100$ = ***12.86%***
(d) Return on equity $\frac{\text{PAT}}{\text{Net worth}} \times 100$	$\frac{34}{2,377} \times 100$ = ***1.43%***	$\frac{289}{1,472} \times 100$ = ***19.63%***
(e) Average collection period $\frac{\text{Debtors}}{\text{Credit sales}} \times 365$	$\frac{1,495}{22,165} \times 365$ = ***24.6 days***	$\frac{1,168}{13,882} \times 365$ = ***30.7 days***

(2) Brief comment on the financial position of JKL Ltd:

- The inventory turnover ratio is increased from 5.21 times to 7.28 times. This indicates the reduction in investment of stock and increase in sale turnover with reduced stocks.
- The financial leverage of the company is increased from 1.22 times to 2.98 times, which indicates the lower the cushion for paying interest on borrowings. The increase in ratio warns the increase in risk as to over gearing, which constitutes a strain on profits.
- There is a steep fall in ROI from 12.86% to 2.86%, this may be due to increase in finances from fresh issue of share and loan funds for expansion, modernization or new investment proposals, and increase in sales has not resulted in increase of company's profitability.
- The return on equity has also fallen from 19.63% to 1.43%. The current year PAT may not be sufficient for declaration of dividends to shareholders.
- The increase in sale and reduction in investment in debtor's balances has resulted in reduction of average collection period from 30.7 days to 24.6 days.

PYQ 5

From the information given below calculate the amount of fixed assets and proprietor's fund.

Ratio of fixed assets to proprietor's fund	0.75
Net working capital	₹6,00,000

[(2 Marks) Nov 2009]

Answer

Calculation of Fixed Assets and Proprietor's Fund:

$$\frac{\text{Fixed assets}}{\text{Proprietor 's fund}} = 0.75$$

Fixed assets = 0.75 Proprietor's fund

Net Working Capital = 0.25 Proprietor's fund

6,00,000 = 0.25 Proprietor's Fund

Proprietor's fund = $\frac{6,00,000}{0.25}$ = ***₹24,00,000***

Fixed assets = 0.75 Proprietor's fund

= 0.75 × 24, 00,000 = ***₹18,00,000***

Assumption: There is no long term debt in the business.

PYQ 6

The following figures and ratios are related to a company:

(a)	Sales for the year (all credit)	₹30,00,000
(b)	Gross profit ratio	25 percent
(c)	Fixed assets turnover (basis on cost of goods sold)	1.5
(d)	Stock turnover (basis on cost of goods sold)	6
(e)	Liquid ratio	1 : 1
(f)	Current ratio	1.5 : 1
(g)	Debtors collection period	2 months
(h)	Reserve and surplus to Share capital	0.6 : 1
(i)	Capital gearing ratio	0.5
(j)	Fixed assets to net worth	1.20 : 1

You are required to prepare:

1. Balance Sheet of the company on the basis of above details.
2. The statement showing working capital requirement, if the company wants to make a provision for contingencies @ 10% of net working capital including such provision.

[(6+4 Marks) May 2010]

Answer

(1) Projected Balance Sheet Balance Sheet

Liabilities	***₹***	***Assets***	***₹***
Share Capital	7,81,250	Fixed Assets	15,00,000
Reserve & Surplus	4,68,750	Stock	3,75,000
Debt	6,25,000	Debtors	5,00,000
Current Liabilities	7,50,000	Cash	2,50,000
	26,25,000		***26,25,000***

Working Notes:

a. Cost of Goods Sold = 30,00,000 - 25% = ***22,50,000***

b. Fixed Assets Turnover Ratio = $\frac{\text{COGS}}{\text{Fixed Assets}}$ = 1.5 times

Fixed Assets = $\frac{22,50,000}{1.5}$ = ***₹15,00,000***

c. Fixed Assets to Net Worth = $\frac{\text{Fixed Assets}}{\text{Net Worth}}$ = 1.2 times

Net Worth = $\frac{15,00,000}{1.2}$ = ***₹12,50,000***

d. Capital Gearing = $\frac{\text{Debt} + \text{Preference}}{\text{Equity}}$ = $\frac{\text{Debt} + \text{Nil}}{12,50,000}$

	Debt	=	0.5 × ₹12,50,000	=	***₹6,25,000***

Assumption: Preference Share capital is zero.

e.	***Reserves & Surplus***	=	12,50,000 × 0.6/1.6	=	***₹4,68,750***
f.	***Share Capital***	=	12,50,000 × 1/1.6	=	***₹7,81,250***
g.	***Stock Turnover***	=	$\frac{\text{COGS}}{\text{Stock}}$	=	6 times
	Stock	=	$\frac{22,50,000}{6}$	=	***₹3,75,000***
h.	***Debtors***	=	Sales × $\frac{\text{Collection Period}}{12}$	=	$30,00,000 \times \frac{2}{12}$
		=	***₹5,00,000***		
i.	***Stock***	=	CL (Current ratio – Liquid ratio)		
	Current Liabilities	=	$\frac{\text{Stock}}{\text{CR} - \text{LR}}$	=	$\frac{3,75,000}{1.5-1}$
		=	***₹7,50,000***		
j.	***Current Ratio***	=	$\frac{\text{CA}}{\text{CL}}$	=	1.5 times
	Current Assets	=	1.5 × 7,50,000	=	***₹11,25,000***
k.	***Cash in Hand***	=	11,25,000 - 3,75,000 - 5,00,000		
		=	***₹2,50,000***		

(2) Statement of Working Capital Requirement

Particulars		***₹***
Current Assets:	Stock	3,75,000
	Debtors	5,00,000
	Cash	2,50,000
		11,25,000
Less: Current Liabilities		(7,50,000)
Working Capital Before Provision		***3,75,000***
Add: Provision for Contingencies @ 10% of WC (Including provision)		41,667
Working Capital Including Provision $\left(3,75,000 \times \frac{100}{90}\right)$		***4,16,667***

PYQ 7

MNP Limited has made plans for the next year 2010-11. It is estimated that the company will employ total assets of ₹25,00,000; 30% of assets being financed by debt at an interest cost of 9% p.a. the direct costs for the year are estimated at ₹15,00,000 and all other operating expenses are estimated at ₹2,40,000. The sales revenue are estimated at ₹22,50,000. Tax rate is assumed to be 40%.

You are required to calculate: (i) Net profit margin, ***(ii)*** Return on Assets, ***(iii)*** Assets turnover, ***(iv)*** Return on equity

[(4 Marks) Nov 2010]

Answer

(i)	***Net Profit Margin***	=	$\frac{\text{EAT}}{\text{Sales}} \times 100$	=	$\frac{2,65,500}{22,50,000} \times 100$	=	***11.80%***
(ii)	***Return on Assets***	=	$\frac{\text{EBIT}\ (1-t)}{\text{Assets}}$	=	$\frac{5,10,000\ (1-.40)}{25,00,000}$	=	***12.24%***
(iii)	***Assets turnover***	=	$\frac{\text{Sales}}{\text{Total Assets}}$	=	$\frac{22,50,000}{25,00,000}$	=	***0.90***

(iv) Return on Equity = $\frac{\text{EAT}}{\text{Shareholde r's Fund}} \times 100 = \frac{2,65,500}{17,50,000} \times 100$ = ***15.171%***

Working Notes:

Particulars	***₹***
Sales Revenue	22,50,000
Less: Direct Cost	15,00,000
Gross Profit	***7,50,000***
Less: Other operating expenses	2,40,000
EBIT	***5,10,000***
Less: Interest on 9% Debt (2500000 × 30% × 9%)	67,500
EBT	***4,42,500***
Less: Taxes @ 40%	1,77,000
EAT	***2,65,500***

PYQ 8

The financial statements of a company contain the following information for the year ending 31st March, 2011:

Statement of profit for the year ended 31st March, 2011

Sales (20% cash sales)	40,00,000
Less: Cost of goods sold	28,00,000
Profit Before Interest & Tax	***12,00,000***
Less: Interest	1,60,000
Profit Before Tax	***10,40,000***
Less: Tax @ 30%	3,12,000
Profit After Tax	***7,28,000***

Particulars	***₹***
Cash	1,60,000
Sundry Debtors	4,00,000
Short-term Investment	3,20,000
Stock	21,60,000
Prepaid Expenses	10,000
Total Current Assets	***30,50,000***
Current Liabilities	10,00,000
10% Debentures	16,00,000
Equity Share Capital	20,00,000
Retained Earnings	8,00,000

You are required to calculate:

(i) Quick Ratio
(ii) Debt-Equity Ratio
(iii) Return on Capital Employed, and
(iv) Average Collection Period (Assuming 360 days in a year)

[(8 Marks) Nov 2011]

Answer

(i) Quick Ratio = $\frac{\text{CA} - \text{Stock} - \text{Prepaid Expenses}}{\text{Current Liabilities}}$

= $\frac{30,50,000 - 21,60,000 - 10,000}{10,00,000}$ = ***.88 times***

(ii) Debt-Equity Ratio = $\frac{\text{Debt}}{\text{Equity}}$

= $\frac{16,00,000}{20,00,000 + 8,00,000}$ = ***0.57 : 1***

(iii) ROCE $= \dfrac{\text{EBIT}}{\text{Capital Employed}} \times 100$

$= \dfrac{12,00,000}{20,00,000+8,00,000+16,00,000} \times 100 =$ ***27.27%***

(iv) Average Collection Period $= \dfrac{\text{Average Debtors}}{\text{Credit Sales}} \times 360$

$= \dfrac{4,00,000}{80\% \times 40,00,000} \times 360 =$ ***45 Days***

PYQ 9

The following accounting information and financial rations of M Limited relate to the year ended 31st March, 2012:

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

Total sales ₹30,00,000; cash sales is 25% of credit sales; cash purchase ₹2,30,000; working capital ₹2,80,000; closing inventory is ₹80,000 more than opening inventory.

You are required to calculate:

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

[(8 Marks) Nov 2012]

Answer

(i) Average Inventory:

Inventory Turnover Ratio $= \dfrac{\text{COGS}}{\text{Average Inventory}} =$ 6 times

Average Inventory $= \dfrac{\text{COGS}}{6} = \dfrac{30,00,000-25\%}{6}$

$=$ ***₹3,75,000***

(ii) Purchases:

Purchase $=$ COGS + Closing Stock – Opening stock

$=$ (30,00,000 – 25%) + 80,000 $=$ ***₹23,30,000***

(iii) Average Debtors:

Debtors Turnover Ratio $= \dfrac{\text{Credit Sales}}{\text{Average Debtors}} =$ 8 times

Average Debtors $= \dfrac{\text{Credit Sales}}{8 \text{ Times}} = \dfrac{24,00,000}{8 \text{ Times}}$

$=$ ***₹3,00,000***

Credit Sales:

Total Sales $=$ Credit Sales + Cash Sales

30,00,000 $=$ Credit Sales + 25% of Credit Sales

125% of Credit Sales $=$ ₹30,00,000

Credit Sale $= \dfrac{30,00,000}{125\%} =$ ***₹24,00,000***

(iv) Average Creditors:

Creditors Turnover Ratio = $\frac{\text{Credit Purchase}}{\text{Average Creditors}}$ = 10 Times

Average Creditors = $\frac{\text{Credit Purchase}}{\text{10 Times}}$

= $\frac{23,30,000 - 2,30,000}{10}$ = ***₹2,10,000***

(v) Average Payment period = $\frac{\text{365 Days}}{\text{Creditors Turnover Ratio}}$ = $\frac{\text{365 Days}}{10}$

= ***36.5 Days***

(vi) Average Collection Period = $\frac{\text{365 Days}}{\text{Debtors Turnover Ratio}}$ = $\frac{\text{365 Days}}{8}$

= ***45.625 Days***

(vii) Current Assets

Working Capital = Current Assets – Current Liabilities

= 2,80,000 ***(i)***

$\frac{\text{Current Assets}}{\text{Current Liabilities}}$ = 2.4

Current Assets = 2.4 Current Liabilities ***(ii)***

CA – CL = 2,80,000

2.4 CL – CL = 2,80,000

Current Liabilities = $\frac{2,80,000}{1.40}$ = ***₹2,00,000***

Current Assets = 2.4 × ₹2,00,000 = ***₹4,80,000***

(viii) Current Liabilities = ***₹2,00,000***

PYQ 10

The following information relates to Beta Ltd for the year ended 31st March 2013.

Net Working Capital	₹12,00,000
Fixed Assets to Proprietor's Fund Ratio	0.75
Working Capital Turnover Ratio	5 times
Return on Equity (ROE)	15%
There is no debt capital.	

You are required to calculate:

(i) Proprietor's Fund

(ii) Fixed Assets

(iii) Net Profit Ratio.

[(5 Marks) May 2013]

Answer

(i) Proprietor's Fund = Net Working Capital + Fixed Assets

= 12,00,000 + 0.75 Proprietor's Fund

0.25 Proprietor's Fund = 12,00,000

Proprietor's Fund = $\frac{12,00,000}{0.25}$ = ***48,00,000***

(ii) Fixed Assets:

Fixed Assets = 0.75 Proprietor's Fund

= 0.75 of 48,00,000 = ***36,00,000***

(iii) Net profit Ratio = $\frac{\text{PAT}}{\text{Sales}} \times 100$ = $\frac{7,20,000}{60,00,000} \times 100$

= ***12%***

Working Notes:

PAT = 15% of Equity Fund/Proprietor's Fund

= 15% of 48,00,000 = ***7,20,000***

Sales = 5 times of working capital

= 5 × 12,00,000 = ***60,00,000***

PYQ 11

The assets of SONA Ltd. consist of fixed assets and current assets, while its current liabilities comprise bank credit in the ratio of 2 : 1.

You are required to prepare the Balance Sheet of the company as on 31st March 2013 with the help of following information:

Share Capital	:	₹5,75,000
Working Capital (CA - CL)	:	₹1,50,000
Gross Margin	:	25%
Inventory Turnover	:	5 times
Average Collection Period	:	1.5 months
Current Ratio	:	1.5 : 1
Quick Ratio	:	0.8 : 1
Reserves & Surplus to Bank & Cash	:	4 times

[(8 Marks) Nov 2013]

Answer

SONA Ltd
Balance Sheet
(As at 31.03.2013)

Liabilities	*₹*	*Assets*	*₹*
Share Capital	5,75,000	Fixed Assets (b.f.)	6,85,000
Reserves & Surplus	2,60,000	Current Assets:	
Current Liabilities:		Bank & Cash	65,000
Bank Credit	1,50,000	Inventory	2,10,000
Other	1,50,000	Debtors	1,75,000
	11,35,000		***11,35,000***

Working Notes:

1. Calculation of Current Assets and Current Liabilities:

Current Ratio = $\frac{\text{CA}}{\text{CL}}$ = 1.5

CA = ***1.5 CL***

CA – CL = 1,50,000

1.5 CL – CL = .5 CL = 1,50,000

CL = ***3,00,000***

CA = 1.5 CL = 1.5 × 3,00,000

= ***4,50,000***

2. Calculation of Bank Credit and other CL:

$\frac{\text{CL}}{\text{Bank Credit}}$ = 2 : 1

Bank credit = CL ÷ 2 = 3,00,000 ÷ 2

= ***1,50,000***

Other CL = ***1,50,000***

3. Calculation of Inventory:

Quick Ratio = $\frac{\text{CA} - \text{Inventory}}{\text{CL}}$ = 0.8

CA – Inventory = 0.8 CL

4,50,000 – Inventory = 0.8 × 3,00,000

Inventory = 2,10,000

4. Calculation of Debtors and Bank and Cash:

Inventory Turnover = $\frac{\text{COGS}}{\text{Inventory}}$ = 4

COGS = 5 × 2,10,000 = ***10,50,000***

Sales = $\frac{\text{COGS}}{100 - \text{margin}} \times 100$ = $\frac{10,50,000}{100 - 25} \times 100$

= ***14,00,000***

Debtors = Sales × $\frac{\text{Average Collection Period}}{12}$

= 14,00,000 × $^{1.5}/_{12}$ = ***1,75,000***

Bank and Cash = CA – Inventory – Debtors

= 4,50,000 – 2,10,000 – 1,75,000= ***65,000***

5. Calculation of Reserves & Surplus:

$\frac{\text{Reserves \& Surplus}}{\text{Bank \& Cash}}$ = 4 times

Reserves & Surplus = 4 × 65,000 = ***2,60,000***

PYQ 12

NOOR Limited provides the following information for the year ending 31st March, 2014:

Equity Share Capital	₹25,00,000
Closing Stock	₹6,00,000
Stock Turnover Ratio	5 Times
Gross Profit Ratio	25%
Net Profit/Sale	20%
Net profit/Capital	$^{1}/_{4}$

You are required to prepare Trading and Profit and Loss Account for the year ending 31st March, 2014.

[(5 Marks) May 2014]

Answer

Trading and Profit & Loss Account
(For the year ending 31st March, 2014)

Particulars	*₹*	*Particulars*	*₹*
To Opening Stock *[WN (iv)]*	3,37,500	By Sales *[WN (ii)]*	31,25,000
To Purchase and Conversion Cost	26,06,250	By Closing Stock	6,00,000
To Gross Profit *[WN (iii)]*	7,81,250		
	37,25,000		***37,25,000***
To Operating Expenses	1,56,250	By Gross Profit b/d	7,81,250
To Net Profit *[WN (i)]*	6,25,000		
	7,81,250		***7,81,250***

Working Notes:

(i) Calculation of Net Profit:

$\frac{\text{Net Profit}}{\text{Capital}} = \frac{1}{4}$ or Net Profit = $\frac{\text{Capital}}{4}$

Net Profit = $\frac{25,00,000}{4}$ = ***₹6,25,000***

(ii) Calculation of Sales:

$\frac{\text{Net Profit}}{\text{Sales}}$ = 20% or Sales = $\frac{\text{Net Profit}}{20\%}$

Sales = $\frac{6,25,000}{20\%}$ = ***₹31,25,000***

(iii) Calculation of Gross Profit:

Gross Profit = 25% of Sales
= 25% of ₹31,25,000 = ***₹7,81,250***

(iv) Calculation of Opening Stock:

Stock Turnover Ratio = $\frac{\text{COGS}}{\text{Average Stock}}$ = 5 Times

Average Stock = $\frac{\text{COGS (Sales} - 25\%)}{5}$

= $\frac{31,25,000 - 25\%}{5}$ = ***₹4,68,750***

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

Average Stock × 2 = Opening Stock + Closing Stock
4,68,750 × 2 = Opening Stock + 6,00,000

Opening Stock = 9,37,500 – 6,00,000 = ***₹3,37,500***

Note: All figures in Trading and Profit and Loss A/c are balancing figures except calculated in working notes.

PYQ 13

SRS Ltd has furnished the following ratios and information relating to the year ended 31st March,2015.

Sales	₹60,00,000
Return on Net Worth	25%
Rate of Income Tax	50%
Share Capital to Reserve	7: 3
Current Ratio	2
Net Profit to Sales (after tax)	6.25%
Inventory Turnover	12
(Based on cost of goods sold and closing stock)	
Cost of Goods Sold	₹18,00,000
Interest on Debenture @ 15%	₹60,000
Sundry Debtors	₹2,00,000
Sundry Creditors	₹2,00,000

You are required to:

(a) Calculate the operating expenses for the year ended 31st March,2015.
(b) Prepare Balance Sheet as on 31st March,2015.

[(8 Marks) May 2015]

Answer

(i) Operating Expenses = Gross Profit - EBIT
= ₹42,00,000 – ₹8,10,000 = ***₹33,90,000***

Working:

Calculation of EBIT

Particulars	₹
Net Profit After Tax (EAT) 6.25% of ₹60,00,000	3,75,000
Add: Tax @ 50% (3,75,000 × $^{0.50}/_{1-0.50}$)	3,75,000
Net Profit Before Tax (EBT)	7,50,000
Add: Interest	60,000
Earning Before Interest and Tax (EBIT)	**8,10,000**

(ii) Balance Sheet
(As on 31.03.2015)

Liabilities	₹	Assets	₹
Share Capital	10,50,000	Fixed Assets (b.f.)	17,00,000
Reserves	4,50,000	Current Assets:	
Debentures	4,00,000	Bank & Cash	50,000
Sundry Creditors	2,00,000	Inventory	1,50,000
		Debtors	2,00,000
	21,00,000		**21,00,000**

Working Notes:

(a) Return on Net Worth = $\frac{\text{PAT}}{\text{Net Worth}} \times 100$ = 25%

Net Worth = $\frac{3,75,000}{25\%}$ = ***15,00,000***

Net Worth = Share Capital + Reserve = 15,00,000

Share Capital to Reserve = 7 : 3

Share Capital = 15,00,000 × $^{7}/_{10}$ = ***10,50,000***

Reserve = 15,00,000 × $^{3}/_{10}$ = ***4,50,000***

(b) ***Debentures*** = $\frac{\text{Interest}}{\text{Rate of Interest}}$ = $\frac{60,000}{15\%}$

= ***4,00,000***

(c) ***Inventory Turnover*** = $\frac{\text{COGS}}{\text{Closing Stock}}$

Closing Stock = $\frac{\text{COGS}}{\text{Inventory Turnover}}$ = $\frac{18,00,000}{12}$

= ***1,50,000***

(d) ***Current Ratio*** = $\frac{\text{CA}}{\text{CL}}$ = 2 times

2 times = $\frac{\text{Debtors} + \text{Closing Stock} + \text{Cash}}{\text{Creditors}}$

2 = $\frac{2,00,000 + 1,50,000 + \text{Cash}}{2,00,000}$

Cash and Bank = 4,00,000 – 3,50,000 = ***50,000***

PYQ 14

VRA Limited has provided the following information for the year ending 31st March, 2015:

Debt Equity Ratio 2 : 1

14% long term debt	₹50,00,000
Gross Profit Ratio	30%
Return on equity	50%
Income Tax Rate	35%
Capital Turnover Ratio	1.2 Times
Opening Stock	₹4,50,000
Closing Stock	8% of sales

You are required to prepare Trading and Profit and Loss Account for the year ending 31st March, 2015.

[(8 Marks) Nov 2015]

Answer

Trading and Profit & Loss Account
(For the year ending 31st March, 2015)

Particulars	*₹*	*Particulars*	*₹*
To Opening Stock	4,50,000	By Sales	90,00,000
To Purchase & Conversion Cost (b.f.)	65,70,000	By Closing Stock (8% of 90 Lacs)	7,20,000
To Gross Profit c/d (30% of 90 Lacs)	27,00,000		
	97,20,000		***97,20,000***
To Operating Expenses (b.f.)	76,923	By Gross Profit b/d	27,00,000
To Interest on debt (14% of 50 Lacs)	7,00,000		
To Income tax	6,73,077		
To Net Profit	12,50,000		
	27,00,000		***27,00,000***

Working Notes:

(i) Calculation of Equity:

$$\frac{\text{Debt}}{\text{Equity}} = 2:1$$

Equity = Debt ÷ 2

50,00,000 ÷ 2 = ***₹25,00,000***

(ii) Calculation of Net Profit After Tax(PAT):

Return on Equity = $\frac{\text{PAT}}{\text{Equity}} \times 100$ = 50%

Profit After Tax = 50% of 25,00,000 = ***₹12,50,000***

(iii) Calculation of Income Tax:

Income Tax = 35% of PBT = 35% of $\frac{\text{PAT}}{1-t}$

= 35% of $\frac{12,50,000}{1-.35}$ = ***₹6,73,077***

(iv) Calculation of Sales:

Capital Turnover Ratio = $\frac{\text{Sales}}{\text{Capital}}$ = $\frac{\text{Sales}}{\text{Equity + Debt}}$

$\frac{\text{Sales}}{25,00,000 + 50,00,000}$ = 1.2 times

Sales = 75,00,000 × 1.2 = ***₹90,00,000***

PYQ 15

With the following ratios and further information given below prepare a Trading Account, Profit and

Loss Account and Balance Sheet of ABC Company.

Fixed Assets	₹40,00,000
Closing Stock	₹4,00,000
Stock turnover ratio	10 times
Gross Profit Ratio	25%
Net Profit Ratio	20%
Net profit to capital	1/5
Capital to total liabilities	1/2
Fixed assets to capital	5/4
Fixed assets / Total current assets	5/7

[(8 Marks) May 2016]

Answer

Trading and Profit & Loss Account

Particulars	*₹*	*Particulars*	*₹*
To Opening Stock	80,000	By Sales	32,00,000
To Purchase & Conversion Cost (b.f.)	27,20,000	By Closing Stock	4,00,000
To Gross Profit c/d (25% of 32 Lacs)	8,00,000		
	36,00,000		***36,00,000***
To Operating Expenses (b.f.)	1,60,000	By Gross Profit b/d	8,00,000
To Net Profit	6,40,000		
	8,00,000		***8,00,000***

Balance Sheet

Liabilities	*₹*	*Assets*		*₹*
Capital	32,00,000	Fixed Assets		40,00,000
Other Liabilities	64,00,000	Current Assets:		
		Stock	4,00,000	
		Other CA (b.f.)	52,00,000	56,00,000
	96,00,000			***96,00,000***

Working Notes:

(i) Calculation of Capital:

$$\frac{\text{Fixed Assets}}{\text{Capital}} = 5/4 \quad \text{or} \quad \text{Capital} = 40,00,000 \times 4/5$$

$$= \textbf{₹32,00,000}$$

(ii) Calculation of Other Liabilities:

$$\frac{\text{Capital}}{\text{Other Liabilities}} = 1/2 \quad \text{or} \quad \text{Other Liabilities} = 32,00,000 \times 2$$

$$= \textbf{₹64,00,000}$$

(iii) Calculation of Current Assets:

$$\frac{\text{Fixed Assets}}{\text{Current Assets}} = 5/7 \quad \text{or} \quad \text{Current Assets} = 40,00,000 \times 7/5$$

$$= \textbf{₹56,00,000}$$

(iv) Calculation of Net Profit:

$$\frac{\text{Net Profit}}{\text{Capital}} = 1/5 \quad \text{or} \quad \text{Net Profit} = 32,00,000 \times 1/5$$

$$= \textbf{₹6,40,000}$$

(v) Calculation of Sales:

$$\frac{\text{Net Profit}}{\text{Sales}} = 20\% \quad \text{or} \quad \text{Sales} = 6,40,000 \div 20\%$$

= ₹32,00,000

(vi) Calculation of Opening Stock:

COGS	=	75% of Sales	=	75% of 32,00,000	=	24,00,000
$\frac{\text{COGS}}{\text{Average Stock}}$	=	10	or	Average Stock	=	24,00,000 ÷ 10
					=	2,40,000
Average stock	=	(Opening Stock + Closing Stock) ÷ 2			=	2,40,000
Opening Stock	=	(2,40,000 × 2) – 4,00,000			=	₹80,000

PYQ 16

The following figures and ratios pertains to ABG Company Limited for the year ending 31st March, 2016:

Annual sales (credit)	₹50,00,000
Gross Profit ratio	28%
Fixed assets turnover ratio (based on COGS)	1.5
Stock turnover ratio (based on COGS)	6
Quick ratio	1 : 1
Current ratio	1.5
Debtors collection period	45 days
Reserve and surplus to Share capital	0.60 : 1
Capital gearing ratio	0.5
Fixed assets to net worth	1.2 : 1

You are required to prepare the Balance Sheet as at 31st March, 2016 based on the above information. Assume 360 days in a year.

[(8 Marks) Nov 2016]

Answer

Balance Sheet

Liabilities	₹	Assets		₹
Equity Share Capital	12,50,000	Fixed Assets		24,00,000
Reserve and Surplus	7,50,000	Current Assets:		
Long Term Debts	10,00,000	Stock	6,00,000	
Current Liabilities	12,00,000	Debtors	6,25,000	
		Cash & Cash Eq. (b.f.)	5,75,000	18,00,000
	42,00,000			42,00,000

Working Notes:

(i) Cost of Goods Sold = Sales – Gross Profit (28% of Sales)
= ₹50,00,000 – ₹14,00,000 = **₹36,00,000**

(ii) Closing Stock = Cost of Goods Sold/Stock Turnover
= ₹36,00,000/6 = **₹6,00,000**

(iii) Fixed Assets = Cost of Goods Sold/Fixed Assets Turnover
= ₹36,00,000/1.5 = **₹24,00,000**

(iv) Current Assets and Current Liabilities

Stock = (CR - LR) × CL
6,00,000 = (1.5 – 1) CL OR CL = **₹12,00,000**

Current Assets = 12,00,000 × 1.5 = **₹18,00,000**

(v) Debtors = Sales × Debtors Collection Period(days) /360 days
= ₹50,00,000 × 45/360 = **₹6,25,000**

(vi) Net worth = Fixed Assets / 1.2
= ₹24,00,000/1.2 = **₹20,00,000**

(vii) Reserves and Surplus and Share Capital

Reserves & Surplus and Share Capital	=	0.6 + 1	=	1.6
Reserves and Surplus	=	₹20,00,000 × 0.6/1.6	=	**₹7,50,000**
Share Capital	=	Net worth – Reserves and Surplus		
	=	₹20,00,000 – ₹7,50,000	=	**₹12,50,000**

(viii) Long- term Debts

Capital Gearing Ratio	=	Long-term Debts / Equity Shareholders' Fund (Net worth)		
Long-term Debts	=	₹20,00,000 × 0.5	=	**₹10,00,000**

PYQ 17

The following information relate to a concern:

Debtors velocity	3 months
Creditors velocity	2 months
Stock turnover ratio	1.5
Gross profit ratio	25%
Bills receivables	₹25,000
Bills payables	₹10,000
Gross profit	₹4,00,000
Fixed assets turnover ratio	4

Closing stock of the period is ₹10,000 above the opening stock.

Find out:

1. Sales and cost of goods sold
2. Sundry Debtors
3. Sundry Creditors
4. Closing Stock
5. Fixed Assets

[(8 Marks) May 2017]

Answer

1. Sales

	=	Gross Profit ÷ Gross Profit Ratio		
	=	₹4,00,000 ÷ 25%	=	**₹16,00,000**
Cost of goods sold	=	Sales - Gross Profit		
	=	₹16,00,000 - ₹4,00,000	=	**₹12,00,000**

2. Sundry debtors

	=	Credit sales × $^{3}/_{12}$ – Bills receivables		
	=	₹16,00,000 × $^{3}/_{12}$ – ₹25,000	=	**₹3,75,000**

3. Sundry creditors

	=	Credit Purchase × $^{2}/_{12}$ – Bills payables		
	=	₹12,10,000 × $^{2}/_{12}$ – ₹10,000	=	**₹1,91,667**
Credit purchase	=	COGS + Closing Stock – Opening Stock		
	=	₹12,00,000 + ₹10,000	=	**₹12,10,000**

4. Closing Stock:

Average Stock	=	COGS ÷ 1.5	=	₹12,00,000 ÷ 1.5	=	₹8,00,000

Average Stock	=	$\frac{\text{Opening Stock} + \text{Closing Stock}}{2}$
8,00,000 × 2	=	Opening Stock + Closing Stock
16,00,000	=	(Closing – 10,000) + Closing Stock
Closing Stock	=	**₹8,05,000**

[Opening Stock = Closing – 10,000]

5. Fixed Asset Turnover = COGS ÷ Fixed asset

Fixed Asset = 12,00,000 ÷ 4 = ***₹3,00,000***

Note: Alternatively Fixed Asset Turnover ratio can be calculated on the basis of sales.

PYQ 18

XY Ltd. provides the following information for the year ending 31st March, 2017:

Equity share capital	₹8,00,000
Closing Stock	₹1,50,000
Stock turnover ratio	5 times
Gross Profit Ratio	20%
Net Profit/Sales	16%
Net profit/Capital	25%

You are required to prepare Trading and Profit & Loss account for the year ending 31st March, 2017.
[(8 Marks) Nov 2017]

Answer

Trading and Profit & Loss Account

Particulars	*₹*	*Particulars*	*₹*
To Opening Stock	2,50,000	By Sales	12,50,000
To Purchase & Conversion Cost (b.f.)	9,00,000	By Closing Stock	1,50,000
To Gross Profit (20% of 12,50,000)	2,50,000		
	14,00,000		***14,00,000***
To Operating Expenses (b.f.)	50,000	By Gross Profit b/d	2,50,000
To Net Profit	2,00,000		
	2,50,000		***2,50,000***

Working Notes:

(i) Calculation of Net Profit:

$\frac{\text{Net Profit}}{\text{Capital}}$ = 25% or Net Profit = 8,00,000 × 25%

= ***₹2,00,000***

(ii) Calculation of Sales:

$\frac{\text{Net Profit}}{\text{Sales}}$ = 16% or Sales = 2,00,000 ÷ 16%

= ***₹12,50,000***

(iii) Calculation of Opening Stock:

COGS = 80% of Sales = 80% of 12,50,000 = 10,00,000

$\frac{\text{COGS}}{\text{Average Stock}}$ = 5 or Average Stock = 10,00,000 ÷ 5

= 2,00,000

Average stock = (Opening Stock + Closing Stock) ÷ 2 = 2,00,000

Opening Stock = (2,00,000 × 2) – 1,50,000 = ***₹2,50,000***

PYQ 19

Equity share capital G Ltd. has furnished the following information relating to the year ended 31st March, 2017 and 31st March, 2018:

Particulars	*31st March, 2017*	*31st March, 2018*
Share Capital	40,00,000	40,00,000
Reserve and Surplus	20,00,000	25,00,000
Long term loan	30,00,000	30,00,000

- Net profit ratio: 8%
- Gross profit ratio: 20%
- Long-term loan has been used to finance 40% of the fixed assets.
- Stock turnover with respect to cost of goods sold is 4.
- Debtors represent 90 days sales.
- The company holds cash equivalent to 1½ months cost of goods sold.
- Ignore taxation and assume 360 days in a year.

You are required to prepare Balance Sheet as on 31st March, 2018 in following format:

Liabilities	*₹*	*Assets*	*₹*
Share Capital	-	Fixed Assets	-
Reserve and Surplus	-	Sundry Debtors	-
Long-Term Loan	-	Closing Stock	-
Sundry Creditors	-	Cash in hand	-

[(8 Marks) May 2018]

Answer

Balance Sheet

Liabilities	*₹*	*Assets*	*₹*
Share Capital	40,00,000	Fixed Assets	75,00,000
Reserve and Surplus	25,00,000	Sundry Debtors	15,62,500
Long-Term Loan	30,00,000	Closing Stock	12,50,000
Sundry Creditors (b.f.)	14,37,500	Cash in hand	6,25,000
	1,09,37,500		***1,09,37,500***

Working Notes:

(1) Net Profit = Change in Reserve and Surplus
= 25,00,000 – 20,00,000 = ***₹5,00,000***

(2) Sales:
Net Profit ratio = 8% of sales
∴ Sales = Net Profit ÷ Net profit ratio
= 5,00,000 ÷ 8% = ***₹62,50,000***

(3) Cost of Goods Sold = Sales – Gross Profit (20% of Sales)
= ₹62,50,000 – 20% of ₹62,50,000 = ***₹50,00,000***

(4) Fixed Assets = Long term loan ÷ 40%
= ₹30,00,000 ÷ 40% = ***₹75,00,000***

(5) Closing Stock = Cost of Goods Sold ÷ Stock Turnover
= ₹50,00,000 ÷ 4 = ***₹12,50,000***

(6) Debtors = Sales × Debtors Collection Period(days)/360 days
= ₹62,50,000 × 90/360 = ***₹15,62,500***

(7) Cash Equivalent = COGS × 1.5/12
= ₹50,00,000 × 1.5/12 = ***₹6,25,000***

PYQ 20

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

Gross profit	:	₹60,000
Gross profit margin	:	20%
Total Assets Turnover	:	0.30 : 1
Net Worth to Total Assets	:	0.90 : 1
Current Ratio	:	1.5 : 1

Liquid Assets to current liability	:	1 : 1
Credit Sales to Total Sales	:	0.80 : 1
Average Collection Period	:	60 days
Days in a Year	:	360 days

You are required to complete the following:

Balance Sheet of Moon Ltd.

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

[(5 Marks) May 2018]

Answer

Balance Sheet of Moon Ltd.

Liabilities	*₹*	*Assets*	*₹*
Net Worth	9,00,000	Fixed Assets	8,50,000
Current Liabilities (b.f.)	1,00,000	Debtors	50,000
		Stock	40,000
		Cash	60,000
Total Liabilities	***10,00,000***	***Total Assets***	***10,00,000***

Working Notes:

(1) Sales = Gross Profit ÷ Gross Profit ratio
= 60,000 ÷ 20% = ***₹3,00,000***

(2) Total Assets = Sales / Total Assets Turnover
= 3,00,000 ÷ .030 = ***₹10,00,000***

(3) Net worth = Total Assets × 0.90
= ₹10,00,000 × 0.90 = ***₹9,00,000***

(4) Current Assets = Current Liabilities × 1.50
= ₹1,00,000 × 1.50 = ***₹1,50,000***

(5) Fixed Assets = Total Assets - Current Assets
= ₹10,00,000 - ₹1,50,000 = ***₹8,50,000***

(6) Liquid Assets = Current Liabilities × 1
= ₹1,00,000 × 1 = ***₹1,00,000***

(7) Closing Stock = Current Assets – Liquid Assets
= ₹1,50,000 - ₹1,00,000 = ***₹50,000***

(8) Debtors = Credit Sales × Debtors Collection Period(days)/360 days
= ₹3,00,000 × .080 × 60/360 = ***₹40,000***

(9) Cash = Current Assets – Stock - Debtors
= ₹1,50,000 - 50,000 - ₹40,000 = ***₹60,000***

PYQ 21

A limited Company's books reveals following information:

Net Income	:	₹3,60,000
Shareholder's Equity	:	₹4,00,000

Assets Turnover	:	2.5 times
Net Profit Margin	:	12%

You are required to calculate ROE of the company based on the 'DuPont model'.

[(5 Marks) Nov 2018]

Answer

Return on Equity = Net Profit Margin × Asset Turnover × Equity Multiplier
= 12% × 2.5 times × 3 times = ***90%***

Working Notes:

1. Sales:

Net profit Margin	=	Net Income ÷ Sales		=	12%
Sales	=	₹3,60,000 ÷ 12%		=	***₹30,00,000***

2. Total Assest:

Asset Turnover	=	Sales ÷ Total Assets		=	2.5 times
Total Assets	=	Sales ÷ 2.5	= 30,00,000 ÷ 2.5	=	***₹12,00,000***

3. Equity Multiplier = Total Assets ÷ Equity
= ₹12,00,000 ÷ ₹4,00,000 = ***3 times***

PYQ 22

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

Gross profit	20% of sales
Net profit	10% of sales
Inventory holding period	3 months
Receivable holding period	3 months
Non-current assets to sales	1 : 4
Non-current assets to current assets	1 : 2
Current ratio	2 : 1
Non-current liabilities to current liabilities	1 : 1
Share capital to reserve and surplus	4 : 1
Non-current assets as on 31.03.2017	₹50,00,000

Assume that:

(a) No change in Non-current assets during the year 2017-18.
(b) No depreciation charged on Non-current assets during the year 2017-18
(c) Ignoring tax

You are required to calculate cost of goods sold, Net profit, Inventory, receivables and cash for the year ended on 31.03.2018.

[(5 Marks) Nov 2018]

Answer

(a) Net Profit = 10% of sales = 10% of ₹2,00,00,000 = ***₹20,00,000***

(b) Cost of Goods Sold = Sales – Gross Profit
= ₹2,00,00,000 – 20% = ***₹1,60,00,000***

(c) Inventory = COGS × 3/12 = ₹1,60,00,000 × 3/12 = ***₹40,00,000***

(d) Receivables = Sales × 3/12 = ₹2,00,00,000 × 3/12 = ***₹50,00,000***

(e) Cash = Current assets – Stock – receivables
= ₹1,00,00,000 - ₹40,00,000 - ₹50,00,000 = ***₹10,00,000***

Working:

1. $\frac{\text{Non current assets}}{\text{Current assets}}$ = ½ or $\frac{50,00,000}{\text{Current assets}}$ = ½

So, Current assets = ₹50,00,000 × 2 = ***₹1,00,00,000***

2. $\frac{\text{Non current assets}}{\text{Sales}}$ = ¼ or $\frac{50,00,000}{\text{Sales}}$ = 1/4

So, Sales = ₹50,00,000 × 4 = ***₹2,00,00,000***

PYQ 23

Following figures and ratios are related to a company Q Ltd.:

Sales for the year (all credit)	:	₹30,00,000
Gross Profit Ratio	:	25%
Fixed Assets Turnover (based on COGS)	:	1.5
Stock turnover (based on COGS)	:	6
Liquid Ratio	:	1 : 1
Current Ratio	:	1.5 : 1
Receivables (Debtors) Collection Period	:	2 months
Reserve and Surplus to Share Capital	:	0.6 : 1
Capital Gearing Ratio	:	0.5
Fixed Assets to Net Worth	:	1.20 : 1

You are required to calculate Closing Stock, Fixed Assets, Current Assets, Debtors and Net Worth.

[(5 Marks) May 2019]

Answer

(1) Closing Stock:

Stock Turnover = COGS ÷ Closing Stock

6 = (₹30,00,000 – 25%) ÷ Closing Stock

Closing Stock = ***₹3,75,000***

(2) Fixed Assets:

Fixed Assets Turnover = COGS ÷ Fixed Assets

1.5 = (₹30,00,000 – 25%) ÷ Fixed Assets

Fixed Assets = ***₹15,00,000***

(3) Current Assets:

Liquid Ratio = [CA – Stock (Non Liquid Assets)] ÷ Current liabilities

1 = (CA - ₹3,75,000) ÷ Current liabilities

Current Liabilities = Current Assets - ₹3,75,000 .....Equation (i)

Current Ratio = Current Assets ÷ Current liabilities

1.5 Current Liabilities = Current Assets

1.5 (Current Assets - ₹3,75,000) = Current Assets

Current Assets = ***₹11,25,000***

(4) Debtors:

Debtors = Credit Sales × Average collection Period/12

= ₹30,00,000 × 2/12 = ***₹5,00,000***

(5) Net Worth:

Fixed Assets to Net Worth = Fixed Assets ÷ Net Worth

1.20 = ₹15,00,000 ÷ Net Worth

Net Worth = ***₹12,50,000***

PYQ 24

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

Particulars	Amount (₹)
Equity Share Capital (Face Value ₹10 each)	10,00,000
10% Preference Shares	2,00,000
Reserves	8,00,000
10% Debentures	6,00,000
Profit Before Interest and Tax for the year	4,00,000
Interest	60,000
Profit After Tax for the year	2,40,000

Calculate the following:

(a) Return on Capital Employed
(b) Earnings Per Share
(c) PE Ratio

[(5 Marks) Nov 2019]

Answer

(a) Return on Capital Employed $= \frac{\text{EBIT}}{\text{Capital Employed}} \times 100 = \frac{4,00,000}{26,00,000} \times 100$

$=$ ***15.38%***

(b) Earnings Per Share (EPS) $= \frac{\text{PAT}-\text{PD}}{\text{Number of Shares}} = \frac{2,40,000-20,000}{1,00,000}$

$=$ ***₹2.20***

(c) Price Earning Ratio (PE) $= \frac{\text{MPS}}{\text{EPS}} = \frac{14}{2.20}$

$=$ ***6.36 times***

Working Note:

Capital Employed = Equity Share Capital + Reserves + Preference Share Capital + Debentures
= ₹10,00,000 + ₹8,00,000 + ₹2,00,000 + ₹6,00,000
= ₹26,00,000

PYQ 25

Following information relates to RM Co. Ltd.

Total Assets employed	₹10,00,000
Direct Cost	₹5,50,000
Other Operating Cost	₹90,000

The goods will be sold to customers at 150 per cent of the direct costs. 50 per cent of the assets being financed by borrowed capital at an interest cost of 8 per cent per year. Tax rate is assumed to be 30 per cent.

You are required to calculate: (a) Net profit margin; (b) Return on Assets; (c) Asset turnover and (d) Return on owners' equity.

[(5 Marks) Nov 2020]

Answer

(a) Net Profit Margin $= \frac{\text{EAT}}{\text{Sales}} \times 100 = \frac{1,01,500}{8,25,000} \times 100 =$ ***12.30%***

(b) Return on Assets $= \frac{\text{EBIT}\ (1-t)}{\text{Assets}} = \frac{1,85,000\ (1-.30)}{10,00,000} \times 100 =$ ***12.95%***

(c) Assets turnover $= \frac{\text{Sales}}{\text{Total Assets}} = \frac{8,25,000}{10,00,000} =$ ***0.825 times***

(d) Return on Equity = $\frac{\text{EAT}}{\text{Equity Fund}} \times 100$ = $\frac{1,01,500}{5,00,000} \times 100$ = ***20.30%***

The Net Profit is calculated as follows:

Particulars	***₹***
Sales Revenue (150% of ₹5,50,000)	8,25,000
Less: Direct Cost	5,50,000
Gross Profit	***2,75,000***
Less: Other operating expenses	90,000
EBIT	***1,85,000***
Less: Interest on 8% Debt (10,00,000 × 50% × 8%)	40,000
EBT	***1,45,000***
Less: Taxes @ 30%	43,500
EAT	***1,01,500***

PYQ 26

From the following information, complete the Balance Sheet given below:

(a)	Equity share capital	₹2,00,000
(b)	Total debt to owner's equity	0.75
(c)	Total assets turnover	2 Times
(d)	Inventory turnover	8 Times
(e)	Fixed assets to owner's equity	.60
(f)	Current debt to total debt	.40

Balance Sheet

Liabilities	***₹***	***Assets***	***₹***
Equity Share Capital	2,00,000	Fixed Assets	?
Long Term Debt	?	Current Assets:	
Current Debt	?	Inventory	?
		Cash	?

[(5 Marks) Jan 2021]

Answer

Balance Sheet

Liabilities	***₹***	***Assets***	***₹***
Equity Share Capital	2,00,000	Fixed Assets	1,20,000
Long Term Debt	90,000	Current Assets:	
Current Debt	60,000	Inventory	87,500
		Cash	1,42,500
	3,50,000		***3,50,000***

Working Notes:

1. Total debt:

0.75 × Owners equity = 0.75 × ₹2,00,000 = ***₹1,50,000***

2. Current debt:

Current debt to total debt = 0.40

Current debt = 0.40 × ₹1,50,000 = ***₹60,000***

3. Long term debt:

Long term debt = Total debt – Current debt

= ₹1,50,000 - ₹60,000 = ***₹90,000***

4. Fixed assets:

0.60 × Owners equity = 0.60 × ₹2,00,000 = ***₹1,20,000***

5. Total of liability side:

Total debt + Owners equity = ₹1,50,000 + ₹2,00,000 = ***₹3,50,000***

6. Total assets consisting of fixed assets and current assets must be equal to ₹3,50,000 hence, current assets should be ₹2,30,000.

7. Total assets turnover is 2 times:

$\frac{\text{Sales}}{\text{Total Assets}}$ = 2 times

Sales = ₹3,50,000 × 2 = ***₹7,00,000***

Inventory turnover is 8 times:

$\frac{\text{Sales}}{\text{Inventory}}$ = 8 times

Inventory = $\frac{\text{Sales}}{8} = \frac{7,00,000}{8}$ = ***₹87,500***

8. Cash: = ₹2,30,000 – ₹87,500 = ***₹1,42,500***

PYQ 27

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

Sales	₹75,00,000
Return on Net Worth	25%
Rate of Income Tax	50%
Share Capital to Reserve	6 : 4
Current Ratio	2.5
Net Profit to Sales (after tax)	6.50%
Inventory Turnover (Based on cost of goods sold)	12
Cost of Goods Sold	₹22,50,000
Interest on Debenture	₹75,000
Receivables (includes Debtors ₹1,25,000)	₹2,00,000
Payables	₹2,50,000
Bank Overdraft	₹1,50,000

You are required to:

(a) Calculate the operating expenses for the year ended 31st March, 2021.
(b) Prepare Balance Sheet as on 31st March in the following format:

Liabilities	***₹***	***Assets***	***₹***
Share Capital		Fixed Assets	
Reserves and Surplus		Current Assets:	
15% Debentures		Stock	
Payables		Receivables	
Bank Overdraft		Cash	

[(10 Marks) July 2021]

Answer

Working notes:

1. Calculation of EBIT

Particulars	***₹***
Net Profit After Tax (EAT) 6.50% of ₹75,00,000	4,87,500
Add: Tax (4,87,500 × $^{0.50}/_{1-0.50}$)	4,87,500
Net Profit Before Tax (EBT)	9,75,000
Add: Interest	75,000
Earnings Before Interest and Tax (EBIT)	***10,50,000***

2.	Return on Net Worth	=	$\frac{\text{PAT}}{\text{Net Worth}} \times 100$	=	25%
	Net Worth	=	4,87,500 ÷ 25%	=	***19,50,000***
	Net Worth	=	Share Capital + Reserve	=	19,50,000
	Share Capital to Reserve	=	6 : 4		
	Share Capital	=	19,50,000 × $^{6}/_{10}$	=	***11,70,000***
	Reserve	=	19,50,000 × $^{4}/_{10}$	=	***7,80,000***
3.	***Debentures***	=	$\frac{\text{Interest}}{\text{Rate of Interest}}$		
		=	75,000 ÷ 15%	=	***5,00,000***
4.	***Inventory Turnover***	=	$\frac{\text{COGS}}{\text{Closing Stock}}$		
	Closing Stock	=	$\frac{\text{COGS}}{\text{Inventory Turnover}}$	=	$\frac{22,50,000}{12}$
		=	***1,87,500***		
5.	***Current Ratio***	=	$\frac{\text{CA}}{\text{CL}}$		
	2.5 times	=	$\frac{\text{Receivables} + \text{Closing Stock} + \text{Cash}}{\text{Payables} + \text{Bank Overdraft}}$		
	2.5	=	$\frac{2,00,000 + 1,87,500 + \text{Cash}}{2,50,000 + 1,50,000}$		
	Cash	=	4,00,000 × 2.5 – 2,00,000 – 1,87,500	=	***6,12,500***
(a)	***Operating Expenses***	=	Gross Profit (Sales - COGS) - EBIT		
		=	₹52,50,000 (75,00,000 – 22,50,000) – ₹10,50,000		
		=	***₹42,00,000***		

(b) Balance Sheet

Liabilities	*₹*	*Assets*	*₹*
Share Capital	11,70,000	Fixed Assets (b.f.)	18,50,000
Reserves and Surplus	7,80,000	Current Assets:	
15% Debentures	5,00,000	Stock	1,87,500
Payables	2,50,000	Receivables	2,00,000
Bank Overdraft	1,50,000	Cash	6,12,500
	28,50,000		28,50,000

PYQ 28

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

Debt to Total assets ratio	:	0.40
Long-term debts to equity ratio	:	30%
Gross profit margin on sales	:	20%
Accounts receivables period	:	36 days
Quick ratio	:	0.9
Inventory holding period	:	55 days
Cost of goods sold	:	₹64,00,000

Balance Sheet

Liabilities	*₹*	*Assets*	*₹*
Equity Share Capital	20,00,000	Fixed Assets	

Reserves & surplus		Inventory	
Long-term debts		Accounts receivables	
Accounts payable		Cash	
Total	***50,00,000***	***Total***	

Complete the Balance Sheet of ABC Industries as on 31st March, 2021. All calculations should be in nearest rupee. Assume 360 days in a year.

[(10 Marks) Dec 2021]

Answer

Balance Sheet

Liabilities	***₹***	***Assets***	***₹***
Equity Share Capital	20,00,000	Fixed Assets	30,32,222
Reserves & surplus	10,00,000	Inventory	9,77,778
Long-term debts	9,00,000	Accounts receivables	8,00,000
Accounts payable	11,00,000	Cash	1,90,000
Total	***50,00,000***	***Total***	***50,00,000***

Working Notes:

1. Inventory = $\text{COGS} \times \frac{\text{Inventory holding period}}{360}$

= ₹64,00,000 × 55/360 = ***₹9,77,778***

2. Sales = COGS ÷ COGS ratio

= ₹64,00,000 ÷ 80% (100 – G.P. ratio) = ***₹80,00,000***

3. Debtors = $\text{Sales} \times \frac{\text{Account receivables period}}{360}$

= ₹80,00,000 × 36/360 = ***₹8,00,000***

4. Debt:

Debt to Total asset = $\frac{\text{Debt (Long – term debt + Accounts payables)}}{\text{Total Asset}}$ = 40%

Debt = 40% of Total Assets

= ₹50,00,000 × 40% = ***₹20,00,000***

Note: In debt we are considering total debt i.e. Long-term debt and Accounts payables.

5. Equity Fund = Equity Share Capital + Reserve and surplus

= Total Liabilities – Debt (Long term debt + Account payable)

= ₹50,00,000 – ₹20,00,000 = ***₹30,00,000***

Reserve and surplus = Equity fund – Equity share capital

= ₹30,00,000 – ₹20,00,000 = ***₹10,00,000***

6. Long-term debt:

Long-term debt to equity= $\frac{\text{Long – term debt}}{\text{Equity}}$ = 30%

Long-term debt = 30% of Equity

= 30% of ₹30,00,000 = ***₹9,00,000***

Accounts payables = Debt – Long-term debt

= ₹20,00,000 – ₹9,00,000 = ***₹11,00,000***

7. Quick Ratio = $\frac{\text{Current assets} - \text{Inventories}}{\text{Current liabilities}}$ = 0.9

Current assets – ₹9,77,778 = 0.9 × ₹11,00,000

Current Assets = ₹9,90,000 + ₹9,77,778 = **₹19,67,778**

Cash = Current assets – Inventories – Accounts receivables

= ₹19,67,778 - ₹9,77,778 - ₹8,00,000 = **₹1,90,000**

8. Fixed assets = Total assets – Current assets

= ₹50,00,000 – ₹19,67,778 = **₹30,32,222**

PYQ 29

Following are the information and ratios are given for W limited for the year ended 31st March, 2022:

Equity Share Capital of ₹10 each	:	₹10 Lakhs
Reserves & Surplus to Shareholder's Fund	:	0.50
Sales/ Shareholders' Fund	:	1.50
Current Ratio	:	2.50
Debtors Turnover Ratio	:	6.00
Stock Velocity	:	2 Months
Gross profit Ratio	:	20%
Net Working Capital Turnover Ratio	:	2.50

You are required to calculate:

(1) Shareholders' Fund
(2) Stock
(3) Debtors
(4) Current Liabilities
(5) Cash Balance

[(5 Marks) May 2022]

Answer

(1) Shareholders' Fund = Equity Share Capital + Reserve and Surplus

= ₹10 Lakhs + 0.50 Shareholders' Fund

0.50 Shareholders' Fund = ₹10 Lakhs

Shareholders' Fund = ₹10 Lakhs ÷ 0.50 = **₹20,00,000**

$\frac{\text{Reserve and Surplus}}{\text{Shareholders' Fund}}$ = 0.50 or Reserve & Surplus = 0.50 Shareholders' Fund

(2) Stock = COGS × Stock velocity/12

= ₹24,00,000 × 2/12 = **₹4,00,000**

$\frac{\text{Sales}}{\text{Shareholders' Fund}}$ = 1.50 or Sales = 1.50 Shareholders' Fund

Sales = 1.50 × ₹20,00,000 = ₹30,00,000

COGS = Sales – Gross Profit

= ₹30,00,000 – 20% = ₹24,00,000

(3) Debtors = Annual Credit Sales ÷ Debtors Turnover Ratio

= ₹30,00,000 ÷ 6 = **₹5,00,000**

(4) Current Liabilities:

Current Ratio = CA ÷ CL = 2.50

Current Asset = 2.50 CL

$\frac{\text{Sales}}{\text{Net Working Capital}}$ = 2.50

Net Working Capital = Sales ÷ 2.50 = ₹30,00,000 ÷ 2.50
= ₹12,00,000

CA – CL = ₹12,00,000
2.5 CL – CL = ₹12,00,000
Current Liabilities = ₹12,00,000 ÷ 1.5 = ***₹8,00,000***

(5) Cash Balance = Current Asset – Debtors – Stock
= ₹20,00,000 - ₹5,00,000 - ₹4,00,000
= ***₹11,00,000***

Current Asset = 2.5 CL
= 2.5 × 8,00,000 = ₹20,00,000

PYQ 30

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

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

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

You are required to calculate:

(a) Net profit margin
(b) Net operating profit margin
(c) Return on assets
(d) Return on owner's equity

[(5 Marks) Nov 2022]

Answer

(a) Net Profit Margin = $\frac{\text{EAT}}{\text{Sales}} \times 100 = \frac{70,000}{7,50,000} \times 100$ = ***9.33%***

(b) Net Operating Profit Margin = $\frac{\text{EBIT}}{\text{Sales}} \times 100 = \frac{1,50,000}{7,50,000} \times 100$ = ***20%***

(c) Return on Assets = $\frac{\text{EBIT}\ (1-t)}{\text{Assets}} = \frac{1,50,000\ (1-.30)}{10,00,000}$ = ***10.50%***

(d) Return on Equity = $\frac{\text{EAT}}{\text{Equity Fund}} \times 100 = \frac{70,000}{5,00,000} \times 100$ = ***14%***

Working Notes:

(1) Debt = 50% of ₹10,00,000 = ₹5,00,000

(2) Interest = 10% of ₹5,00,000 = ₹50,000

(3) Direct cost = 10 times of ₹50,000 = ₹5,00,000

(4) Sales = Direct cost + 50% = ₹5,00,000 + 50% = ₹7,50,000

(5) Equity Fund = Total Assets – Debt = ₹10,00,000 - ₹5,00,000= ₹5,00,000

(6) The Net Profit is calculated as follows:

Particulars	***₹***
Sales Revenue	7,50,000
Less: Direct Cost	5,00,000
Gross Profit	***2,50,000***
Less: Operating expenses	1,00,000
Operating Profit/EBIT	***1,50,000***
Less: Interest	50,000
EBT	***1,00,000***
Less: Taxes @ 30%	30,000
EAT	***70,000***

PYQ 31

Following information and ratios are given in respect of AQUA Ltd. for the 10 year ended 31st March, 2023:

Current ratio	4.0
Acid test ratio	2.5
Inventory turnover ratio (based on sales)	6
Average collection period (days)	70
Earnings per share	₹3.5
Current liabilities	₹3,10,000
Total assets turnover ratio (based on sales)	0.96
Cash ratio	0.43
Proprietary ratio	0.48
Total equity dividend	₹1,75,000
Equity dividend coverage ratio	1.60

Assume 360 days in a year. ***You are required to complete Balance Sheet as on 31st March, 2023.***

Balance Sheet as on 31st March, 2023

Liabilities	***₹***	***Assets***	***₹***
Equity share capital (₹10 per share)	XXX	Fixed assets	XXX
		Inventory	XXX
Reserve & surplus	XXX	Debtors	XXX
Long-term debt (b.f.)	XXX	Loans & advances	XXX
Current liabilities	3,10,000	Cash & bank	XXX
	XXX		***XXX***

[(10 Marks) May 23]

Answer

Balance Sheet as on 31st March, 2023

Liabilities	***₹***	***Assets***	***₹***
Equity share capital (₹10 per share)	8,00,000	Fixed assets	16,66,250
		Inventory	4,65,000
Reserve & surplus	5,95,000	Debtors	5,42,500
Long-term debt (b.f.)	12,01,250	Loans & advances	99,200
Current liabilities	3,10,000	Cash & bank	1,33,300
	29,06,250		***29,06,250***

Working Notes:

a. Current Ratio = $\frac{CA}{CL}$ = 4 times

Current Assets = 4 × 3,10,000 = ₹12,40,000

b.	Acid test ratio	=	$\frac{\text{CA} - \text{Stock}}{\text{CL}}$	=	$\frac{12,40,000 - \text{Stock}}{3,10,000}$	=	2.5 times
	Inventory	=	₹4,65,000				
c.	Cash ratio	=	$\frac{\text{Cash \& bank}}{\text{CL}}$	=	$\frac{\text{Cash \& bank}}{3,10,000}$	=	0.43
	Cash & bank	=	₹1,33,300				
d.	Inventory turnover	=	$\frac{\text{Sales}}{\text{Inventory}}$	=	$\frac{\text{Sales}}{4,65,000}$	=	6
	Sales	=	₹27,90,000				
e.	Debtors	=	Credit Sales × 70/360				
		=	27,90,000 × 70/360			=	₹5,42,500
f.	Loans & advances	=	CA – Debtors – Inventory – Cash and Bank				
		=	12,40,000 – 5,42,500 – 4,65,000 – 1,33,300			=	₹99,200
g.	Total assets turnover	=	$\frac{\text{Sales}}{\text{Total assets}}$	=	$\frac{27,90,000}{\text{Total assets}}$	=	0.96
	Total assets	=	₹29,06,250				
h.	Fixed assets	=	Total assets – Current assets				
		=	29,06,250 – 12,40,000			=	₹16,66,250
i.	Proprietary ratio	=	$\frac{\text{Prop. fund}}{\text{Total assets}}$	=	$\frac{\text{Prop. fund}}{29,06,250}$	=	0.48
	Proprietor's fund	=	0.48 × 29,06,250			=	₹13,95,000
j.	Equity dividend coverage	=	$\frac{\text{EAT}}{\text{Equity Dividend}}$				
	1.6	=	$\frac{\text{EAT}}{1,75,000}$				
	EAT	=	1.6 × 1,75,000			=	₹2,80,000
k.	Number of Equity shares	=	$\frac{\text{EAT}}{\text{EPS}}$	=	$\frac{2,80,000}{3.5}$	=	80,000
l.	Equity share capital	=	80,000 shares × ₹10			=	₹8,00,000
	Reserves & surplus	=	13,95,000 – 8,00,000			=	₹5,95,000

SUGGESTED REVISION

Ques. No.	Observations or KEY Points (Note down during revisions)	Page No. of Practical Register	1st & 2nd Revision	3rd, 4th & 5th Revision	Revision during Exams
BQ (Book Questions covering Study Module of ICAI, PM, RTP's, MTP's and Important Questions)					
1			Y	-	-
2			Y	-	-
3			Y	Y	-
4			Y	Y	-
5			Y	Y	-
6			Y	Y	-
7			Y	Y	Y
8			Y	Y	-
9			Y	Y	-
10			Y	Y	-
11			Y	Y	Y
12			Y	-	-
13			Y	Y	-
14			Y	Y	-
15			Y	Y	Y
16			Y	Y	Y
17			Y	Y	Y
18			Y	Y	Y
19			Y	Y	Y
20			Y	-	-
21			Y	Y	Y
22			Y	Y	Y
23			Y	Y	Y
24			Y	Y	Y
25			Y	Y	Y
26			Y	Y	Y
27			Y	-	-
28			Y	-	-
29			Y	Y	Y
30			Y	Y	Y
31			Y	Y	Y
32			Y	Y	-
33			Y	-	-
34			Y	-	-
35			Y	Y	-
PYQ (Past Year Questions)					
1			Y	-	-
2			Y	-	-
3			Y	-	-
4			Y	Y	Y
5			Y	-	-
6			Y	Y	-
7			Y	Y	-
8			Y	Y	-
9			Y	Y	Y
10			Y	Y	-
11			Y	Y	Y-
12			Y	Y	Y

13			Y	Y	Y
14			Y	Y	-
15			Y	Y	-
16			Y	Y	-
17			Y	-	-
18			Y	-	-
19			Y	Y	-
20			Y	-	-
21			Y	Y	-
22			Y	Y	-
23			Y	Y	-
24			Y	Y	-
25			Y	-	-
26			Y	Y	-
27			Y	Y	Y
28			Y	Y	-
29			Y	Y	-
30			Y	Y	-
31			Y	Y	-