INDEX (Part-II: Financial Management)

Topics Covered in Theory Book

Introduction (Financial Management)
Security Analysis
Theory related to all Practical Chapters

Chapter 1 Leverages

Q-1 A Firm has Sales of Rs. 40 Lakhs, Variable Cost of Rs. 25 Lakhs, Fixed Cost of Rs. 6 Lakhs, 10% Debt of Rs. 30 Lakhs, and Equity Capital of Rs. 45 Lakhs. Calculate Operating and Financial Leverage.

Q-2

Sales	Rs. 25,00,000
Fixed costs	Rs. 7,50,000

Variable expenses as a percentage of sales are 50%.
Calculate operating leverage.

Q-3

Sales	Rs. 30,00,000
Fixed costs	Rs. 15,00,000

Variable expenses as a percentage of sales are 25%.
Calculate operating leverage.

Q-4 Calculate the Operating Leverage from the following data:
Sales Rs. 1,00,000, Variable Costs 60%, Fixed Costs Rs. 24,000. **(CA Exam)**

Q-5 Compute Combined Leverage from the following data – (a) Earnings before Interest and Tax (EBIT) = Rs. 10,00,000, (b) Fixed Cost = Rs. 20,00,000, and (c) Earnings before Tax (EBT) = Rs. 8,00,000

Q-6 Annual Sales of a Company is Rs. 60,00,000. Sales to Variable Cost Ratio is 150% and Fixed Cost other than Interest is Rs. 5,00,000 per annum. The Company has 11% Debentures of Rs. 30,00,000. Calculate DOL, DFL and DCL of the Company.

Q-7 XYZ' company has a choice of the following three financial plans. You are required to calculate the financial leverage in each case

	Plan I	Plan II	Plan III
Equity capital	₹ 2,000	₹ 1,000	₹ 3,000
Debt	₹ 2,000	₹ 3,000	₹ 1,000
EBIT	₹ 400	₹ 400	₹ 400

Interest @10% per annum on debts in all cases **(ICSI Study Material)**

Q-8 The following details of Alpha Ltd. for the year ended 2010 are furnished:

Financial leverage	2:1
Operating leverage	3:1
Interest charges per annum	20 lakh
Corporate tax rate	40%
Variable cost as percentage of sales	60%

Prepare income statement of the company. **(CS June 2011)**

Q-9 Variable Cost is 66⅔% of Sales
Interest - Rs. 200
Tax - 50%
DOL = 5
DFL = 3
Prepare Income Statement

Q-10 Kumar Company has sales of ₹ 25,00,000. Variable cost of ₹ 15,00,000 and fixed cost of ₹ 5,00,000 and debt of ₹12,50,000 at 8% rate of interest. Calculate combined leverage. **(ICSI Study Material)**

Q-11 A Company operates at a production level of 5,000 units. The Contribution is Rs. 60 per unit, Operating Leverage is 6, Combined Leverage is 24. If Tax Rate is 30%, what would be its Earnings After Tax? **(CA May 2009)**

Q-12 A firm has a Degree of Operating Leverage (DOL) of 5 and Degree of Financial Leverage (DFL) of 4. The interest burden is Rs. 300 lakhs, variable cost as a % to sales is 75%, and the effective tax rate is 45%. Calculate fixed cost. **(CS Dec 2019)**

Q-13 The following data have been extracted from the books of LM Ltd:

Sales	Rs. 100 lakhs
Interest payable per annum	Rs. 10 lakhs
Operating leverage	1.2
Combined leverage	2.16

Calculate Fixed cost **(CA May 2018)**

Q-14 Calculate contribution with the help of following information

Operating Leverage	1.4 times
Combined Leverage	2.8 times
Income Tax Rate	30%
Fixed Cost (excluding Interest)	Rs. 2.04 Lakhs
Sales	Rs. 30.00 Lakhs

Q-15 The degree of financial leverage of a firm is 2 and degree of its operating leverage is 4. Fixed cost is Rs. 60,000 and variable cost as a percentage of sales is 60. Applicable tax rate is 30%. Earning after tax (EAT) of the firm will be: **(CS June 2022)**

Q-16

	ABC Ltd	*XYZ Ltd*
Sales (Rs.)	40 lakh	50 lakh
Variable expense (as % of sales)	40%	30%
Fixed cost (Rs.)	10 lakh	20 lakh

Which company has the greater business risk and why? **{CS December 2015(P)}**

Q-17 From the following selected operating data, determine the degree of operating leverage. Which company has the greater amount of business risk? Why? **(ICSI Study Material)**

	Company A	Company B
Sales	25,00,000	30,00,000
Fixed Costs	7,50,000	15,00,000

Variable expenses as a percentage of sales are 50% for company A and 25% for company B.

Q-18 AXN Co. Ltd., has two products X and Y. Y's selling price @ 120% of X and sales volume of 'X' as 150% of Y's sales of 3,00,000 units @ 90 per unit. The variable cost per unit 'X' and 'Y' is 70 and 88 respectively and Fixed Cost 8.50 lakh per annum. Calculate operating leverage : **(CS Dec 2021)**

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Q-19 The following data is available for XYZ Ltd.:

Sales	Rs. 2,00,000
Less: Variable cost @ 25%	50,000
Contribution	1,50,000
Less: Fixed Cost	1,00,000
EBIT	50,000
Less: Interest	10,000
Profit before tax	40,000

Find out:

(a) Using the concept of operating leverage, by what percentage will EBIT increase if there is 10% increase in sales?

(b) Using the concept of financial leverage, by what percentage will the taxable income increase if EBIT increases by 6%?

(c) Using the concept of leverage, by what percentage will the taxable income increase if the sales increase by 8%.

Q-20 Consider the following information for Omega Ltd.

EBIT (Earnings before Interest and Tax	Rs. 15,750 Lakhs
Earnings before Tax (EBT)	Rs. 7,000 Lakhs
Fixed Operating Costs	Rs. 1,575 Lakhs

Calculate Percentage Change in Earnings Per Share, if Sales increase by 5%. **(CA Nov 2007)**

Q-21 From the following data of Abhishek Ltd. as on 30th September, 2006, compute the combined leverage and percentage change in earnings per share (EPS), if sales are expected to increase by 5%:

	Rs.
Earnings before interest and tax (EBIT)	10 lakh
Profit before tax (PBT)	4 lakh
Fixed cost	6 lakh

(CS Dec 2006)

Q-22

Sales	Rs. 1,00,000
Variable cost ratio	80%
Fixed cost	Rs. 15,000

The company wants to increase it EBIT by 40%, how much percentage increase in sales is required?

Q-23

Sales	Rs. 20,00,000
Variable cost	60%
Fixed operating cost	Rs. 4,00,000

The company wants to triple its EBIT. What change in sales should the company target?

Q-24 A firm has sales of Rs. 10 lacs and fixed cost of Rs. 1.5 lacs. Contribution margin is 30%. It has 10% debt of Rs. 8 lacs.

Also find out that if the firm wants to double the EBIT, how much percent increase in sales is needed? **{CS June 2017(P)}**

Q-25

Sales	Rs. 20,00,000
Variable cost	60%
Fixed operating cost	Rs. 4,00,000
Interest	Rs. 2,00,000

The company wants to quadruplicate its EPS. What change in EBIT should the company target.

Q-26 XYZ Ltd. decides to use two financial plans and they need ₹ 50,000 for total investment.

Particulars	Plan A	Plan B
Debenture (interest at 10%)	₹ 40,000	₹10,000
Equity share (₹ 10 each)	₹ 10,000	₹40,000
Total investment needed	₹ 50,000	₹ 50,000
Number of equity shares	1,000	4,000

The earnings before interest and tax are assumed at ₹ 5,000, and 12,500. The tax rate is 50%. Calculate the EPS **(ICSI Study Material)**

Q-27 ABC Ltd. has an average selling price of Rs.10 per unit. Its variable unit costs are Rs.7 and fixed costs amount to Rs.1,70,000. It finances all its assets by equity funds. It pays 30% tax on its income. PQR Ltd. is identical to ABC Ltd. except in respect of the pattern of financing. The latter finances its assets 50% by equity and 50% by debt, the interest on which amounts to 20,000. Determine the degree of combined leverage at Rs. 7,00,000 sales for both the companies. **{CS December 2016(P)}**

Q-28 Calculate the operating, financial and combined leverage under situations 1 and 2 and the financial plans for X and Y respectively from the following information relating to the operating and capital structure of a company, and also find out highest and the least value of Combined Leverage? Installed capacity is 5,000 units. Annual production and sales at 60% of installed capacity.

Selling price per unit	Rs. 25
Variable cost per unit	Rs. 15

Fixed Cost:

Situation '1'= Rs. 10,000 Situation '2' = Rs. 12,000

Capital Structure of the Company is as follows:

	Financial Plans	
	X(Rs.)	Y(Rs.)
Equity	25,000	50,000
Debt (Cost of Debt 10%)	50,000	25,000
	75,000	75,000

(Study Material)

Q-29 XYZ and Co. has three financial plans before it. Calculate Operating & Financial Leverage for the firm and also find out the highest and lowest value of combined leverage.

Installed Capacity (units)	1,200			
Production	800 unit			
Selling Price per unit	Rs. 15			
Variable Cost per unit	Rs. 10			
Fixed Cost:				
Situation A	1,000			
Situation B	2,000			
Situation C	3,000			
Capital Structure	Plan I	Plan II	Plan III	
Equity Capital	5,000	7,500	2,500	
12% Debt	5,000	2,500	7,500	**(Study Material; CA Exam)**

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Q-30 Selling price per unit - Rs. 100 Variable cost per unit - Rs. 80
Fixed cost Rs. 50,000
Calculate operating break even point (units).

Q-31 Selling price per unit - Rs. 100 Variable cost per unit - Rs. 80
Fixed cost Rs. 50,000
Calculate operating break even point (₹)

Q-32 Selling price per unit Rs. 1,000
Variable cost ratio 80%
Fixed cost Rs. 1,00,000
Calculate operating break even point (₹)

Q-33 Selling Price per unit - Rs 1,000; Variable cost per unit - Rs. 600; Fixed cost - Rs. 50,00,000

a. Compute the operating BEP
b. Compute the DOL, assuming that the sales is
   i. 12,500 units
   ii. 20,000 units
   iii. 40,000 units **(CA Exam)**

Q-34 Selling Price per unit- Rs 10; Variable cost per unit - Rs. 4; Fixed cost - Rs. 4,00,000
The company has 10% Bonds of Rs. 20,00,000

a. Compute the Financial BEP
b. Compute the DFL, assuming that the sales is
   i. 1,00,000 units
   ii. 1,50,000 units
   iii. 4,00,000 units **(CA Exam)**

Q-35 Selling price per unit Rs. 50
Variable cost per unit Rs. 30
Fixed cost Rs. 5,00,000
10% Debentures Rs. 10,00,000
Calculate overall break even point (units)

Q-36 Selling price per unit Rs. 50
Variable cost per unit Rs. 30
Fixed cost Rs. 5,00,000
10% Debentures Rs. 10,00,000
Calculate overall break even point (₹)

Q-37 A firm has sales of Rs. 75,00,000, variable cost of Rs. 42,00,000 and fixed cost of Rs. 6,00,000. It has a debt of Rs. 45,00,000 at 9% and equity of Rs. 55,00,000.

i. What is the firm's ROI?
ii. Does it have favourable financial leverage?
iii. If the firm belongs to an industry whose asset turnover is 3, does it have a high or low asset leverage?
iv. What are the operating, financial and combined leverages of the firm?
v. If the sales drop to Rs. 50,00,000 what will be the new EBIT?
vi. At what level of Sales, the EBT of the firm will be equal to zero? **(CA May 1997)**

Q-38 The following details of ABC Limited for the ended 31st March, 2009 are given below –

Operating Leverage	1.4 times
Combined Leverage	2.8 times
Income Tax Rate	30%
Fixed Cost (excluding Interest)	Rs. 2.04 Lakhs
Sales	Rs. 30.00 Lakhs
12% Debentures of Rs. 100 each	Rs. 21.25 Lakhs
Equity Share Capital of Rs. 10 each	Rs. 17.00 Lakhs

Required:

1. Calculate – (a) Financial Leverage, (b) PV Ratio, and (c) Earning Per Share (EPS).
2. If the Company belongs to an industry, whose Assets Turnover is 1.5, does it have a high or low Assets Leverage?
3. At what level of Sales, the Earning Before Tax (EBT) of the Company will be equal to Zero?

(CA May 2007)

Q-39 Use the following data and solve the problem:

Total Sales	150000 Units.
Selling Price	Rs. 25
Fixed Cost	Rs. 280000
Variable Cost	Rs. 20
Debt	Rs. 10,00,000 @ 11% interest rate
Equity	Rs. 20,00,000
Face value of each share	Rs. 10
Tax rate	45%

a) How much the company's sale have to come down so that the earnings before taxes is equal to zero?
b) If EBIT doubles, what will be the new level of EBT?
c) What are the operating and combined leverages?
d) If the Assets turnover of the industry is 0.75, does the firm have a high or low degree of asset turnover? **(CA Exam)**

Q-40 ABC Limited has the following capital structure and want to know its Financial Break Even Point

Equity shares (FV = ₹ 100)	₹ 5,00,000
12% Preference Shares (FV = ₹ 100)	₹ 5,00,000
10% Debentures (FV = ₹ 100)	₹ 10,00,000
Tax Rate 40%	**(ICSI Study Material)**

Q-41 The following figures are available for ABC Ltd.:

Net sales	Rs. 15 crores
EBIT as percentage of Net Sales	12%

Capital employed: (a) Equity Rs. 5 crores: (b) Preference Shares of Rs. 1 crore bearing 13% Rate of Dividend: (c) Debt @ 15% Rs. 3 crores.
Given that its Combined Leverage = 3
The applicable Income Tax is to be taken as 40%.
You are required to calculate: (i) The Return on Equity of the company: and (ii) the Financial Leverage of the company (iii) the Operating Leverage of the company. **(CA Exam)**

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Q-42 The following is the income statement of XYZ Ltd. For the year ended 2008:

	In Rs Lacs
Sales	50
Less: Variable cost	10
Fixed cost	20
EBIT	20
Less: Interest	5
Profit before tax	15
Less: Tax at 40%	6
Profit after tax	9
Less: Preference dividend	1
Profit for equity shareholder	8

The company has 4 lacs equity shares issued to the shareholder.
Find out:
(a) DOL (b) DFL (c) DCL
(d) What would be the EPS if the sales level increases by 10% and the EPS if the sales level decreases by 20%. **(CA Exam)**

Q-43 The net sales of ABC Ltd. is Rs. 30 crore. Earning before interest and tax of the company as a percentage of net sales is 15%. The capital employed comprise of :

Equity	Rs. 12 crore
13% cumulative pref. shares	Rs. 5 crore
Debentures @ 15%	Rs. 6 crore

Calculate operating leverage of the company given that combined leverage is 3. **{CS Dec 2017 (P)}**

Q-44 Calculate Earning before interest and tax with the help of following information:
The operating leverage is 2.50.
The financial leverage is 3.00.
The earnings per share is Rs. 30.
Present market price per share is Rs. 225.
Applicable tax rate is 33.0357%.
Number of equity shares outstanding as of date are 20,000. **{CS June 2018(P)}**

Q-45 The balance sheet of XYZ Company is given as under:

Liabilities	Amount	Assets	Amount
Equity Capital (Rs. 10 per share)	90,000	Net Fixed Assets	2,25,000
10% long term debt	1,20,000	Current Assets	75,000
Retained earnings	30,000		
Current liabilities	60,000		
	3,00,000		**3,00,000**

The Company's total assets turnover ratio is 3.00, its fixed operating cost is Rs.1,50,000 and its variable operating cost ratio is 50%. The income tax rate is 50%.
(a) Calculate operating leverage (b) Calculate financial leverage (c) Calculate combined leverage
(d) Determine the likely level of EBIT, if EPS is – (a) Rs. 1, (b) Rs. 2, and Rs. 0.

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Q-46 DIGI Computers Ltd. is a manufacturer of computer systems. The company is marketing its products in domestic as well as global markets. It has total sales of Rs.1 crore. Its variable and fixed costs amount to Rs. 60 lakh and Rs.10 lakh respectively. It has borrowed Rs.60 lakh @ 10% per annum and has an equity capital of Rs.75 lakh.

i. What is company's return on investment?
ii. Does it have favourable financial leverage?
iii. If the firm belongs to an industry whose asset turnover is 1, does it have high or low asset leverage?
iv. What are the operating, financial and combined leverages of the firm?
v. If sales drop to Rs.50 lakh, what will be the new EBIT? **(CS Dec 2005)**

Q-47 The capital structure of Neel Ltd. is as under:

Equity + Reserves & Surplus	Rs. 200 Lakhs
10% Preference shares	Rs. 50 Lakhs
12% Term loans	Rs. 150 Lakhs

What should be the approx. Earnings Before Interest and Taxes (EBIT) so that Earnings Per Share (EPS) is 0 (Nil)? Assume Tax Rate 35%. **(CS Dec 2019)**

Q-48 Compute the degree of financial leverage for each of the companies Tattoos Ltd. and Gherkins Ltd. based on the following information:

	Tattoos Ltd.	Gherkins Ltd.
Earnings Before Interest and Tax	Rs. 50,000	Rs. 1,25,000
Debentures @ 8%	Rs. 2,50,000	Rs. 3,00,000
Preference share capital @ 10%	Rs. 1,00,000	Rs. 1,50,000
Tax Rate	35%	35%

{CS Dec 2020 (P)}

Q-49

Operating Leverage	2
Combined Leverage	3.5
EBIT	Rs. 2,80,000
Interest	Rs. 40,000
Tax rate	50%

Calculate Preference Dividend

Q-50 The following summarizes the percentage changes in operating income, percentage changes in revenues, and betas for four pharmaceutical firms.

Firm	Change in revenue	Change in operating income	Beta
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:

a. Calculate the degree of operating leverage for each of these firms. Comment also.
b. Use the operating leverage to explain why these firms have different beta. **(CA Nov 2004)**

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Chapter 2 EBIT-EPS Analysis

Q-1 Calculate Earning per share with the help of following information

Earning before interest and tax	Rs. 1,00,000
10% debt	Rs. 3,00,000
Tax rate	40%
Number of equity shares	10,000

Q-2 Calculate Earning per share with the help of following information

Earning before interest and tax	Rs. 5,00,000
15% debt	Rs. 30,00,000
Tax rate	30%
Equity share capital	Rs. 1,00,000

Q-3 Calculate Earning per share with the help of following information

Earning before interest and tax	Rs. 10,000
10% debt	Rs. 50,000
12% Preference share capital	Rs. 20,000
Tax rate	30%
Number of equity shares	1,000

Q-4 Calculate Earning per share with the help of following information

Earning before interest and tax	Rs. 2,00,000
10% debt	Rs. 5,00,000
15% Preference share capital	Rs. 1,00,000
Tax rate	40%
Equity share capital	Rs. 2,00,000

Q-5

	Plan A	Plan B
10% Debt (Rs.)	200 lakh	Nil
Equity share capital (Rs.)	100 lakh	300 lakh
Tax rate	35%	35%

Calculate Indifference point between two plans

Q-6 A project requires a capital outlay of Rs. 400 Lakhs. The required amount can be raised either by issuing equity shares of the face value of Rs. 400 Lakhs, or by issuing equity shares to the extent of Rs. 200 Lakhs and acquiring 15% debt of Rs. 200 Lakhs. Assuming a tax rate of 40%, the indifference point of both the financing options will be: **(CS June 2022)**

Q-7 A new project under consideration requires a capital outlay of Rs. 300 lakh for which the funds can either be raised by issue of equity shares of Rs. 100 each for the entire sum or by issue of equity shares to the tune of Rs. 200 lakh and by issue of 15% loan of Rs. 100 lakh. Find out the indifference level of EBIT, if the tax rate is 50%. **{CS December 2016(P)**

Q-8 A new project is under consideration in ZIP Ltd, which requires a capital investment of Rs. 4.50 crores. Interest on term loan is 12% and corporate tax rate is 50%. If the debt equity ratio insisted by the financing agencies is 2:1. Face value of a share is Rs. 10. Calculate the point of indifference for the project. **(CA May 2008)**

Q-9

	Plan A	Plan B
10% Debt (Rs.)	2,00,000	Nil
15% Preference share capita (Rs.)	Nil	Rs. 2,00,000
Number of equity shares	10,000	5,000
Tax rate	40%	40%

Calculate Indifference point between two plans

Q-10 Calculate the level of EBIT at which the EPS Indifference Point between the following financing alternatives will occur –

i. Equity Share Capital of Rs. 6,00,000 and 12% Debentures of Rs. 4,00,000 [or]

ii. Equity Share Capital of Rs. 4,00,000, 14% Preference Share Capital of Rs. 2,00,000 and 12% Debentures of Rs. 4,00,000.

Assume that Corporate Tax Rate is 35% and par value of Equity Share is Rs. 10 in each case.

(CA May 2003) {(Similar Question was asked in CS Dec 2021 (P)}

Q-11 Monark Ltd. is considering two alternative financial plans to start a new project. In plan-I, it is likely to issue equity shares of Rs. 16 lakh and 13% preference capital of Rs. 4 lakh. In plan II, the company will issue equity shares of Rs. 8 lakh, 13% preference capital of Rs. 4 lakh, and 15% debentures of Rs. 8 lakh. The face value of equity shares in both plans is Rs. 10. Tax rate is 30%.

You are required to determine level of EBIT at which the EPS would be same under both the plans.

{(CS Dec 2009) (P)}

Q-12 X Ltd. is considering the following two alternative financing plans :

Particulars	(Rs.) Plan I	(Rs.) Plan II
Equity shares @ Rs. 10 each	8,00,000	8,00,000
12% Debentures	4,00,000	—
Preference shares @ Rs. 100 each	—	4,00,000
Total	12,00,000	12,00,000

The Earning Before Interest and Tax (EBIT) at indifference point between the plans is Rs. 4,80,000. Corporate tax rate is 30%. Calculate the rate of dividend on preference shares. **{(CS June 2019 (P)}**

Q-13 Super Ltd. is considering three financing plans—

Financial Plans	Equity	Debt	Preference
A	100%	—	—
B	50%	50%	—
C	50%	—	50%

→ Total funds to be raised - Rs. 200 crore.

→ Rate of interest on debt - 12%.

→ Corporate tax rate - 35%.

→ Dividend on preference shares - 9%.

→ Face value of equity shares - Rs. 10 each. These shares will be issued at a premium of Rs. 10 per share.

→ Expected EBIT - Rs. 80 crore.

Determine—

(i) EPS and financial break-even point for each plan.

(ii) Indifference points between financial plans A and B; and A and C. **(CS June 2000)**

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Q-14

	Plan A	Plan B
10% Debt (Rs.)	2,00,000	Nil
15% Preference share capita (Rs.)	Nil	Rs. 2,00,000
Number of equity shares	10,000	10,000
Tax rate	40%	40%

Calculate Indifference point between two plans

Q-15 S Ltd. is considering three finance plans. Total investments required is Rs. 2,00,000.

Plan	Equity	Debt	Preference Shares
A	100%	—	—
B	50%	50%	—
C	50%	—	50%

Cost of debt: 8%
Cost of preference shares: 8%
Tax rate: 30%
Equity shares of face value of Rs. 10 each will be issued at a premium of Rs. 10 per share.
Expected EBIT is Rs. 80,000.
You are required to calculate for each finance plan –

(i) Earnings per share (EPS); and
(ii) Calculate Indifference point between various financial plans **(CS June 2009)**

Q-16 Jakarta Ltd. is considering financing an expansion project of Rs. 100 lakh. The finance manager has worked out the two options. The present tax rate applicable to company is 30%. The details of present position and different financing plans are as under.

Particulars	**Present position and Financial plans**
Present	20 lakh equity shares and debentures of Rs. 50 lakh carrying interest rate 8%
Plan A	Issue of Equity shares at the rate of Rs. 12.50. The expected Price earnings Ratio: 14
Plan B	Issuance of Debentures carrying interest rate 14%. The expected Price earnings Ratio: 12

From the above information, calculate the Indifference point at which EPS would be the same by both plan. **{CS June 2018(P)}**

Q-17 Sales and earnings before interest and taxes for the XYZ Company during 2002, were Rs. 17,50,000 and Rs. 4,50,000, respectively. During 2002, interest expense was Rs. 4,000 and preferred dividends were Rs. 10,000. These fixed charges are expected to continue during 2003. An expansion is planned, which will require Rs. 1,75,000 and is expected to increase EBIT by Rs. 1,00,000 to Rs. 5,50,000.
The firm is considering the following financing alternatives:

(a) Issue 5,000 shares of common stock to net the firm Rs. 35 per share. The firm currently has 40,000 shares of common stock outstanding.
(b) Issue Rs. 1,75,000 of fifteen-year bonds at 8%. Sinking fund payments on these bonds will commence in 2012.
(c) Issue Rs. 1,75,000 of 8.5% preferred stock.

Assume a 50% income tax rate.

(i) Calculate the EPS for 2003 at the expected earnings before interest and taxes level of Rs. 5,50,000 of each financing alternative.
(ii) Calculate the equivalency level of earnings before interest and taxes between the debt and common stock alternatives.
(iii) Calculate the equivalency level of earnings before interest and taxes between the preferred stock and common stock alternatives. **{Study Material; {CS December 2014(P); 8 marks}**

Chapter 3 Optimal Capital Structure

Q-1 One – up Ltd. has equity share capital of Rs. 500,000 divided into shares of Rs. 100 each. It wishes to raise further Rs. 300,000 for expansion – cum – modernization scheme. The company plans the following financing alternatives:

(i) By issuing equity shares only.
(ii) Rs. 100,000 by issuing shares and Rs. 200,000 through debentures or term loan @ 10% per annum.
(iii) By raising term loan at 10% per annum.
(iv) Rs. 100,000 by issuing equity shares and Rs. 200,000 by issuing 8% preference shares.

You are required to suggest the best alternative giving your comment assuming that the estimated 'earnings before interest and taxes' (EBIT) after expansion is Rs. 1,50,000 and corporate tax is 35%. **(CS Dec 1999)**

Q-2 Govinda Entertainers Ltd. has 10,00,000 shares of Rs. 10 each with market price of Rs. 50 per share. It has also issued bonds for Rs. 4 crore @ 12% per annum. It is considering an expansion plan and needs to mobilize Rs. 5 crore.

The alternatives being considered are —

(i) Issue equity at Rs. 40 per share.
(ii) Issue straight bonds at 10% per annum,
(iii) Issue preference shares @ 12% per annum.
(iv) Finance 50% with equity at Rs. 40 per share and 50% with bonds @ 10% per annum.

The company is in tax bracket of 35%. If the company is hopeful of generating an EBIT of Rs. 2.50 crore after expansion, which method of financing is the best from shareholders' view point? What more information is required if the market price of equity shares is the criterion for decision making?

Q-3 Bhaskar Manufacturers Ltd. has equity share capital of Rs. 5,00,000 (face value Rs. 100). To meet the expenditure of an expansion programme, the company wishes to raise Rs. 3,00,000 and is having following four alternative sources to raise the funds:

Plan A : To have full money from the equity shares.
Plan B : To have Rs. 1 lakh from equity and Rs. 2 lakhs from borrowing from the financial institutions @ 10% pa
Plan C : Full money from borrowing @ 10% per annum.
Plan D : Rs. 1 lakh in equity and Rs. 2 lakh from preference shares @ 8% per annum dividend.

The company is having present earnings (EBIT) of Rs. 1,50,000. The corporate tax is 50%. Suggest a suitable plan of the above four plans to raise the required funds.

Q-4 The capital structure of Asha Ltd. is as under:

	Rs.
Equity shares of Rs. 100 each	40,00,000
Retained earnings	20,00,000
8% Preference shares	24,00,000
7% Debentures	16,00,000
	1,00,00,000

The company earns 12% on its capital.

The tax rate applicable is 35%. The company requires a sum of Rs. 50,00,000 for which following options are available to it:

i. Issue of 40,000 equity shares at a premium of Rs. 25 per share,
ii. Issue of 9% preference shares
iii. Issue of 8% debentures

It is estimated that the P/E ratios in the cases of equity share, preference share and debenture financing would be 22.5, 18.5 and 15.2 respectively. Which of the three financing alternatives would you recommend and why? **(CS June 2004)**

Q-5 The capital structure of Asha Ltd. is as under:

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

The company earns 12% on its capital.
The tax rate applicable is 50%. The company requires a sum of Rs. 25,00,000 to finance its expansion programme for which following alternatives are available to it:

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

It is estimated that the P/E ratios in the cases of equity share, preference share and debenture financing would be 21.4, 17.0 and 15.7 respectively.
You are required to evaluate each proposal and recommend the best alternative. **(CS Dec 2004)**

Q-6 Triplex Company Limited is considering an expansion programme which is expected to cost Rs. 10,00,000. The company can finance it either through debt or through equity. Its current financing pattern is given as below:

	Rs.
Equity Capital (50,000 shares @ Rs. 10 each)	5,00,000
Reserves and Surplus	2,00,000
Debt (10%)	3,00,000
	10,00,000

The latest income statement reveals the following information:

	Rs.
Sales	64,00,000
Less: Total costs	59,00,000
EBIT	5,00,000
Less: Interest	30,000
EBT	4,70,000
Less: Income-tax @ 50%	2,35,000
EAT	**2,35,000**

The expansion programme is expected to generate additional sales of Rs. 16,00,000 with a return of 15% on sale, before interest and taxes. If the expansion is financed through debt, the rate of new debt will be 12% and the price earning ratio will be 4 times. IF the expansion programme is financed through equity shares i.e. the new shares can be sold at a price of Rs. 40 and the price to earning ratio will be 5 times.
Which form of financing should the company choose if the objective of financing management in the company is maximization of shareholders wealth. **{(CS Dec 2014 (P)}**

Q-7 Earnings before interest and tax of a Company are ₹ 4,50,000. Currently the company has 80,000 equity shares of Rs. 10 each, retained earnings of Rs. 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 Rs. 6,00,000. It is anticipated that after expansion, the company will be able to achieve the same return on investment as at present.
It can raise fund either through debts at rate of 12% p.a. or by issuing equity shares at par. Tax rate is 40%.
Required:
Compute the earning per share if:
(i) The additional funds were raised through debts.
(ii) The additional funds were raised by issue of equity shares

Advise whether the company should go for expansion plan and which sources of finance should be preferred. **(CA December 2021)**

Q-8 X & Co. needs Rs. 10,00,000 for construction of a new plant for which it has three financing plans. The company wants to maximize EPS. Currently, the equity share is selling for Rs. 30 per share. The EBIT resulting from the plant operations are expected to run about Rs. 1,80,000 per year. Tax rate is 50%. Money can be borrowed at the rates indicated as under:

Upto Rs. 1,00,000 at 10%
Over Rs. 1,00,000 and upto Rs. 5,00,000 at 14%
Over Rs. 5,00,000 at 18%

If fund in excess of Rs. 5,00,000 are borrowed, the company anticipates a drop in the price of equity to Rs. 25 per share. The three financing plans are as follows:

Plan A - Use Rs. 1,00,000 debt
Plan B - Use Rs. 3,00,000 debt
Plan C - Use Rs. 6,00,000 debt

You are required to determine the EPS for these three plans and indicate the financial plan which will result in the highest EPS.

Q-9 A company needs Rs. 12,00,000 for the installation of a new factory, which would yield annual EBIT of Rs. 2,00,000. The company has the objective of maximizing the earnings per share. It is considering the possibility of issuing equity shares plus raising a debt of Rs. 2,00,000, Rs. 6,00,000 or Rs. 10,00,000. The current market price per share is Rs. 40, which is expected to drop to Rs. 25 per share if the market borrowings were to exceed Rs. 7,50,000.

Costs of borrowings are indicated as under:

Up to Rs. 2,50,000	10% p.a.
Between Rs. 2,50,000 and Rs. 6,25,000	14% p.a.
Between Rs. 6,25,001 and Rs. 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. **(Ans: EPS (Rs.) = 3.60, 4.20, 3.91; Borrowing Rs. 6,00,000 is the best)**

Q-10 The particulars relating 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:

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

Raj Ltd has decided to undertake an expansion project to use the market potential that will involve ₹ 20 lakhs. The company expects an increase in output by 50%. Fixed cost will be increased by Rs. 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

Current market price per share is ₹ 200.

Slab wise interest rate for fund borrowed is as follows:

Fund Limit	**Applicable interest rate**
Up-to ₹ 5,00,000	10%
Over ₹ 5,00,000 and Up-to ₹ 10,00,000	15%
Over ₹ 10,00,000	20%

Find out which of the above-mentioned alternatives would you recommend for Raj Ltd. with reference to the EPS, assuming a corporate tax rate is 40%? **(CA May 2022)**

Q-11 Alpha Company is contemplating conversion of 500 14% convertible bonds of Rs. 1,000 each. Market price of the bond is Rs. 1080. Bond indenture provides that one bond will be exchanged for 10 shares. Price earning ratio before redemption is 20:1 and anticipated price-earning ratio after redemption is 25:1. Number of shares outstanding prior to redemption are 10,000. EBIT amounts to Rs. 2,00,000. The company is in the 35% tax bracket. Should the company convert bond into shares. Give reasons.

(CS Dec 2002; Dec 2001; Dec 1998)

God is all knowing. Without even saying a word our condition is known to God - Sant Rajinder Singh Ji

Chapter 4 Capital Structure Theories

Q-1 Happy-Day Industries Inc. is financed entirely with 100,000 shares of common stock selling at Rs. 50 per share. The firm's EBIT is expected to be Rs. 400,000. The firm pays 100% of its earnings as dividends. Using the NI approach, compute overall cost of capital.

Q-2 ABC Ltd. is expecting an annual Earnings before the payment of Interest and Tax of Rs. 2 lacs. The company in its capital structure has Rs. 8 lacs in 10% debentures. The cost of equity or equity capitalization rate is 12.5%. You are required to calculate the value of firm according to NI Approach.

Q-3 Super manufacturing company expects to earn net operating income of INR 1,50,000 annually. The company has INR 6,00,000, 8% debentures. The cost of equity capital of the company is 10%. What would be the value of the company? Also calculate overall cost of capital. Use Net Income Approach **(ICSI Study Material)**

Q-4 Find out the value of the Magic Limited with the help of given information:

Particulars	Amount (Rs.)
Earnings Before Interest and Tax	350000
Cost of Equity	10%
Cost of Debt	7.2%
Debenture	100000

Find out the overall cost of capital with the help of net income approach. (Assume tax rate-10%) **(ICSI Study Material)**

Q-5 Compute the value of Elite limited from the following figures. Further, assume that the proportion of debt increases from US$300,000 to US$400,000, and everything else remains the same what will be the value of the company? Use Net Income Approach

Particulars	Amount (US$)
Earnings before Interest and Tax (EBIT)	100000
Bonds (Debt part)	300000
Cost of bonds issued (Debt)	10%
Cost of Equity	14% **(ICSI Study Material)**

Q-6 Ample limited operating income (EBIT) is Rs.5,00,000. The firm's cost of debt is 10% and currently the firm employ Rs.15,00,000 of debt. The overall cost of capital of the firm is 15%. You are required to calculate:

(i) Total value of firm (ii) Cost of equity

Use Net Operating Income Approach **(ICSI Study Material)**

Q-7 DEF Ltd. is expecting an Earning before interest & tax of Rs. 4,00,000 and is an all equity company. Using the NOI approach and an overall cost of capital of 10%, compute the cost of equity.

Q-8 Bliss limited has an EBIT of Rs. 4,00,000 and belongs to a risk class of 10% i.e. its overall cost of capital is 10%. What is the value of equity capital if it employees 5% debt to the extent of 30%, 40% or 50% of the total capital of Rs. 20,00,000? Assume that Net Operating Income approach applies. **(ICSI Study Material)**

Q-9 A ltd. and B ltd. are identical except for capital structures. A ltd. has 50 percent debt and 50 percent equity, whereas B ltd. has 20 percent debt and 80 percent equity. It is to be noted that all percentages are in market-value terms. The borrowing rate for both companies is 8 percent in a no-tax world, and capital markets are assumed to be perfect.

(a) i) If you own 2 percent of the shares of A ltd., determine your return if the company has net operating income of Rs.3,60,000 and the overall capitalisation rate of the company, Ko is 18 percent?

(ii) Calculate the implied rate of return on equity?

(b) B ltd. has the same net operating income as A ltd.

(i) Determine the implied required equity return of B ltd.

(ii) Analyse why does it differ from A ltd. **(ICSI Study Material)**

Q-10 Sonam Ltd. has a total capitalization of Rs. 10,00,000. The financial manager of the firm wants to take a decision regarding the capital structure. After a study of the capital market, he gathers the following data:

Amount of Debt Rs.	**Interest Rate %**	**Equity Capitalization Rate (at given level of debt) %**
0	—	10.00
1,00,000	4.0	10.50
2,00,000	4.0	11.00
3,00,000	4.5	11.60
4,0,0000	5.0	12.40
5,00,000	5.5	13.50
6,00,000	6.0	16.00
7,00,000	8.0	20.00

What amount of debt should be employed by the firm if the traditional approach is held valid (and the firm always maintains its capital structure at book values)?
Assume that corporate taxes do not exist.

Q-11 XYZ Ltd., is expecting an EBIT of Rs. 3,00,000. The company presently raised its entire fund requirement of Rs. 20 lakhs by issue of equity with equity capitalization rate of 16%. The firm is now contemplating to redeem a part of capital by introducing debt financing. The firm has two options-to-raise debt to the extent of 30% or 50% of total funds. It is expected that for debt financing up to 30% the rate of interest will be 10% and equity capitalization rate is expected to increase to 17%. However, if firm opts for 50% debt then interest rate will be 12% and equity capitalization rate will be 20%. You are required to compute value of firm and its overall cost of capital under different options if the traditional approach is held valid. **(CS June 2004)**

Q-12 The following is the data regarding two companies X and Y belonging to the same risk class:

	Company X	**Company Y**
Number of ordinary shares	90,000	1,50,000
Market price per share (Rs.)	1.20	1.00
6% Debentures (Rs.)	60,000	—
Profit before interest (Rs.)	18,000	18,000

All profits after debenture interest are distributed as dividends.
Explain how under Modigliani & Miller approach, an investor holding 10% of shares in Company X will be better off in switching his holding to Company Y.

Q-13 Following data is available in respect of two companies having same business risk:

Capital employed	=	₹ 2,00,000	
EBIT	=	₹ 30,000	
Ke	=	12.5%	
Sources		**Levered Firm**	**Unlevered Firm**
Debt (@ 10)		1,00,000	30,000
Equity		1,00,000	2,00,000

Required:-

(i) Value of equity and firm

(ii) An investor is holding 15% shares in levered firm. Calculate increase in annual earnings of investor if he switches his holding from levered to unlevered firm.

Q-14 Two companies – P Ltd. and Q Ltd. belong to the equivalent risk group. The two companies are identical in every respect except that Q Ltd. is levered, while P Ltd. is unlevered. The outstanding amount of debt of the levered company is Rs. 6,00,000 in 10% debentures. The other information for the two companies are as follows:

	Q Ltd.	P Ltd.
Net operating income (EBIT) (Rs.)	1,50,000	1,50,000
Interest (Rs.)	—	60,000
Earnings to equity-holders (Rs.)	1,50,000	90,000
Equity capitalization rate, ke	0.15	0.20
Market value of equity (Rs.)	10,00,000	4,50,000
Market value of debt (Rs.)	—	6,00,000
Total value of debt (Rs.)	10,00,000	10,50,000
Overall capitalization rate, Ko = EBIT/V	15.0%	14.3%
Debt-equity ratio	0	1.33

An investor owns 5% equity shares of Q Ltd. Show the process and the amount by which he could reduce his outlay through use of the arbitrage process. Is there any limit to the 'process'?

(CS 2006 June)

Q-15

	M Ltd	N Ltd
EBIT	20,000	20,000
Debt	1,00,000	-
Ke	11.5%	10%
Kd	7%	-

An investor own 10% shares of M Ltd. Show the process by which he could reduce his outlay through the use of arbitrage process.

Q-16 Following data is available in respect of two companies having same business risk:

Capital employed	=	₹ 2,00,000	
EBIT	=	₹ 30,000	
Sources		**Levered company (₹)**	**Unlevered company (₹)**
Debt (@ 10)		1,00,000	Nil
Equity		1,00,000	2,00,000
Ke		20%	12.5%

An investor is holding 15% shares in Unlevered company. Calculate increase in annual earnings of investor if he switches his holding from Unlevered company to levered company.

Q-17 There are two companies U Ltd. and L Ltd., having same NOI of ₹ 20,000 except that L Ltd. is a levered company having a debt of ₹ 1,00,000 @ 7% and cost of equity of U Ltd and Ltd. are 10% and 18% respectively. Compute how arbitrage process will work.

Q-18 Let us take the case of two firms X and Y, similar in all respects except in their capital structure. Firm X is financed by equity only; firm Y is financed by a mixture of equity and debt. The financial parameters of the two firms are as follows:

Financial Particulars of Firms X and Y (Amount in ₹)

Particulars	Firm X	Firm Y
Total Capital Employed	10,00,000	10,00,000
Equity Capital	10,00,000	6,00,000
Debt	Nil	4,00,000
Net operating Income	1,00,000	1,00,000
Debt Interest	0	20,000
Market value of debt	0	4,00,000
Equity earnings	1,00,000	80,000
Equity capitalization rate	10%	12%
Market value of equity	10,00,000	6,66,667
Total market value of the firm	10,00,000	10,66,667
Average cost of capital	10%	9.37%
Debt-Equity ratio	0	0.6

Q-19 Company X and Company Y are in the same risk class, and are identical in every respect except that company X uses debt, while company Y does not. The levered firm has ₹ 4,50,000 debentures, carrying 10% rate of interest. Both the firms earn 20% operating profit on their total assets of ₹ 7,50,000. Assume perfect capital markets, rational investors and so on; a tax rate of 35% and capitalisation rate of 15% for an all-equity company.

Compute the value of company X and Y using the Net Income (NI) approach. **(CS Dec 2018)**

Chapter 5: Cost of Capital

Q-1 SK company has issued 12% perpetual debt for Rs. 5,00,000. The company is in tax bracket of 35%. Find after tax cost of debt if the debt is issued:
(1) At par (2) At a discount of 10% (3) at a premium of 10%.
(ICSI Study Material)

Q-2 X Ltd. Ltd. issues 9% debentures of face value Rs. 100 each and realize Rs. 90 per debenture. Calculate the cost of capital presuming income tax rate is 50%.

Q-3 SK Ltd. issued 10,000, 14% debentures of Rs. 100 each at a discount of 5%. The debentures are irredeemable. Cost of issue is 2% and the rate of tax is 50%. Calculate cost of capital before tax.
(ICSI Study Material)

Q-4 A Co. issues Rs. 2,00,000 10% redeemable debentures of Rs. 100 each at par. The cost of flotation is Rs. 5,000. The debentures are redeemable after 10 years. Find out before tax and after tax cost of debt capital assuming a tax rate of 50%. **(ICSI Study Material)**

Q-5 SK Co. is willing to issue 1,000 7% Debentures of Rs. 100 each and for which the company will have to incur the following expenses: Underwriting commission 1.5% Brokerage 0.5% Printing and Other Expenses Rs. 500. Assuming tax rate at 50% find out the cost of debt capital. **(ICSI Study Material)**

Q-6 A company is considering raising of funds of about Rs. 100 lakhs by one of two alternative methods, viz. 14% institutional term loan and 13% non – convertible debentures. The term loan option would attract no major incidental cost. The debentures would have to be issued at a discount of 2.5% and would involve cost of issue of Rs. 1 lakh. Advise the company as to the better option base on the effective cost of capital in each case. Assume a tax rate of 35%.

Q-7 ABC Ltd issued Rs. 100 Lakhs 12% Debentures of Rs. 100 each redeemable at par after 5 years. Calculate the cost of debt if debentures are issued at par with no floatation cost. Tax rate – 40%.

Q-8 ABC Ltd issued Rs. 100 Lakhs 12% Debentures of Rs. 100 each redeemable at par after 5 years. Calculate the cost of debt if debentures are issued at par with 5% floatation cost. Tax rate – 40%.

Q-9 ABC Ltd issued Rs. 100 Lakhs 12% Debentures of Rs. 100 each redeemable at par after 5 years. Calculate the cost of debt if debentures are issued at 10% premium with 5% floatation cost. Tax rate – 40%.

Q-10 ABC Ltd issued Rs. 100 Lakhs 12% Debentures of Rs. 100 each redeemable at par after 5 years. Calculate the cost of debt if debentures are issued at 10% discount with 5% floatation cost. Tax rate – 40%.

Q-11 ABC Ltd issued Rs. 100 Lakhs 12% Debentures of Rs. 100 each redeemable at a premium of 5% after 5 years. Calculate the cost of debt if debentures are issued at 10% discount with 5% floatation cost. Tax rate – 40%.

Q-12 ABC Ltd issued Rs. 100 Lakhs 12% Debentures of Rs. 100 each redeemable at a premium of 5% after 5 years. Calculate the cost of debt if debentures are issued at 10% premium with 5% floatation cost. Tax rate – 40%.

Q-13 SK Company issued 10,000 ten-years 8% Debentures of Rs. 100 each at 4% discount. Under the terms of Debentures Trust, these debentures are to be redeemed after 10 years at 5% premium. The cost of issue is 2%. Assuming tax rate at 50%, Calculate the cost of debt capital. **(ICSI Study Material)**

Q-14 SK Company issued 1,000 10% debentures of Rs. 100 each at a premium of 5%, with a maturity period of 10 years. The cost of issue is 2%. The tax rate applicable to the firm is 50%. Find out the cost of capital. **(ICSI Study Material)**

Q-15 A firm issues debentures worth Rs. 1,00,000 and realizes Rs. 98,000 after allowing 2% commission to brokers. They carry an interest rate of 10% and are due for maturity at the end of 10th year. The company has 40% tax bracket. Calculate cost of debt.

Q-16 X Limited issues its Bond at par @ Rs.1,000 per bond. These bonds will mature after 20 years at par and bears coupon rate of 10%. Coupons are annual. The bond will sell for par but flotation costs amount to Rs. 50 per bond. What is cost of debt for X Limited? Corporate tax rate is 34%.

Q-17 SK Co. Ltd. wishes to issue 1,000, 10% Debentures of Rs. 500 each for which the company will be required to incur the following expenses:
(a) Underwriting commission 2%, (b) Brokerage 0.5%, (c) Printing and other expenses Rs.7,500.
Calculate cost of capital (before tax as well as after tax) assuming the debt is issued:
(i) at 10% discount repayable after 10 years and
(ii) at 10% premium repayable after 10 years.
The tax rate is 45%. **(ICSI Study Material)**

Q-18 SK Company issued 10,000 10% Debentures of Rs. 100 each at a discount of 5%. The cost of issue is 2%. These debentures are redeemable after 10 years at a premium of 3%. Assuming corporate tax rate at 50%, calculate before tax and after tax cost of debt capital. **(ICSI Study Material)**

Q-19 SK Ltd. issued 5,000 12% debentures of Rs. 100 each at par, redeemable after 10 years at 10% premium. Cost of issue included administrative and other expenses Rs. 5,000 and commission 2%. Calculate cost of capital before and after tax (Tax Rate 40%). **(ICSI Study Material)**

Q-20 Calculate the cost of 10% preference capital of 10,000 preference shares whose face value is Rs.100. The market price of the share is currently Rs. 115.

Q-21 A limited company issues 8% preference shares which are irredeemable. The face value of share is Rs.100 but they are issued at Rs.105. The floatation cost is Rs.3 per share, calculate cost of capital.

Q-22 A company issues 10,000, 8% preference shares of Rs.100 each redeemable after 20 years at face value. The floatation costs are Rs.3 per share. Find case of capital.

Q-23 A Ltd. issued Rs. 10,00,000, 10% Preference shares of face value Rs. 100 each, which are redeemable after 10 years. Compute Kp if Preference Shares are issued at par and redeemable at par.

Q-24 A Ltd. issued Rs. 10,00,000, 10% Preference shares of face value Rs. 100 each, which are redeemable after 10 years. Compute Kp if Preference Shares are issued at par and redeemable at a premium of 10%.

Q-25 A Ltd. issued Rs. 10,00,000, 10% Preference shares of face value Rs. 100 each, which are redeemable after 10 years. Compute Kp if Preference Shares are issued at a discount of 10% and redeemable at par.

Q-26 A Ltd. issued Rs. 10,00,000, 10% Preference shares of face value Rs. 100 each, which are redeemable after 10 years. Compute Kp if Preference Shares are issued at a discount of 10% and redeemable at a premium of 10%.

Q-27 SK Ltd. has issued 8% 10,000 Preference Shares of Rs. 100 each and has incurred the following expenses: Underwriting Commission 2%, Brokerage 1%, Other Expenses Rs. 5,000. If the present company tax rate is 50%, what will be the cost of capital after tax and before tax? Also calculate cost of preference capital, if corporate dividend tax is 10%. **(ICSI Study Material)**

Q-28 SK Ltd. issued at par 10,000 10% Preference Shares of Rs. 100 each. These shares are redeemable after 10 years at a premium of Rs. 5 per share. The cost of issue is Rs. 2 per share. Find out the cost of preference capital. Assume 50% tax rate. **(ICSI Study Material)**

Q-29 SK Ltd. has issued 1,000 equity shares of Rs. 100 each as fully paid. It has earned a profit of Rs. 10,000 after tax. The market price of these shares is Rs. 160 per share. Find out the cost of equity capital before and after tax assuming a tax rate of 50% **(ICSI Study Material)**

Q-30 A company has currently 10,000 equity shares and its expected earnings for next year are Rs. 1,50,000. It's current market price is Rs. 112. Growth rate is expected to be 10%. Calculate the cost of equity.

Q-31 A company has currently 10,000 equity shares and its earnings are Rs. 1,50,000. It's current market price is Rs. 112 and the growth rate of EPS is expected to be 5%. Calculate the cost of equity. **(Study Material)**

Q-32 The following is an extract from the financial statements of ABC Ltd.

	(Rs. in lakhs)
Operating profit	105
Less: Interest on debentures	33
	72
Less: Income tax	36
Net profit	36
Equity share capital (Shares of Rs. 10 each)	200
Reserves and surplus	100
15% Non-convertible Debentures (of Rs. 100 each)	520

The market price per equity share is Rs. 12 and per debenture Rs. 93.75.

i. What is the earning per share?
ii. What is the percentage cost of capital of the company is for the debentures funds and the equity?

Q-33 Following are the extracts from financial statements of Zip way Ltd.:

	(Rs. in Lakhs)
Earnings before interest and tax	250
Less: Interest on debentures	50
Earnings before tax	200
Less: Income-tax (40%)	80
Net profit	120
Equity share capital (shares of Rs.l0 each)	500
Reserve and surplus	250
10% Non-convertible debentures	500
	1,250

The market price per equity share is Rs.l5 and per debenture is Rs.95.
Calculate the following:

a. earnings per share; and
b. percentage of cost of capital to the company for the debenture fund and the equity. **(CS 2005 Dec)**

Q-34 SK Ltd. has issued 20,000 equity shares of Rs. 100 each as fully paid. The present market price of these shares of Rs. 160 per share. The company has paid a dividend of Rs. 8 per share. Find out the cost of equity capital. **(ICSI Study Material)**

Q-35 Next expected dividend - Rs. 10; Company is expected to grow @ 5%;
Current market price of a share - Rs. 200. Calculate cost of equity.

Q-36 The ordinary share price of Mind tree Ltd. is currently Rs. 150. Dividends are paid once a year and dividends for previous year has just been paid. The net dividends for the year was Rs. 3.00 and 15% annual growth rate is expected for the foreseeable future. Compute cost of equity for Mind tree Ltd.

Q-37 A company's current price of share is Rs. 60 and dividend per share is Rs. 4. If its capitalization rate is 12 per cent, what is the dividend growth rate? **{CS December 2016(P)}**

Q-38 Ke = 12 percent. The company has a policy of paying dividends at the rate of 5% on the market price of the share in the beginning of year. Find the growth rate.

Q-39 The firm's earnings are expected to be Rs. 15 per share. It is the company's policy to retain 40% of its earnings. Anticipated growth rate is 8%. The current market price is Rs. 120. Calculate cost of equity.

Q-40 The firm's earning of last year was Rs. 15 per share. It is the company's policy to retain 40% of its earnings. Anticipated growth rate is 8%. The current market price is Rs. 120. Calculate cost of equity.

Q-41 ABC Ltd retain 80% of its earnings and company's return on equity is 20%. Calculate growth rate.

Q-42 ABC Ltd retain 60% of its earnings and company's return on equity is 15%. Calculate growth rate.

Q-43 ABC Ltd. is run and managed by an efficient team that insists on reinvesting 60% of its earnings in projects that provide an ROE (Return of Equity) of 10%, despite the fact that the firm's capitalization rate (Ke) is 15%. The firm's current year's earnings are expected to be Rs. 10 per share. At what price will the stock of ABC Ltd. sell?

Q-44 A company expects to pay a dividend of Rs. 7 next year that is expected to grow at 6 per cent. It retains 30 per cent of earnings. Assume a capitalization rate of 10 per cent. You are required to (a) calculate the expected earnings per share (EPS), (b) return on equity (ROE).

Q-45 A company has issued 5,000 equity shares of Rs. 100 each. Its current market price is Rs. 95 per share and the current dividend is Rs. 4.5 per share. The dividends are expected to grow at the rate of 6%. Compute the cost of equity capital. **(Study Material)**

Q-46 Calculate the cost of equity capital for a company whose Risk-free rate =10%, equity market required return =18% with a beta of 0.5 **(ICSI Study Material)**

Q-47 X Ltd provides you the following information

Source	Cost (%)	Amount (Rs.)
Equity	20	5,00,000
Preference	15	3,00,000
Debt	10	2,00,000

Calculate Weighted Average cost of capital

Q-48 The capital structure of a company and its specific costs are given below. Find out simple and the weighted average cost of capital of the company.

Source	Amount	Specific Cost (after tax)
Long-term Debts	Rs. 15,00,000	4%
Preference Shares	Rs. 10,00,000	12%
Equity Shares	Rs. 20,00,000	15%
Retained Earnings	Rs. 5,00,000	15%
	Rs. 50,00,000	

(ICSI Study Material)

Q-49 In Q-48, assume market value of preference shares at 150% equity shares and retained earnings at 160% and debentures at par, calculate average cost of capital. **(ICSI Study Material)**

Q-50 If Q-48, the firm believed that its optimal capital structure is consisting of 40% debt, 10% preference shares, 35% equity shares and 15% retained earnings, calculate weighted average cost of capital using target weights. **(ICSI Study Material)**

Q-51 A company's cost of capital for specific sources is as under:

Cost of Debentures	5%
Cost of Preference Shares	10%
Cost of Equity Shares	14%
Cost of Retained Earnings	13%

The company wishes to raise Rs. 5,00,000 for the expansion of its plant. It is estimated that Rs. 1,00,000 will be available as retained earnings and the balance of the additional funds will be raised as under:

Debenture issue	Rs. 3,00,000
Preference share issue	Rs. 1,00,000

Using marginal weights, calculate weighted average cost of capital. **(ICSI Study Material)**

Q-52 A company has on its books the following amounts and specific costs of each type of capital.

Types of capital	**Book Value**	**Market Value**	**Specific Costs (%)**
	Rs.	**Rs.**	**%**
Debt	4,00,000	3,80,000	5
Preference	1,00,000	1,10,000	8
Equity	6,00,000	9,00,000	15
Retained Earnings	2,00,000	3,00,000	13
	13,00,000	**16,90,000**	

a. Determine the weighted average cost of capital using Book value weights
b. Determine the weighted average cost of capital using Market value weights,
c. Can you think of a situation where the weighted average cost of capital would be the same using either of the weights. What is it that situation? **(ICSI Study Material)**

Q-53 Oxford company has compiled the information shown in the following table:

Source of capital	**Book Value**	**Market Value**	**After tax cost**
	Rs.	**Rs.**	**%**
Equity	10,80,000	30,00,000	17
Preference stock	50,000	60,000	13
Long term debt	45,00,000	38,40,000	6
Total	***56,30,000***	***69,00,000***	

Calculate the weighted average cost of capital using book value weights and market value weights.

Q-54 The following is capital structure of a firm:

Source of Finance	Amount (Rs.)	After tax cost (%)
Equity (paid up) share capital	20,00,000	20
Retained earnings (Reserves)	40,00,000	20
Preference share capital	15,00,000	10
Debt	25,00,000	8
Total	***1,00,00,000***	

Compute the weighted average cost of capital of the firm, based on the existing capital structure.

{CS December 2018(P)}

Q-55 Zoya Ltd. has obtained capital from the following sources and the specific costs are given against them :

Type of capital	*Book value (*Rs. *in lakh)*	*Market Value (₹ in lakhs)*	*Cost of capital (%)*
Debentures	4	3.8	5
Preference shares	1	1.1	8
Equity shares	6	9.0	13
Retained earnings	2	3.0	9
Total	13	16.9	

You are required to calculate weighted average cost of capital using –

(i) Book Value Weight (ii) Market Value Weight **{CS June 2016(P)}**

Q-56 Kritika Limited is currently financed with Rs. 10,00,000 of 7% bonds, and Rs. 20,00,000 of common stock. The stock has a beta of 1.5 and the risk free rate is 4% and the market risk premium is 3.5%. The marginal tax rate is 35%. What is Kritika Limited WACC. {**CS Dec 2014(P)}**

Q-57 The capital structure of a firm consists of equity of Rs. 80 lakhs; 10% preference shares 20lakhs and 14% debentures of Rs. 60 lakhs. At present its equity share is selling for Rs. 25. It is expected that the company will pay a dividend of Rs. 2. It has been growing @ 7% p.a. If the company is subject to 50% tax rate, determine its weighted average cost of capital. **(ICSI Study Material)**

Q-58 Assuming that the firm pays tax at 40%, compute the Weighted Average Cost of Capital from the following:

5,000 Equity shares of Rs. 100 each	Rs. 5,00,000
10% Preference Shares	Rs. 1,00,000
12% debentures	Rs. 4,00,000

The current market price of the share is Rs. 120. The Company is expected to declare a dividend of Rs. 12 at the end of the current year, with an expected growth rate of 8%. Use Book Value Weights.

{CS June 2017(P)}

Q-59 Monoplast Co. Ltd. has the following capital structure on 31st March, 2013

	Rs.
Equity shares (4,00,000 shares)	80,00,000
10% Preference shares	20,00,000
14% Debentures	60,00,000
	1,60,00,000

The share of the company sells for Rs. 20. It is expected that company will pay next year a dividend of Rs. 2 per share which will grow at 7 per cent forever. Tax rate is 30%. You are required to compute a weighted average cost of capital. **{CS June 2014(P)}**

Q-60 ABC Ltd. has the following capital structure.

	Rs.
Equity (expected dividend 12%)	10,00,000
10% Preference	5,00,000
8% loan	15,00,000

You are required to calculate the weighted average cost of capital, assuming 50% as the rate of income tax.

Q-61 An analyst is evaluating the stocks of two companies for inclusion in the diversified portfolio that he manages for a pension fund. He wishes to use the price/earnings multiple (PE ratio) to compare the stocks. The analyst has collected the following information about Company A and Company B:

Particulars	**Company A**	**Company B**
Historical and expected return on equity (ROE)	16%	11%
Historical and expected dividend payout ratio	40%	40%
Beta	1.35	1.05

The expected return on the market index is 11.5 percent and the expected risk-free return is 5.25 percent.
You are required to calculate the Cost of Equity. **{CS June 2017 (P)}**

Q-62 Following are the details regarding capital structure of a company:

	Book Value (Rs.)	**Market Value (Rs.)**	**Specific Cost (%)**
Debentures	80,000	76,000	5
Preference Capital	20,000	22,000	8
Equity Capital	1,20,000	2,40,000	13
Retained Earnings	40,000	-	9
	2,60,000	**3,38,000**	

You are required to calculate the weighted average cost of capital using (i) book value as weights (ii) market value as weights. Can you imagine a situation where weighted average cost of capital would be the same using either of the weights? **(Study Material)**

Q-63 A company has obtained capital from the following sources, the specific costs are also noted down against them:

Source of Capital	Book Value (₹)	Market Value (₹)	Cost of Capital
Debentures	4,00,000	3,80,000	5%
Preference Shares	1,00,000	1,10,000	8%
Equity Shares	6,00,000	12,00,000	13
Retained Earnings	2,00,000	--	9%

You are required to calculate weighted average cost of capital using (i) book value weights, and (ii) market value weights **(ICSI Study Material)**

Q-64 Apoorva Ltd. has assets of Rs. 32,00,000 that have been financed as follows:

	Rs.
Equity shares of Rs. 100 each	18,00,000
General reserve	3,60,000
Debt	10,40,000

For the year ended 31st March, 2014, the company's total profits before interest and taxes were Rs. 6,23,000. The company pays 8% interest on borrowed capital and the tax bracket is 40%.
The market value of the equity as on 31st March, 2014 was Rs. 150 per share. From the above, determine the weighted average cost of capital using market values as weights. **{CS June 2015(P)}**

Q-65 JKL Ltd. has the following Book value capital structure as on 31st March-

Equity share capital (2,00,000 shares)	40,00,000
11.5% Preference shares	10,00,000
10% Debentures	30,00,000
Total	**80,00,000**

The equity shares of the company sell for Rs. 20. It is expected that the company will pay a dividend of Rs. 2 per share next year, this dividend is expected to grow at 5% p.a forever. Assume 35% corporate tax rate. You are required to-

a. Compute the Company's WACC based on the existing Capital Structure.
b. Compute the new WACC if the Company raises an additional Rs. 20 Lakhs debt by issuing 12% debentures. This would result in increasing the expected Equity Dividend to Rs. 2.40 and leave the growth rate unchanged, but the price of Equity Share will fall to Rs. 16 per Share.
c. Comment on the use of weights in the computation of WACC. **(CA May 2003)**

Q-66 The capital structure of A Ltd. is as follows:

20,000 Equity shares of Rs. 100 each	Rs. 20,00,000
10% Preference shares of Rs. 100 each	Rs. 5,00,000
12% Rs. 100 Debentures	Rs. 15,00,000

The market price of equity shares is Rs. 160.
It is expected that the company will pay a current dividend of Rs. 20 share which will grow at 7.5% for ever. The tax rate may be assumed to be 50%. You are required to calculate:
a) Weighted average cost of capital based on existing capital structure.
b) The new weighted cost of capital if the company raises an additional Rs. 10,00,000 debt by issuing 14% Debentures. This would result sin increasing the dividend rate to Rs. 25 per share and leave the growth rate unchanged but the price of share will fall to Rs. 150 per share.
c) The weighted cost of capital if in (b) above, the growth rate rises to 10%. **(ICSI Study Material)**

Q-67 The capital structure of SK Ltd. is as under:

3,000 12% Debentures of Rs. 100 each	Rs. 3,00,000
2,000 10% Preference shares of Rs. 100 each	Rs. 2,00,000
4,000 Equity Shares of Rs. 100 each	Rs. 4,00,000
Retained Earnings	Rs. 1,00,000

The earning per share of the company in the past many years have been Rs. 15. The shares of the company are sold in the market at book value. The company tax rate is 50%. The shareholder's tax liability may be assumed as 25%. Find out the Weighed Average Cost of Capital.**(ICSI Study Material)**

Q-68 Calculate weighted average cost of capital from the following information:

4,000 Equity Shares (fully paid up)	4,00,000
3,000 6% Debentures	3,00,000
2,000 6% Preference Shares	2,00,000
Retained Earnings	1,00,000

Earning per equity share has been Rs. 10 during the past year and equity shares are being sold in the market at par. Assume corporate tax at 50 per cent and shareholders' personal tax liability 10%

(ICSI Study Material)

God is all knowing. Without even saying a word our condition is known to God - Sant Rajinder Singh Ji

Q-69 The Capital structure of Vandana Ltd. is as under:

	Rs.
2,000 6% Debentures of Rs. 100 each (first issue)	2, 00,000
1,000 7% Debentures of Rs. 100 each (second issue)	1,00,000
2,000 8% Cumulative Preference Shares of Rs. 100 each	2, 00,000
4,000 Equity Shares of Rs. 100 each	4,00,000
Retained Earnings	1,00,000

The earnings per share of the company in the past many years has been Rs. 15. The shares of the company are sold in the market at book value. The company's tax rate is 50% and shareholders' personal tax liability is 10%. Find out the weighted average cost of capital. **(ICSI Study Material)**

Q-70 Work out the marginal cost of capital from the following data:

Particulars	Rs. in lakhs	Cost %
Existing structure		
Equity	3,000	15
Retained earnings	500	18
Preference capital	500	10
Debt	2,000	12
Additional demand		
Equity	2,000	18
Retained earnings	500	18
Preference capital	1,000	12
Debt	1,500	16

What should be the rate of return so that investors stay invested? **(CS 2007 Dec)**

Q-71 Aries Limited wishes to raise additional finance of Rs. 10 lakhs for meeting its investment plans. It has Rs. 2,10,000 in the form of retained earnings available for investment purposes. The following are further details:-

Debt/equity mix	30%/70%
Cost of debt	
Upto Rs. 1,80,000	10%(before tax)
Beyond Rs. 1,80,000	16%(before tax)
Previous earning per share	Rs. 4
Dividend payout	50% of earnings
Expected growth rate in dividend	10%
Current market price per share	Rs. 44
Tax rate	50%

You are required:

a. To determine the pattern for raising the additional finance,
b. To determine the post-tax average cost of additional debt,
c. To determine the cost of retained earnings and cost of equity, and
d. Compute the overall weighted average after tax cost of additional finance.

Q-72 The prevailing risk-free rate of interest in 10-Year GOI Treasury Bonds is 5.5%. The average risk premium is 8%. The beta of the company is 1.1875. The company now wants to take up a project requiring an investment of Rs. 75 Crore with a debt of 20% and balance 80% via equity. The beta of this project is 1.4375. The debt can be raised at an interest rate of 9.5% upto first Rs.10 crore and @ 10% for the rest of the amount. Find out the marginal cost of capital, if the tax rate is 35%. **(CS June 2008)**

Q-73 M/s Robert Cement Corporation has a financial structure of 30% debt and 70% equity. The company is considering various investment proposals costing less than Rs. 30 lakhs.
The corporation does not want to disturb its present capital structure.
The cost of raising the debt and equity are as follows:

Project Cost	Cost of debt	Cost of equity
Upto Rs. 5 lakhs	9%	13%
Above Rs. 5 lakhs and upto Rs. 20 lakhs	10%	14%
Above Rs. 20 lakhs and upto Rs. 40 lakhs	11%	15%
Above Rs. 40 lakhs and upto Rs. 1 crore	12%	15.5%

Assuming the tax rate of 50% you are required to calculate:

i. Cost of capital of two projects A and B whose funds requirements are Rs. 8 lakhs and Rs. 21 lakhs respectively, and

ii. If a project is expected to give after tax return of 11% determine under what conditions it would be acceptable. **{Study Material; CS June 2014(P)}**

Q-74 The management of Jeeyu Ltd is thinking to manage Rs. 10 lakh from the market. They are planning to make issue of debentures at the face value of Rs. 100 and can offer the interest rate 11%. One the directors has mentioned that, now-a-days investors are expecting the rate of return 12.50%. The company covered under the tax rate of 33%. You are required to work out:
(a) The issue price of debentures in terms of per debenture, and
(b) The effective cost of debentures from the view point of Jeeyu Ltd. {**CS June 2018(P)}**

Q-75 Determine the weighted average cost of capital based on the following information:

Debentures (Rs. 100 per debenture)	8,00,000
Preference shares (Rs. 100 per share)	2,00,000
Equity shares (Rs. 10 per share) .	10,00,000
	20,00,000

Recent market prices of all these securities are:
Debentures: Rs.110 per debenture; Preference shares: Rs.120 per share; and Equity shares: Rs.22 per share.
Cost of debt 7.04%; Cost of preference 14.87% and cost of equity 17%.

Q-76 AR Ltd. issued 10,000, 10% preference shares of Rs. 100 each. Cost of issue is Rs. 2 per share. Calculate cost of preference capital if these shares are issued:
(i) at par, (ii) at 10% premium and (iii) at 10% discount. **(ICSI Study Material)**

Q-77 AR Ltd. issued at par 4,000, 12% preference shares of Rs. 100 each. These shares are redeemable after 10 years at a premium of Rs. 5 per share. The cost of issue is Rs. 3 per share. Find out the after tax cost of preference share capital. **(ICSI Study Material)**

Q-78 SK Company Limited has issued, 10,000 8% preference shares of Rs. 200 each. Cost of issue is 5%. Calculate cost of capital before tax and after tax if these shares are issued: (a) 5% discount and (b) at 10% premium. Company tax rate is 50%. **(ICSI Study Material)**

Q-79 SK Ltd. issued 20,000 equity shares of Rs. 10 each at a premium of Rs. 2 per share. The company has been paying a dividend of 20% on its equity shares. Market price of such shares is Rs. 16 per share. Tax rate is 40%. Calculate cost of capital before and after tax. **(ICSI Study Material)**

Q-80 Calculate the cost of retained earnings from the following information obtained from SK Limited.

Current market price of a share	Rs. 140
Expected dividend per share	Rs. 14
Growth in expected dividends	5%
Brokerage per share	3% on market value
Tax rate on income distributed as dividends	30%

(ICSI Study Material)

Q-81 The capital structure of a SK's firm is as follows:

Source	Amount Rs.	After Tax specific Cost Rate (%)
1. Debt	3,00,000	8
2. Preference Capital	2,00,000	14
3. Equity Capital	5,00,000	17

Calculate the weighted average cost of capital. **(ICSI Study Material)**

Q-82 The capital structure of SK Ltd. and after tax cost of capital of each source is as under:

Source	Amount (Rs.)	Cost of Capital
Equity Capital	4,00,000	12%
Preference Capital	3,00,000	10%
Debentures	2,00,000	6%
Retained Earnings	1,00,000	8%

Find out the weighted average cost of capital. **(ICSI Study Material)**

Q-83 Calculate Weighted Average Cost of Capital from the following information:

	₹
Rs. 4,000 Equity Shares	4,00,000
3,000 8% Debentures	3,00,000
2,000 6% Preference Shares	2,00,000
Retained Earnings	1,00,000

Earnings per equity Shares have been Rs. 10 during the past years and equity Shares are being sold in the market at par. Assume corporate tax at 50% and Shares holders tax liability 25%. **(ICSI Study Material)**

Q-84 X Ltd. has furnished the following information:

Earnings per share (EPS)	₹ 8
Dividend payout ratio	25%
Market price per share	₹ 80
Tax rate	30%
Growth rate of dividend	8%

The company wants to raise additional capital of ₹ 10,00,000 including debt of ₹ 4,00,000.
The cost of debt (before tax) is 10% up to ₹ 2,00,000 and 15% beyond that. Compute the after tax cost of equity and debt and the weighted average cost of capital. **(CS Dec 2018)**

Q-85 A Private Ltd. Co. has assets worth ₹32,00,000 as on 31st March, 2018 that has been financed as follows:

Equity Shares of ₹100 each	₹ 18,00,000
General Reserve	₹ 3,60,000
Debt	₹ 10,40,000

For the year ended on 31st March, 2018, the Company's total profits before interest and taxes were ₹6,23,000. The company pays 8% interest on borrowed capital and the tax bracket is 40%. The market value of equity share as on 31st March, 2018 was ₹150 per share.
Calculate the weighted average cost of capital using market value as weights. **(CS June 2019)**

Q-86 X Ltd. issues 1,000, 6% preference shares of ₹100 each redeemable after a maximum period of 20 years at face value. The floatation cost is ₹ 4 per share. Find the cost of capital. **(CS Dec 2018)**

Q-87 Equity shares of YMC Corporation has a beta (β), of 1.4. The risk-free rate is 9%, and the market return is 21%. Determine the risk premium on its equity shares. Further determine cost of equity using the suitable model. **(CS June 2019)**

God is all knowing. Without even saying a word our condition is known to God - Sant Rajinder Singh Ji

Chapter 6 Inventory Management

Q-1 Raw material required in a year — 20,000 units
Purchase price — Rs. 20 per kg
Calculate purchase cost

Q-2 Raw material requirement — 1,000 kg per month
Purchase price — Rs. 5 per kg
Calculate annual purchase cost

Q-3 Finished product produced during the year - 10,000 units
Raw material required - 2Kg per unit of output
Purchase price - Rs. 10 per kg
Calculate annual purchase cost.

Q-4 Finished product produced quarterly - 5,000 units
Raw material required - 3 kg per unit of output
Purchase price - Rs. 5 per kg
Calculate annual purchase cost

Q-5 Annual requirement of raw material — 1,000 Kg
Order size — 100 Kg
Cost per order — Rs. 50
Calculate ordering cost.

Q-6 Annual requirement of raw material — 1,000 Kg
Order size — 500 Kg
Cost per order — Rs. 50
Calculate ordering cost.

Q-7 Annual requirement — 20,000 Kg
Order size — 5,000 Kg
Cost per order — Rs. 8
Purchase price per unit — Rs. 100
Carrying cost — Rs. 5 per unit p.a.
Calculate carrying cost and Ordering Cost.

Q-8 Annual requirement — 20,000 Kg
Order size — 1,000 Kg
Purchase price per unit — Rs. 100
Carrying cost — 9% p.a.
Calculate carrying cost and Ordering Cost.

Q-9 Annual requirement - 20,000 Kg — Order size - 5,000 kg
Calculate frequency of order

Q-10 Annual requirement - 2,000 kg — Order size - 20 kg
Calculate frequency of order

Q-11 Finished product produced during the year - 10,000 units
Raw material required - 2Kg per unit of output
Purchase price - Rs. 10 per kg
Cost per order - Rs. 100
Carrying cost - 20%
Order Size - 1,000 Kgs
Calculate:
(i) Purchase cost (ii) Ordering cost (iii) Carrying cost (iv) Frequency of order

Q-12 Requirement of material - 20,000 Kg
Cost per order - Rs. 8
Purchase price per Kg - Rs. 100
Carrying cost - 8%
Calculate: (i) EOQ (ii) Ordering cost at EOQ (iii) Carrying cost at EOQ

Q-13 Requirement of material - 20,000 Kg
Cost per order - Rs. 8
Order Size - 500 Kg
Purchase price per Kg - Rs. 100
Carrying cost - 8%
Calculate: (i) Ordering cost (ii) Carrying cost

Q-14 Requirement of material - 20,000 Kg
Cost per order - Rs. 8
Order Size - 100 Kg
Purchase price per Kg - Rs. 100
Carrying cost - 8%
Calculate: (i) Ordering cost (ii) Carrying

Q-15 Harsha Ltd. produces a product which has a monthly demand of 4,000 units. The product requires a Component –X which is purchased at Rs. 20. For every finished product, one unit of Component – X is required. The ordering cost is Rs. 120 per order and the holding cost is 10% per annum.
You are required to calculate-
i. Economic order quantity; and
ii. If the minimum lot size to be supplied is 4,000 units, what is the extra cost the company has to incur? **((i) 2,400 units; (ii) Extra cost Rs. 640)** **(CS June 2003; June 2001)**

Q-16 The monthly requirement of a component is 4,000 units. The cost per order is Rs. 1,000 and the carrying cost per unit per annum is Rs. 24. The Economic Ordering Quantity is: **(CS Dec 2018)**

Q-17 If annual total carrying cost, per unit carrying cost and cost per order are Rs. 15,000, Rs. 10 and Rs. 150 respectively, then Economic Order Quantity will be: **(CS Dec 2018)**

Q-18 Calculate the economic order quantity from the following information and also state the number of orders to be placed in a year.
Consumption of materials per annum = 10,000 kgs.
Order Placing Cost Per Order = Rs.25
Cost per kg. of raw material = Rs.2
Storage Costs = 4% on average inventory **(ICSI Study Material)**

Q-19 ABC Company buys in lots of 125 boxes which is a three months supply. The cost per box is Rs. 125 and the ordering cost is Rs. 250 per order. The inventory carrying cost is estimated at 20% of unit value per annum. You are required to ascertain:
(i) What is the total annual cost of the existing inventory policy?
(ii) How much money would be saved by employing the economic order quantity (EOQ)?
(CS Dec 1999)

Q-20 If the annual carrying cost of material Z is Rs. 4 per unit and its total carrying cost is Rs. 12,000 p.a., the economic order quantity of the material is: **(CS Dec 2017)**

Q-21 If EOQ is 200 units, ordering cost is Rs. 20 per order and total purchases is 4,000 units. The carrying cost per unit will be: **(CS June 2018)**

Q-22 If EOQ = 360 units, order costs are Rs. 5 per order, and carrying costs are Rs. 0.20 per units, what is the usage in units?

Q-23 The annual demand for a product is 6,400 units. The unit cost is Rs. 6 and inventory carrying cost per unit per annum is 25% of the average inventory cost. If the cost of procurement is Rs. 75, determine –

i. Economic order quantity (EOQ); **(800 units)**
ii. Number of orders per annum; and **(8 orders)**
iii. Time between two consecutive orders. **(1.5 months)** **(CS Dec 1998)**

Q-24 Compute E.O.Q from the following:

Annual Demand	5,000 units
Unit price	Rs. 20.00
Order cost	Rs. 16.00
Storage rate	2% per annum
Interest rate	12% per annum
Obsolescence rate	6% per annum

(CA Study Material)

Q-25 The following information relating to a type of Raw material is available:

Annual demand	2,000 units
Unit price	Rs. 20
Ordering cost per order	Rs. 20
Storage cost	2%p.a.
Interest rate	8%p.a
Lead time	Half-month

Calculate economic order quantity and total annual inventory cost of raw material. **(CA Nov 2009)**

Q-26 From the following information, calculate economic order quantity (ECQ) and the number of orders to be placed in one quarter of the year:

i. Quarterly consumption of material : 2,000 Kg.
ii. Cost of placing one order : Rs. 50
iii. Cost per unit : Rs. 40
iv. Storage and carrying cost: 8% on average inventory. **(CS Dec 2011)**

Q-27 A factory requires 1,500 units of an item per month. The cost of each unit is Rs. 27. The cost per order is Rs. 150 and inventory carrying charges work out to 20% of the average inventory. Find out the economic order quantity (EOQ) and ascertain the number of orders to be placed per year. Would you accept a 2% price discount on a minimum supply of 1,200 units? **(CS June 2007)**

Q-28 Your factory buys and uses a component for production at Rs. 10 per unit. Annual requirement is 20,000 units. The carrying cost of inventory is 10% per annum and ordering cost is Rs. 40 per order. The purchase manager argues that as the ordering cost is very high, it is advantageous to place a single order for the entire annual requirement. He also says that if we order 20,000 units at a time, we can get a 3% discount from the supplier. You are required to evaluate this proposal and make your recommendations.
(CS Dec 2006)

Q-29 Consider the following data for a certain item purchased by ABC Ltd.

Annual Usage	10,000 units
Fixed Cost per order	Rs. 750
Purchase Price	Rs. 200 per unit
Carrying cost	20 % of inventory value.

a) What is the economic order quantity?
b) On the assumption that a 25 trade discount is offered if the minimum order size is 1,000 units, should the company go in for the trade discount **(ICSI Study Material)**

Q-30 A manufacturer requires 1,000 units of a raw material per month. The ordering cost is Rs.15 per order. The carrying cost in addition to Rs.2 per unit is estimated to be 15% of the average inventory per unit per year. The purchase price of the raw material is Rs.10 per unit. Find economic lot size and total cost. The manufacturer is offered a 5% discount in purchase price for orders of 2,000 units or more but less than 5,000 units. A further 2% discount is available for orders of 5,000 units or more. Which of these three alternative ways of purchase he should select? **(ICSI Study Material)**

Q-31 A Ltd. a manufacturing company, follows the policy of EOQ for one of its components. The components details are as follows:-

Purchase price per component	Rs. 200
Cost of an order	Rs. 100
Annual cost of carrying one unit of inventory	10% of purchase price
Total cost of carrying and ordering inventory	Rs. 4,000 per annum.

The company has been offered a discount of 2% on the price of the component provided the lot size is 2000 components at a time.
You are required to calculate:

i. EOQ:
ii. Advice whether the quantity discount offer can be accepted. (Assume the inventory carrying cost does not vary according to discount policy).
iii. Would your advice differ if the company is offered 5% discount on a single orders. **(ICSI Study Material)**

Q-32 The purchase department of your organization has received an offer of quantity discounts on its order of materials as under:

Price per tonne	**Tonnes**
Rs.	
1,200	Less than 500
1,180	500 and less than 1,000
1,160	1,000 and less than 2,000
1,140	2,000 and less than 3,000
1,120	3,000 and above

The annual requirement for the material is 5,000 tonnes. The delivery cost per order is Rs. 1,200 and the stock holding cost is estimated at 20% of material cost per annum. You are required to advise the Purchase Department the most economical purchase level assuming order quantity desired is 400 units, 500 units, 1000 units, 2000 units and 3000 units. **(Adapted CA Inter Nov.1990)**

Q-33 Ratan Enterprises requires 1,80,000 units of a certain item annually. The cost per unit and the cost per purchase order are Rs. 6 and Rs. 600 respectively. The inventory carrying cost is Rs. 6 per unit per year.

i. What is the economic order quantity?

ii. What should the firm do if the supplier offers discount as below:

Order Quantity	**Discount (%)**
9000-11999	2
12,000 and above	3

(CS June (P) 2010)

Q-34 Material – A is used as follows:

Minimum usage	500 units per week
Maximum usage	1,500 units per week
Normal usage	1,000 units per week
Ordering quantities	1,600 units
Delivery period	4-6 weeks

Calculate –

(i)Maximum level (ii) Minimum level (iii) Ordering level **(CS June 2009)**

Q-35 Material X and Y are used as follows:

Minimum usage	50 units each per week
Maximum usage	150 units each per week
Normal usage	100 units each per week
Ordering quantities	X = 600 units
	Y = 1,000 units
Delivery period	X = 4 – 6 weeks
	Y = 2 – 4 weeks

Calculate for each material

a. Maximum level **(Mat X 1,300 units; Mat Y 1,500 units)**

b. Minimum level and **(Mat X 400 units; Mat Y 300 units)**

c. Ordering level **(Mat X 900 units; Mat Y 600 units)** **(Study Material)**

Q-36 A firm requires 50 items every day for a machine. A fixed cost of Rs. 50 per order is incurred for placing an order. The inventory carrying cost per item amounts to Re. 0.02 per day. The lead period is 32 days. You are required to compute (i) economic order quantity; and (ii) re-order level.

((i) 500 units (ii) 1,600 units) **(CS Dec 2002)**

Q-37 A company manufactures 5,000 units of a product per month. The cost of placing an order is Rs. 100. The purchase price of the raw material is Rs. 10 per kg. The re-order period is 4 to 8 weeks. The consumption of raw materials varies from 100 Kgs to 450 Kgs per week, the average consumption being 275 Kgs. The carrying cost of inventory is 20% per annum. You are required to calculate-

(i) Re-order quantity (ii) Re-order level (iii) Maximum level

(iv) Minimum level (v) Average stock level. **(CA Nov 2002; CS June 2010; June 2012)**

Q-38 The annual carrying cost of material 'X' is Rs. 3.6 per unit and its total carrying cost is Rs. 9,000 per annum. What should be the Economic order quantity for material 'X', if there is no safety stock of material X? **(CA November, 2008)**

"Work hard in silence. Let your success be the noise"

Q-39 The following details are available from the books of Ruby Engineering Works Ltd. for the year ended 31st March, 2005:

Monthly demand (units)	2,000
Cost of placing an order (Rs.)	200
Annual carrying cost (Rs. Per Unit)	30
Normal usage (Units per month)	100
Maximum usage (Units per month)	150
Minimum Usage (units per month)	50
Re-order period (Weeks)	4 – 6

Based on the above details, calculate –

(i) Re-order quantity **(126 units)** **(iii)** Re-order level **(207 units)**

(ii) Minimum level **(92 units)** **(iv)** Maximum level **(287 units)** **(CS June 2006)**

Q-40 In manufacturing its products a company uses three raw materials A, B , C in respect of which the following apply:

Raw materials	Usage per Unit of Product Kg.	Re-order Quantity Kg.	Price per Kg. Re.	Delivery Period (weeks)	Order level Kg.	Minimum Level Kg.
A	10	10,000	0.10	1 to 3	8,000	—
B	4	5,000	0.30	3 to 5	4,750	
C	6	10,000	0.15	2 to 4	—	2,000

Weekly production varies from 175 to 225 units, averaging 200. What would you expect the quantities of the following to be:

(a) Minimum Stock of A, (b) Maximum Stock level of B,

(c) Re-order level of C, and (d) Averages Stock level of A? **(CA Inter Nov. 1989)**

Q-41 Pooja Pipes Ltd. uses about 75,000 valves per year and the usage is fairly constant at 6,250 valves per month. The valve costs Rs. 1.50 per unit when bought in large quantities; and the carrying cost is estimated to be 20% of average inventory investment on an annual basis. The cost to place an order and process the delivery is Rs. 18. It takes 45 days to receive delivery from the date of an order and a safety stock of 3,250 valves is desired.

You are required to determine (i) the most economical order quantity and frequency of orders; (ii) the re-order point; and (iii) the most economical order quantity if the valves cost Rs.4.50 each instead of RS.1.50 each. **(ICSI Study Material); (CS Dec 2010)**

Q-42 SK Enterprise manufactures a special product "ZE". The following particulars were collected for the year 2004:

Annual consumption	12,000 units (360 days)
Cost per unit	Rs. 1
Ordering cost	Rs. 12 per order
Inventory carrying cost	24%
Normal lead time	15 days
Safety stock	30 days consumption

Required:

(a) Re-order quantity (b) Re-order level

(c)What should be the inventory level (ideally) immediately before the material order is received?

(CA May 2005)

Q-43 Following details are related to a manufacturing concern:

Re-order level	1,60,000 units
Economic Order Quantity	90,000 units
Minimum stock level	1,00,000 units
Maximum stock level	1,90,000 units
Average lead time	6 days
Difference between minimum lead time and maximum lead time	4 days

Calculate:

(i) Maximum consumption per day (ii) Minimum consumption per day **(CA November , 2014)**

Q-44 Following information is given:

Cost of placing a purchase order	Rs. 20
No. of units to be purchased during the year	5,000 Nos.
Purchase price per unit inclusive of transport cost	Rs. 50
Annual storage cost per unit	Rs. 5
Details of lead time:	
− Average	10 days
− Maximum	15 days
− Minimum	6 days
− For emergency purchase	4 days
Rate of consumption per day:	
− Average	15 units
− Maximum	20 units

Calculate – (i) re-ordering level; (ii) re-order quantity; (iii) maximum level; (iv) minimum level; and (v) danger level. **(CS June 2011)**

Q-45 ABC Limited has 7 different items in its inventory. The average number of units in inventory together with their average cost per unit is presented below. Suggest a break-down of the items into ABC classification assuming that the Company wants to introduce ABC Inventory System.

Items (Nos.)	Average number of units in inventory	Average cost per unit (₹)
1	25,000	12
2	25,000	4
3	70,000	4
4	30,000	15
5	10,000	110
6	20,000	50
7	20,000	2

(ICSI Study Material)

PRACTICE QUESTIONS

Q-46 Two components X and Y are used as follows:

Normal usage	300 units per week
Maximum usage	450 units per week
Minimum usage	150 units per week
Reorder Quantity	X – 2,000 units and Y – 4,000 units
Re-order Period	X – 4 to 6 weeks and Y – 2 to 4 weeks

Calculate for each component —
(1) Re-order Level, (2) Maximum Level, (3) Minimum Level (4) Average Inventory.
(ICSI Study Material)

Q-47 Two components, X and Y, are used as follows:

Normal usage	600 units per week each
Maximum usage	900 units per week each
Minimum usage	300 units per week each
Re-order quantity	X, 4,800 units, Y 7,200 units
Re-order period	X 4 to 6 weeks, Y 2 to 4 weeks

Calculate for each component a) Reorder Level b) Minimum Level c) Maximum Level d) Average Stock Level **(ICSI Study Material)**

Q-48 A manufacturer requires 1,000 units of a raw material per month. The ordering cost is Rs.15 per order. The carrying cost in addition to Rs.2 per unit is estimated to be 15% of the average inventory per unit per year. The purchase price of the raw material is Rs.10 per unit. Find economic lot size and total cost.
(ICSI Study Material)

Q-49 XYZ Electrical Company uses annually 50,000 units of an item each costing Rs.1.20. Each order costs Rs.45 and inventory carrying cost is 15% of the annual average inventory value.
a) Find the Economic Order Quantity
b) If the company operates 250 days a year and the procurement time is 10 days and safety stock is 500 units, find the reorder point, maximum, minimum and average inventory. **(ICSI Study Material)**

Q-50 In a company, the weekly minimum and maximum consumption of Material – A are 25 and 75 units respectively. The re-order quantity as fixed by the company is 300 units Material – A is received within 4 to 6 weeks from the date of issue of supply order. Calculate minimum level and maximum level of Material – A. **(Minimum level 200 units; Maximum level 650 units)** **(CS June 2005)**

Q-51 PQR Tubes Ltd. are the manufactures of picture tubes for T.V. The following are the details of their operations during 1999-2000:

Ordering Cost	Rs. 100 per order
Inventory carrying cost	20% p.a.
Cost of tubes	Rs. 500 per tube
Normal usage	100 tubes per week
Minimum usage	50 tubes per week
Maximum usage	200 tubes per week
Lead time to supply	6 – 8 weeks

Required:

(i) Economic order quantity. If the supplier is willing to supply quarterly 1,500 units at a discount of 5%, is it worth accepting?

(ii) Re-order level (iii) Maximum level of stock (iv) Minimum level of stock **(CA May 2000)**

Q-52 Primex Limited produces product 'P'. It uses annually 60,000 units of a material 'Rex' costing Rs. 10 per unit. Other relevant information are:

Cost of placing an order	:	Rs. 800 per order
Carrying cost	:	15% per annum of average inventory
Re-order period	:	10 days
Safety stock	:	600 units

The company operates 300 days in a year.

You are required to calculate:

(a) Economic Order Quantity for material 'Rex'. (b) Re-order level

(c) Maximum stock level (d) Average stock level **(CA November, 2013)**

Q-53 KL Limited produces product 'M' which has a quarterly demand of 8,000 units. The product requires 3kg quantity of material 'X' for every finished unit of product. The other information are as follows:

Cost of material 'X'	:	Rs. 20 per kg.
Cost of placing an order	:	Rs. 1,000 per order
Carrying Cost	:	15% per annum of average inventory

You are required:

(a) Calculate the Economic Order Quantity for material 'X'

(b) Should the company accept an offer of 2 percent discount by the supplier, if he wants to supply the annual requirement of material 'X' in 4 equal quarterly installments? **(CA Study Material)**

Q-54 Ace Ltd. manufactures a product and the following particulars are collected for the year ended March, 2000:

- Monthly demand (units) 250
- Cost of placing an order (Rs.) 100
- Annual carrying cost (Rs. per unit) 15
- Normal usage (units per week) 50
- Minimum usage (units per week) 25
- Maximum usage (units per week) 75
- Re-order period (weeks) 4 – 6

You are required to calculate:

(i) Re-order quantity (ii) Re-order level (iii)Minimum level (iv)Maximum level

(iii) Average stock level. **(CS June 2000; Study Material)**

Chapter 7 Cash Management

Q-1 ABC Ltd. has estimated that use of Rs. 24 lakhs of cash during the next budgeted year. It intends to hold cash in a commercial bank which pay interest @ 10% p.a. For each withdrawal, the company incur expenditure of Rs. 150. What is the optimal size for each withdrawal?

Q-2 The annual cash requirement of A Ltd. is Rs. 10 lakhs. The company has marketable securities in lot sizes of Rs. 50,000, Rs. 1,00,000, Rs. 2,00,000, Rs. 2,50,000 and Rs. 5,00,000. Cost of conversion of marketable securities per lot is Rs. 1,000. The company can earn 5% annual yield on its securities.
You are required to prepare a table indicating which lot size will have to be sold by the company. Also show that the economic lot size can be obtained by the Baumol Model.

Q-3 The annual cash requirement of A Ltd. is Rs. 25 lakh. Cost of conversion of marketable securities per lot is Rs. 2,500. The company can earn 5% annual yield on its securities. What will be the economic lost size according to the Baumol Model?

Q-4 The annual cash requirement of XYZ Ltd. is Rs.10 lakh. The company has marketable securities in lot sizes of Rs.50,000, Rs.1,00,000, Rs.2,00,000 and Rs.2,50,000. Cost of conversion of marketable securities per lot is Rs.1,000. The company's opportunity cost of funds is 5% per annum. You are required to prepare a table indicating which lot size will have to be sold by the company. Also determine economic lot size by Baumol Model. **(ICSI Study Material)**

Q-5 Amit Ltd. has a policy of maintaining a minimum cash balance of Rs.5,00,000. The standard deviation of the company's daily cash flows is Rs.2,00,000. The annual interest rate is 14%. The transaction cost of buying or selling securities is Rs.150 per transaction. Determine Amit's upper control limit and return point as per Miller-Orr Model. **(ICSI Study Material)**

Q-6 Summarized below are the income and expenditure forecasts for the month of March to August 2008:

Month	Sales (₹) (Credit)	Purchases (₹) (Credit)	Wages (₹)	Mfg. Exp	Office Expenses	Selling Expenses
March	60,000	36,000	9,000	4,000	2,000	4,000
April	62,000	38,000	8,000	3,000	1,500	5,000
May	64,000	33,000	10,000	4,500	2,500	4,500
June	58,000	35,000	8,500	3,500	2,000	3,500
July	56,000	39,000	9,500	4,000	1,000	4,500
August	60,000	34,000	8,000	3,000	1,500	4,500

You are given the following further information:
1) Plant costing Rs.16,000 is due for delivery in July payable 10 percent on delivery and the balance after three months.
2) Advance tax of Rs.8,000 each is payable in March and June.
3) Period of credit allowed by suppliers 2 months and to customers 1 month.
4) Lag in payment of manufacturing expenses one-half month.
5) Lag in payment of all other expenses one month.
You are required to prepare a cash budget for three months starting on 1st May 2008 when there was a cash balance of Rs.8,000. **(ICSI Study Material)**

Q-7 From the following budgeted figures, prepare a Cash Budget in respect of three months to June 30:

Months	Sales (₹)	Materials (₹)	Wages (₹)	Overheads (₹)
January	60,000	40,000	11,000	6,200
February	56,000	48,000	11,600	6,600
March	64,000	50,000	12,000	6,800
April	80,000	56,000	12,400	7,200
May	84,000	62,000	13,000	8,600
June	76,000	50,000	14,000	8,000

Expected Cash Balance on 1st April Rs.20,000. Other informations are as follows:

1) Materials and overheads are to be paid during the month following the month of supply.

2) Wages are to be paid during the month in which they are incurred.

3) Terms of Sales: The terms of credit sales are payment by the end of the month following the month of sales; ½ of the sales are paid when due, the other half to be paid during the next month.

4) 5% sales commission is to be paid within the month following actual sales.

5) Preference dividend for Rs.30,000 is to be paid on 1st May.

6) Share call money for Rs.25,000 is due on 1st April and 1st June.

7) Plant and Machinery worth Rs.10,000 is to be installed in the month of January and the payment is to be made in the month of June. **(ICSI Study Material)**

Q-8

Year	Month	Sales (₹) (Credit)	Purchases (₹) (Credit)	Wages (₹)	Mfg. Exp	Admin Expenses	Selling Expenses
2007	Nov	25,000	10,000	2,500	1,100	1,000	600
	Dec	30,000	15,000	2,800	1,200	975	650
2008	Jan	20,000	10,000	2,000	1,250	1,060	550
	Feb	25,000	15,000	2,200	1,150	1,040	650
	Mar	30,000	17,500	2,400	1,300	1,105	750
	Apr	35,000	20,000	2,600	1,350	1,120	800
	May	40,000	22,500	2,800	1,450	1,180	825
	June	45,000	25,000	3,000	1,500	1,185	875

1) A sales commission of 5% on sales and due two months after sales, is payable in addition to the above selling expenses.

2) Capital Expenditure – Plant purchased, 1st January for Rs.10,000, its payment being immediately due; Building purchased in January for RS.80,000, payable in two half-yearly installments, the first in February.

3) A dividend of Rs.5,000 (net) is payable in April.

4) Period of credit allowed by creditors and to customers is 2 months.

5) Lag in payment of wages – 1/8th month.

6) Lag in payment of other expenses – 1 month.

7) Cash Balance on January 1, 2008 was expected to be Rs.37,500. **(ICSI Study Material)**

Q-9 From the following details prepare a Cash Budget for October, November and December 2008:

Month	Sales (₹)	Purchases (₹)	Wages (₹)	Expenses (₹)
July (Actual)	50,000	25,000	10,000	4,000
August (Actual)	70,000	38,000	12,000	6,000
September (Actual)	80,000	41,000	13,000	7,000
October (Estimated)	80,000	42,000	14,000	6,000
November, (Estimated)	90,000	46,000	16,000	6,500
December (Estimated)	1,00,000	52,000	15,000	8,000

Additional Information:
1) 20% of purchases and 10% of sales are for cash.
2) The average collection period of the business is ½ month.
3) Credit purchases are regularly paid after one month.
4) Wages are paid half monthly and the Rent of Rs.1,000 (included in Expenses) is paid monthly.
5) Cash balance on October 1, 2008 is Rs.10,000. **(ICSI Study Material)**

Q-10 Prepare a Cash Budget for the quarter ending 30-6-2008 month-wise in a tabular form from the following information:

	Actual			Budgeted		
Particulars	Jan (₹)	Feb (₹)	Mar (₹)	April (₹)	May (₹)	June (₹)
Sales	80,000	80,000	75,000	90,000	85,000	80,000
Purchases	45,000	40,000	42,000	50,000	45,000	35,000
Wages	20,000	18,000	22,000	24,000	20,000	18,000
Expenses	5,000	6,000	6,000	7,000	6,000	5,000

(1) 10% of sales and purchases are for cash.
(2) Credit purchases are paid for after one month and the credit sales are collected after two months.
(3) Wages are paid on the last day of the month and expenses after one month.
(4) Rent Rs.300 per month is not included in expenses.
(5) Income-tax payable in May is estimated to be Rs.4,000.
(6) Cash Balance on March 31, 2008 was Rs.13,000. **(ICSI Study Material)**

Chapter 8 Debtors Management

Q-1 ABC Ltd. provides you the following information:
Selling price per unit - Rs. 20; Variable cost per unit – Rs. 11; Sales for the year – 20,000 units; Fixed cost for the year – Rs. 1,20,000.
Credit period – 3 months
Interest cost of funds – 15% p.a; Collection cost – Rs. 5,000; Bad debts – Rs. 7,500
Calculate net gain.

Q-2 ABC Ltd. provides you the following information:
Selling price per unit - Rs. 20; Variable cost per unit – Rs. 10; Sales for the year – 50,000 units; Fixed cost for the year – Rs. 3,00,000.
Credit period – 3 months
Interest cost of funds – 20% p.a; Bad debts – 5% of sales
The company decided to increase the credit period to 4 months. It will result in increase in sales to 60,000 units. Bad debts will increase to 6% of sales. Should the credit period be increased?

Q-3 ABC Ltd. provides you the following information:
Selling price per unit - Rs. 10; Variable cost per unit – Rs. 4; Sales for the year – 30,000 units; Fixed cost for the year – Rs. 1,50,000.
Credit period – 45 days
Opportunity cost – 12% p.a Calculate opportunity cost assuming 360 days in a year.

Q-4 A Company has prepared the following projections for a year:

Sales	21,000 units
Selling price per unit	Rs. 40
Variable cost per unit	Rs. 25
Total cost per unit	Rs. 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.

Q-5 A company, whose current sales are ₹15,00,000 per annum and average collection period is 30 days, wants to pursue a more liberal credit policy to improve the sales. The following data are available:

Credit Period (period)	Increase in collection Period	Increase in Sales (₹)
A	15	60,000
B	30	90,000
C	45	1,50,000
D	60	1,80,000
E	90	2,00,000

The selling price per unit is ₹5. Average cost per unit is ₹4 and variable cost per unit is ₹2.75. The required rate of return on additional investment is 20%. Assume 360 days in a year and nil bad debts loss.
Which of the above policies would you recommend and why? **(CS June 2015)**

Q-6 XYZ Ltd. is making a sales of Rs. 50,00,000 by extending a credit of 30 days to its customers. It has a variable cost of 70%. Calculate opportunity cost if cost of capital of the firm is 20%. Assume 360 days in a year.

Q-7 A company has sales of Rs. 10,00,000. Average collection period is 50 days. Bad debt losses 6% of sales and collection expenses Rs. 10,000. The cost of funds is 15% p.a. What is the total cost associated with credit sales? (Assume 360 days in a year)

Q-8 A company has sales of Rs. 10,00,000. Average collection period is 40 days. Bad debt losses 4% of sales and collection expenses Rs. 20,000. The cost of funds is 15% p.a. What is the total cost associated with credit sales? (Assume 360 days in a year)

Q-9 A company has sales of Rs. 25,00,000. Average collection period is 50 days. Bad debt losses are 5% of sales and collection expenses are Rs. 25,000. The cost of funds is 15%. The company has two alternative collection programmes:

	Programme I	Programme II
Average collection period	40 days	30 days
Bad debts	4%	3%
Collection expenses	Rs. 50,000	Rs. 80,000

How much credit should company offer on the basis of total cost associated with credit sales (Assume 360 days in a year)?

Q-10 ABC Ltd. provides you the following information:

Particulars	**Customers with 10% risk of non payment**	**Customers with 30% risk of non payment**
Sales	Rs. 40,000	Rs. 50,000
Cost of production	60% of sales	60% of sales
Collection cost	5% of sales	10% of sales

Advise which customer to be preferred?

Q-11 ABC & XYZ Food 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's 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	Current Position	Option I	Option II
Sales (₹ in lakhs)	200	220	250
Credit Period (Months)	1	2	3
Bad Debts (% of Sales)	2	3	5
Cost of Credit (₹ in lakhs)	1.20	1.50	3.00

Advise the company to take the right decision. (Working should for part of the answer)

(ICSI Study Material)

Q-12 Radiance Garments Ltd. manufactures readymade garments and sells them on credit basis through a network of dealers. Its present sales is Rs. 60 lakh 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 Rs. 8 lakh 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 (Rs. Lakh)
I	30	65
II	40	70

III	50	74
IV	60	75

Assume 360 days in a year. Calculation should be made upto two digits after decimal.
Which credit policy should the company adopt?

Q-13 PQR Ltd. is currently selling 2,00,000 units of its product @ Rs. 50 each. At the current level of production the cost per unit is Rs. 45, variable cost per unit is Rs. 40. The company is currently extending one month credit. The company is thinking of extending credit period to two months in the expectation that sales will increase by 20 percent. If the required rate of return on firms investment is 25%, is the new credit policy desirable for the company?

Q-14 A dealer having annual sales of Rs. 50 lakh extends 30 days credit period to its debtors. The variable cost is estimated at 80% on sales and fixed costs are Rs. 6,00,000. The dealer intends to change the credit policy for which the following information is given:

Credit Policy	Average Collection Period (Days)	Annual Sales (Rs. in Lakhs)
A	45	56
B	60	60
C	75	62

Rate of return (pre-tax) required on investment is 20%. You are-required to assess the most profitable policy with the help of incremental approach. Calculations may be restricted to two decimal places. **(CS 2006 June)**

Q-15 A trade whose current sales are Rs.6 lacs per annum and an average collection period of 30 days wants to pursue a more liberal credit policy to improve sales. A study made by a management consultant reveals the following information:

Credit Policy	Increase in collection period	Increase in Sales	Bad debt loss anticipated
A	10 days	Rs.30,000	1.5%
B	20 days	Rs.48,000	2.0%
C	30 days	Rs.75,000	3.0%
D	45 days	Rs.90,000	4.0%

The selling price per unit is Rs.3, average cost per unit is Rs.2.25 and variable cost per unit is Rs.2. The current bad debt loss is 1%. Required return on average investment is 20%. Assume 360 days in a year. Which of the above policies would you recommend for adoption? **(ICSI Study Material)**

Q-16 ABC Ltd. has present annual sales of 10,000 units at Rs.300 per unit. The variable cost is Rs.200 per unit and fixed costs amount to Rs.3,00,000 per annum. The present credit period allowed by the company is 1 month. The company is considering a proposal to increase the credit period to 2 months and 3 months and has made the following estimates:

	Existing	Proposed	
Credit Policy	1 month	2 months	3 months
Increase in sales	–	15%	30%
% of Bad Debts	1%	3%	5%

There will be increase in fixed cost by Rs.50,000 on account of increase of sales beyond 25% of present level.
The company plans on a return of 20% on investment in receivables.
You are required to calculate existing and proposed net profit and also calculate most paying credit policy for the company. **(ICSI Study Material)**

Q-17 A company sells 40,000 units of its products per year @ Rs. 35/unit. The average cost/unit is Rs. 31 out of which variable cost pet unit is Rs. 28. The average collection period is 60 days. Bad debts losses are 3% on sales and the collection charges amount to Rs. 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 1000 units and increase collection expenses to Rs. 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)

Q-18 The company has sold 10,000 units in a year. Variable cost per unit is Rs. 20. Fixed cost for the year is Rs. 1,00,000. Credit period is 2 months while average collection period is 3 months. Calculate opportunity cost for funds invested in debtors. Rate of interest is 25%.

Q-19 The annual sales of ABC Ltd. is Rs. 20,00,000. Its variable cost and total cost are 0.85 and 0.95. Average collection period is 30 days while the credit period is 20 days. Calculate funds blocked in debtors assuming 360 days in a year.

Q-20 The present terms of ABC Ltd. are 3/15 net 90. Its annual sales are Rs. 10,00,000. The proportion of sales on which customers currently take discount is 0.6. Calculate cash discount.

Q-21 The present terms of ABC Ltd. are 2/10 net 60. Its annual sales are Rs. 10,00,000. The proportion of sales on which customers currently take discount is 0.70. ABC Ltd. is considering relaxing its discount terms 3/10 net 60. Such relaxtion is expected to increase sales by Rs. 2,00,000 and increase the proportion of discount sales to 0.90. Calculate incremental cost of cash discount.

Q-22 The present credit terms of Creation Ltd. are 1/10, net 30. Its annual sales are Rs. 80 lakh, 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%. The proportion of sales on which customers currently take discount is 0.5. Creation Ltd. is considering relaxing its discount terms to 2/10, net 30. Such relaxation is expected to increase sales by Rs. 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 of 360 days. **(CS June 2007)**

Q-23 The present credit terms of Creation Ltd. are 1/5, net 20. 60% of the debtors avail the facility of cash discount. Calculate Average collection period.

Q-24 The present credit terms of Creation Ltd. are 2/20, net 60. The proportion of discount sales is 0.8. Calculate Average collection period.

Q-25 Sawan Ltd. currently has sales of Rs. 30,00,000 with an average collection period of two months. At present, no discounts are offered to the customers. The management of the company is thinking to allow a discount of 2% on cash sales which will result as under:

i. The average collection period would reduce to one month.
ii. 50% of customers would take advantage of 2% discount.

The company would normally require a 25% return on its investment. Advise the management whether to extend the discount on cash sales. **(CS June 2012)**

God is all knowing. Without even saying a word our condition is known to God - Sant Rajinder Singh Ji

Q-26 Peacock Ltd has been engaged in manufacturing of textiles. It has a current sales of Rs. 30 lakh per annum. The cost of sales is 75% of sales and bad debts are 1% of sales. The cost of sales comprises 80% variable cost and 20% fixed cost, while the company's required rate of return is 12%.
The company currently allows customer 30 days credit, but is now considering increasing this to 60 days' credit in order to attract more customers.
It has been estimated that this change in policy will increase sales by 15%, while bad debts will increase from 1% to 4%. It is expected that the policy change will not result in any increase in fixed costs, creditors and stock level.
Should Peacock Ltd. introduce proposed policy? {**CS June 2011; CS June 2014(P) 8 marks}**

Q-27 ABC Ltd. sold 20,000 units during the year. Variable cost per unit is Rs. 15 and fixed cost for the year is Rs. 5,00,000. Debtors turnover ratio is 20 times. Average collection period is 18 days. Calculate opportunity cost if return of 15% is expected from investments. Assume 360 days in a year.

Q-28 ABC Ltd. sold 50,000 units during the year at Rs. 7.50 per unit. Receivables turnover ratio is 15 times. Calculate opportunity cost if return of 15% is expected from investments.

Q-29 ABC firm is considering to make relaxation in its credit policy. The ABC management has evaluated two new policies. From the following details advise the ABC management which policy has to be adopted:

(i) Annual credit sales at present Rs. 87.5 lakhs

(ii) Proposed credit sales:

Under alternative I	Under alternative II
Rs. 105 lakhs	Rs. 118 lakhs

(iii) Account receivable turnover ratio and bad debt losses:

Existing	I	II
-	5.25 times	4.2 times
Rs. 2.63 lakhs	Rs. 5.25 lakhs	Rs. 7.88 lakhs

(iv) The ABC is required to give a return over 30% on the investment in new accounts receivable and its PV ratio is 30%.

Q-30 In order to increase sales from the normal level of Rs. 2.4 lakhs per annum, the marketing manager submits a proposal for liberalizing credit policy as under:

Normal sales Rs. 2.4 lakhs
Normal credit period 30 days

Proposed increase in credit period beyond normal 30 days	**Relevant increase over normal sales (Rs.)**
15 days	12,000
30 days	18,000
45 days	21,000
60 days	24,000

The P.V. ratio of the company is 33⅓%. The company expects a pre-tax return of 20% on investment. Evaluate the above four alternatives and advise the management. (Assume 360 days a year) **(Study Material)**

God is all knowing. Without even saying a word our condition is known to God
- Sant Rajinder Singh Ji

Q-31 SK Limited specializes in the manufacture of a computer component. The component is currently sold for Rs. 1,000 and its variable cost is Rs. 800. For the year ended 31st March, 2006 the company sold on average 400 components per month.

At present, the company grants one month credit to its customers. The company is thinking of extending the same to two months on account of which the following is expected:

Increase in sales	25%
Increase in stock	Rs. 2,00,000
Increase in creditors	Rs. 1,00,000

You are required to advise the company on whether or not to extend the credit terms if all customers avail the credit period of two months.

The company expects a minimum return of 40% on the investment. **(ICSI Study Material)**

Q-32 A group of new customers with 10% risk of non-payment, desires to establish business connection with you. The group desires one and a half months credit and is likely to increase the sales of your concern by Rs. 1,20,000 per annum. Cost of sales would be 80% of sales. Tax rate is 30% and required rate of return is 40% (after tax). What will be the net gain if business connection is established? **{CS Dec 2015(P)}**

Q-33 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 month's credit and is likely to increase sales by Rs. 1,00,000 per annum. Production and selling expenses amount to 80% of sales and income-tax rate is 30%. The company's minimum required rate of return after tax is 25%.

Calculate net gain. **(CS Dec 2006)**

Q-34 Good Luck Ltd. which sells on credit basis has ranked its customers in categories 1 to 5 order of credit risk:

Category	Percentage of Bad Debts	Average Collection Period
1	0.0	30 days
2	1.0	45 days
3	2.0	60 days
4	5.0	90 days
5	10.0	120 days

The Company's current credit policy is to allow unlimited credit to firms in categories 1 to 3; limited credit to firms in category 4 and no additional credit to firms in category 5.

As a result, orders amounting to Rs. 25,00,000 from category 4 and Rs. 75,00,000 from category 5 are rejected every year. If the Good Luck Ltd. makes a 10% gross profit on sales and has an opportunity cost on investment in receivables of 12%, what would be the effect on profits of allowing full credit to all categories of customers? Should credit be extended to all categories of customers? **(ICSI Study Material)**

Q-35 The present credit term of X Ltd. are 1/10 net 30. Its annual sales are ₹ 40,00,000, its average collection period is 20 days. Its variable cost and average total costs to sales are 0.85 and 0.95 respectively and its cost of capital is 10%. The proportion of sales on which customers currently takes discount is 0.50.

X Ltd. is considering relaxing the discount terms to 2/10 net 30. Such relaxation is expected to increase sales by ₹ 5,00,000, reduce the average collection period to 14 days and increase the proportion of discount sales to 0.80. What will be the effect of relaxing the discount policy on company's profit ? Take year as 360 days. **(CS Dec 2018)**

Chapter 9 Factoring

Q-1 A Ltd. has total sales of Rs. 12,00,000 and its average collection period is one month. A factor is prepared to buy receivables by charging 2% commission. The factor will pay advance on 80% of the receivables at an interest rate of 18% p.a. Calculate advance payable to the company?

Q-2 A Ltd. has total sales of Rs. 36,00,000 and its average collection period is 90 days. A factor is prepared to buy receivables by charging 3% commission. The factor will pay advance on 90% of the receivables at an interest rate of 12% p.a. Calculate advance payable to the company? Assume 360 days in a year.

Q-3 A manufacturing firm has credit sales of Rs. 360 lakh and its average collection period is 30 days. The financial controller estimates bad-debt losses at around 2% of credit sales. The firm spends Rs. 1,40,000 annually on debtors administration. 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. Calculate net amount of advance available to the company. Assume 360 days in a year.

Q-4 A Ltd. has a total sales of Rs. 3.2 crores and its average collection period is 90 days. The past experience indicates that bad debts losses are 1.5% on sales. The expenditure incurred by the firm in administering its receivable collection efforts are Rs. 5,00,000. A factor is prepared to buy the firm's receivables by charging 2% commission. 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.

Q-5 A Ltd. has a total sales of Rs. 24,00,000 and its average collection period is 2 months. The past experience indicates that bad debts losses are 2% on sales. The expenditure incurred by the firm in administering its receivable collection efforts are Rs. 20,000 per annum. A factor is prepared to buy the firm's receivables by charging 2% commission. The factor will pay advance on receivables to the firm at an interest rate of 12% p.a. after withholding 15% as reserve. Calculate the effective cost of factoring to the firm.

Q-6 A manufacturing firm has credit sales of Rs. 360 lakh and its average collection period is 30 days. The financial controller estimates bad-debt losses at around 2% of credit sales. The firm spends Rs. 1,40,000 annually on debtors administration. This cost comprises of telephone and internet bills along with salaries of staff members.

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. Assume 360 days in a year. Calculate net benefit to the firm on acceptance of factoring proposal. **{CS June 2016 (P)}**

Q-7 The turnover of Zenith Ltd. is Rs. 100 lakh of which 72% is on credit. Debtors are allowed one month to clear off the dues. A factoring company is willing to advance 80% of the bills raised on credit for a fee of 1% a month plus a commission of 5% on the total amount of debts. Zenith Ltd. as a result of this arrangement is likely to save Rs. 48,000 annually in management costs and avoid bad debts at 1% on the credit sales.

A bank has come forward to make an advance equal to 80% of the debts at an annual interest rate of 15%. However, its processing fee will be at 1% on the debts. Would you accept factoring or offer from the bank?

Q-8 The total turnover of X Ltd. is ₹50 lakhs of which 72% is on credit. Debtors are allowed one month to clear off the dues. A factoring company is willing to advance 80% of the bill raised on credit for a fee of 2% a month plus a commission of 10% on the total amount of debts. X Ltd., as a result of this arrangement, is likely to save ₹48,000 annually in management cost and avoid bad debts @ 1% on the credit sales.

A bank has come forward to make an advance equal to 80% of the debts at an annual interest rate of 15%. However, its processing fees will be @ 2% on the debts. Would you accept factoring or the offer from the bank? **(CS June 2019)**

Q-9 A manufacturing firm has credit sales of ₹ 360 lakh and its average collection period is 30 days. The financial controller estimates bad-debt losses at around 2% of credit sales. The firm spends ₹1,40,000 annually on debtors' administration. This cost comprises of telephone and internet bills along with salaries of staff members.

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. **(CS June 2016)**

Chapter 10 Working Capital Estimation

Q-1 ABC& XYZ Ltd. Plans to sell 30,000 units next year. The expected cost of goods sold is as follows:

	Rs. (per unit)
Raw Material	100
Manufacturing Expenses	30
Selling, Administration and Finance Expenses	20
Selling Price	200

The duration of various stages of the operating cycle is expected to be as follows:

Raw Material stage	2 months
Work-in-progress stage	1 month
Finished Goods stage	1/2 month
Debtors stage	1 month

Assuming the monthly sales level of 2500 units; estimate the gross working capital requirements if the desired cash balance is 5% of the gross working capital requirements. **(ICSI Study Material)**

Q-2 A company provided the following data:

	Cost per Unit Rs.
Raw materials	52.00
Direct labour	19.50
Overheads	39.00
Total	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; and overheads: one month. One-fourth of sales are on cash basis. Cash balance is expected to be Rs. 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 be made on the basis of 30 days a month and 52 weeks a year. **(CS Dec 1999)**

Q-3 Prepare working capital forecast from the following information: Rs.

Production during the previous year was 10,00,000 units which is expected to be maintained during the current year. The expected ratios of cost to selling price are-

Raw materials	40%
Direct wages	20%
Overheads	20%

Raw materials ordinarily remain in stock for 3 months before production. Every unit of production remains in process for 2 months. Finished goods remain in stock for 3 months. Creditors allow 3 months for payment and debtors are allowed 4 months credit. Estimated minimum cash to be held will be Rs.2,00,000. Lag in payment of wages and overheads is expected to be half a month. The selling price will be Rs. 8 per unit. The production is in continuous process and sales are in regular cycle. **(CS Dec 2004)**

God is all knowing. Without even saying a word our condition is known to God

- Sant Rajinder Singh Ji

Q-4 From the following information, you are required to estimate the net working capital:

	Cost per Unit (Rs.)
Raw Material	800
Direct Labour	300
Overheads (excluding Depreciation)	600
Total Cost	1700
Output 52,000 units per annum at an even pace	
Raw Material in stock	Average 4 weeks
Work-in-Progress (whole of material and	
50% completion Stage for labour and overhead)	Average 2 weeks
Finished goods in stock	Average 4 weeks
Credit allowed to debtors	Average 8 weeks
Credit allowed by suppliers	Average 4 weeks

All sales are on credit basis and materials are introduced at the commencement of the process.

(ICSI Study Material)

Q-5 From the following details, prepare an estimate of the requirement of working capital:

Production	60,000 Units
Selling Price per Unit	Rs.5
Raw materials	60% of Selling Price
Direct Wages	10% of Selling Price
Overheads	20% of Selling Price
Materials in Hand	2 months' requirements
Production Time	1 month
Finished Goods in Stores	3 months
Credit for Material	3 months
Credit allowed to Customers	3 months
Average Cash Balance	Rs.20,000

Wages and overheads are paid at the beginning of the month following. In production all the required materials are charged in the initial stage and wages and overheads accrue evenly.

(ICSI Study Material)

Q-6 The cost sheet of PQR Ltd. provides the following data:

Cost per Ton	(Rs.)
Raw Material	50
Direct Labour	20
Overheads (including depreciation of Rs.10)	40
Total Cost	110
Profits	20
Selling price	130

Average raw material in stock is for one month.

Average material in work-in-progress is for half month. Credit allowed by suppliers: one month; credit allowed to debtors: one month. Average time lag in payment of wages: 10 days; average time lag in payment of overheads 30 days, 25% of the sales are on cash basis. Cash balance expected to be Rs.1,00,000. Finished goods lie in the warehouse for one month.

You are required to prepare a statement of the working capital needed to finance level of the activity of 54,000 units of output. Production is carried on evenly throughout the year and wages and overheads accrue similarly. **(ICSI Study Material)**

Q-7 Estalla Garment Co. Ltd. is a famous manufacturer and exporter of garments to the European countries. The finance manager of the company is preparing its working capital forecast for the next year. After carefully screening all the documents, he collected the following information: Production during the previous year was 15,00,000 units. The same level of activity is intended to be maintained during the current year.

The expected ratios of cost to selling price are:

Raw materials 40% Direct wages 20% Overheads 20%

The raw materials ordinarily remain in stores for 3 months before production. Every unit of production remains in the process for 2 months and is assumed to be consisting of 100% raw material, wages and overheads. Finished goods remain in warehouse for 3 months. Credit allowed by the creditors is 4 months from the date of the delivery of raw material and credit given to debtors is 3 months from the date of dispatch.

The estimated balance of cash to be held: Rs. 2,00,000

Lag in payment of wages: ½ month

Lag in payment of expenses: ½ month

Selling price is Rs. 10 per unit. Both production and sales are in a regular cycle. You are required to make a provision of 10% for contingency (except cash). Relevant assumptions may be made.

You have recently joined the company as an assistant finance manager. You are required to prepare working Capital forecast. **(CS Dec 2000)**

Q-8 From the following information provided, you are required to calculate the working capital requirement for the year for the company. Present your calculation in a Tabular Form:

(i) Annual Sales ₹46.80 lakhs: 78,000 units

25% Cash Sales and balance on credit

(ii) Raw Material Cost: 60% of sales value

(iii) Labour Cost: ₹ 6 per unit

(iv) Variable Overheads: ₹ 1 per unit

(v) Fixed Overheads: ₹ 5,00,000 (including ₹1,10,000 as depreciation)

(vi) Budgeted stock levels:

Raw Materials:	3 weeks
Work-in-progress :	1 week
(Material 100%, Labour and Overheads 50%)	
Finished goods:	2 weeks

(vii) Finished goods will be valued at total cost.

(viii) Debtors are allowed credit for 4 weeks.

(ix) Creditors allow 4 weeks credit.

(x) Wages are paid bimonthly i.e. by the 3rd week and by the 5th week for the 1st & 2nd weeks and the 3rd & 4th weeks respectively.

(xi) Time lag in payment of overheads: 2 weeks

(xii) Cash-in-hand required: ₹ 50,000

(xiii) It is assumed that production is carried on evenly throughout the year and wages and overheads accrue similarly.

(xiv) Calculation to be based on 52 weeks in a year. **(CS June 2019)**

Q-9 Compute the requirement of Working Capital of a company from the following information provided:

Sales for current year ₹ 25,00,000

There will be increase in sales by 40% in the next year

Gross Profit 20% on sale

Creditor purchase 1/4th of Cost of Goods Sold

Average collection period = 60 days; Average payment period = 60 days

Inventory Holding Period = 90 days (On the basis of Cost of Goods Sold)

Cash and Bank Balance 2% of Sales

(for calculation 1 year to be taken 12 x 30 = 360 days) **(CS Dec 2017)**

Q-10 From the following information provided, you are required to calculate the working capital requirement for the company. Present your calculation in a Tabular Form.

(a) Cost per unit	(₹)
Raw Material	208
Direct Labour	78
Overheads	156
Total Cost	442
Profit	78
Selling Price per unit	520

(b) (i) Raw material will be in stock on an average for one month holding.
(ii) Work in Process will comprise of 100% of material, 50% of wages and overheads for average of half a month.
(iii) Finished goods will be in stock on average of one month.
(iv) Credit allowed by suppliers of Raw Material is one month.
(v) Time lag in payment of wages is 1½ weeks.
(vi) Time lag in payment of overheads is 1 month.
(vii) Time lag in payment from Debtors is 2 months.
(viii) Cash Balance is to be maintained at a minimum of ₹4,80,000.
(c) Level of Activity : Production of 70,000 units per annum. It is to be assumed that production is carried on evenly throughout the year and wages and overheads accrue similarly.
(d) Calculation to be based on 30 days a month and 52 weeks in a year.
(e) Finished goods will be valued at Total Cost. **(CS Dec 2018)**

Q-11 Gayatri Textiles Limited 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 March, 2019 are given below:

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	1 month

Credit allowed to debtors is 1.5 months and credit allowed by creditors is 1month. Wages and overheads are paid in the next month following the month of accrual. In the work-in-progress 50% of wage 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 an additional safety margin of 15% on net working capital will be maintained. Calculate amount of working capital required for the company. **(CS Dec 2020)**

Q-12 From the following projections of M/s XYZ Limited for the year 2006-07 workout the amount of Working Capital Required:

Estimates for 2006-07	Rs.
Annual Sales	14,40,000
Cost of Production (including depreciation of Rs. 1, 20,000)	12,00,000
Raw Material purchases	7,05,000
Monthly expenditure	25,000
Anticipated opening stock of raw materials	1,40,000
Anticipated closing stock of raw materials	1,25,000

Inventory norms:
Raw Material 2 months Work-in-progress 15 days Finished Goods 1 month
The Company enjoys a credit of 15 days on its purchase and allows one month credit to its debtors. On sales orders the company has received an advance of Rs. 15000.
You may assume that production is carried out evenly throughout the year and minimum cash balance desired to be maintained is Rs. 10,000. **(ICSI Study Material)**

Q-13 A Performa cost sheet of ABC Company provide the following particulars:

Element of Cost Amount per unit	Rs
Raw materials	80
Direct Labour	30
Overheads	60
Total Cost	170
Profit	30
Selling Price	200

The following further particulars are available:

Ram materials are in stock for one month on an average. Materials are in process of half month on an average. Finished goods are in stock for one month on an average. Credit allowed by suppliers is one month. Credit allowed to debtors is two months. Lag in payment of wages is 2 weeks. Lag in payment of overhead expenses is one month. 25% of output is sold for cash. Cash in hand and at bank is expected to be Rs. 30,000.

You are required to prepare a statement showing the working capital needed to finance a level of activity of 1,04,000 units of production. You may assume that production is carried on evenly throughout the year. Wages and overhead accrue similarly and a time period of 4 weeks and 52 weeks is equivalent to a month and a year respectively. **(ICSI Study Material)**

Q-14 X Ltd. sells goods at a gross profit of 20%. It includes depreciation as part of cost of production. The following figures for the 12 months period ending 31st Dec. 1996 are given to enable you to ascertain the requirements of working capital of the company on a cash cost basis. In your workings, you are required to assume that:

i. a safety margin of 15% will be maintained;
ii. cash is to be held to the extent of 50% of current liabilities.
iii. there will be no work – in – progress;
iv. tax is to be ignored.

Stocks of raw materials and finished goods are kept at one month's requirements.

All working notes are to form part of your answer.	Rs.
Sales – at 2 month's credit	27,00,000
Materials consumed (suppliers credit is for 2 months)	6,75,000
Wages (paid at the beginning of the next month)	5,40,000
Manufacturing expenses outstanding at the end of the year (cash expenses are paid one month in arrear)	60,000
Administrative expenses (paid as above)	1,80,000
Sales promotion expenses – paid quarterly and in advance	90,000

[Ans: Cash cost of Working Capital = Rs. 5,64,938] **(CS Dec 2010)**

Q-15 The following annual figures relate to M Ltd.

	₹
Sales (with two months' credit)	36,00,000
Materials consumed (suppliers extend two months credit)	9,00,000
Wages paid (monthly, in arrear)	7,20,000
Manufacturing expenses (monthly, in arrear)	9,60,000
Total administrative expenses (monthly, in arrear)	2,40,000
Sales promotion expenses (quarterly, in advance)	1,20,000

The company sells its products on gross profit of 25% with depreciation as part of the cost of production. It maintains one month's inventory for each of raw materials and finished goods and a cash balance of ₹1,00,000.

Assuming a 20% safety margin, work out the working capital requirements of the company on cash cost basis, ignoring work-in-process. **(CS June 2021)**

Q-16 From the following particulars, calculating working capital adding 10% per annum for contingencies.

		Rs.
(a) Average amount backed up for stocks:		
Stock of finished products		1000
Stock of materials and stores		1600
(b) Average credit given:		
Home market 6 weeks credit		62,400
Foreign market 1.5 week's credit		15,600
(c) Payment in Advance:		
Sales promotion expenses (paid quarterly in advance)		1,600
(d) Lag in payment of wages and other expenses:		
Wages	1.5 weeks	52,000
Materials and Stores	1.5 months	9,600
Office Salaries	0.5 month	12,480
Rent	6 months	2,000
Other expenses	1.5 months	9,600 **(ICSI Study Material)**

Q-17 The following information is available for Swagat Ltd.:

	Rs. in Million
Average stock of raw materials and stores	200
Average work-in-process inventory	300
Average finished goods inventory	180
Average accounts receivable	300
Average accounts payable	180
Average raw materials and stores purchased on credit and consumed per day	10
Average work-in-process value of raw materials committed per day	12.5
Average cost of goods sold per day	18
Average sales per day	20

You are required to calculate

i. Duration of raw material stage
ii. Duration of work-in-progress stage
iii. Duration of finished goods stage
iv. Duration of accounts receivable stage
v. Duration of accounts payable stage
vi. Duration of the operating cycle **(CS June 2002)**

Q-18 From the following data of ARPG Co., compute the duration of the operating cycle for each of the two years:

	Year 1	Year 2
Stocks:	Rs.	Rs.
Raw Materials	20,000	27,000
Work-in-Progress	14,000	18,000
Finished Goods	21,000	24,000
	96,000	1,35,000
Purchases		
Cost of Goods Sold	1,40,000	1,80,000
Sales	1,60,000	2,00,000
Debtors	32,000	50,000
Creditors	16,000	18,000

Assume 360 days per year for computational purposes. **(ICSI Study Material)**

Q-19 The following projected figures are available for Ritu, Ltd., a trading concern for the year 2017-18

Sales ₹ 27,00,000 Purchases ₹18,70,000

	(₹)	
	1-4-2017	31-3-2018
Inventory	3,00,000	3,40,000
Debtors	3,40,000	2,60,000
Creditors	1,80,000	1,40,000

All sales and purchases are on credit and assume 365 days in a year. Compute the cash operating cycle in days. **(CS Dec 2017)**

Q-20 XYZ Ltd. is a company manufacturing standardized chandeliers. The segment they deal in is more or less an oligopolistic kind of market with mediocre market potential. The demand of their product had been wavering in past, but owing to increasing economic level of middle class in India, the board of directors is confident of brighter days in future. On 1st April, 2023, the board of directors of the company is desirous of knowing the amount of working capital that will be required to meet the planned level of operations during the year 2023-24. Following details have been provided in this regard:

Issued share capital	Rs. 2 Crore
10% Debentures	Rs. 50 Lakh
Fixed Assets (1st April, 2023)	Rs. 1.25 Crore

Production and sales during the year 2023-24 is expected to average out to 500 units per month. During the previous year, the ratios of cost to selling price, which are also likely to be maintained in current year as well, were as follows:

Raw Materials	60%
Direct Wages	10%
Overheads	20%

Following additional information has been provided in this regard:

(1) Raw materials and components are expected to remain in store for an average period of two months before being issued to assembly and production.

(2) Each unit of product is expected to be in process for 15 days.

(3) Finished goods stay in warehouse for an average period of 1 month before being dispatches to customers.

(4) Suppliers of raw material components extend an average credit of 1.5 month.

(5) 80% sales are credit and though credit extended to customers is two months, average credit collection period is 75 days.

(6) On an average, overheads of 2 weeks remain outstanding.

(7) Selling price per unit is Rs. 5,000.

(8) Work-in-progress, cost involves 100% of material and 50% of labour and overheads.

(9) Sundry debtors to be valued at cash cost. Entire overhead cost is assumed to be cash cost.

(10) One year is equal to 360 days or 52 weeks.

(11) Assuming production and sales follow a constant pattern.

You are required to:

(a) Prepare an estimate of working capital required by the company for the ensuing year. Add 10% of your calculated figure for contingencies. **(10 marks)**

(b) Prepare a forecast of Profit/Loss account for the ensuing year. **(5 marks)**

(c) Prepare a forecasted Balance Sheet at the end of ensuing year. **(5 marks)**

(CS Dec 2023)

Q-21 From the following information extracted from the books of a manufacturing company, compute the operational cycle in days:

Period Covered		365 days
Average periods of credit allowed by suppliers		16 days
Average total of debtors outstanding		Rs. 4,80,000
Raw material consumption		Rs. 44,00,000
Total production cost		Rs. 1,00,00,000
Total cost of sales		Rs. 1,05,00,000
Sales for the year		Rs. 1,60,00,000
Value of Average stock maintained		
Raw material	Rs. 3,20,000	
Work-in-progress	Rs. 3,50,000	
Finished Goods	Rs. 2,60,000	**(ICSI Study Material)**

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- Sant Rajinder Singh Ji

Chapter 11 Time Value of Money

Q-1 Find the present value of Rs. 1,000 receivable 6 years hence if the rate of discount is 10 percent.

Q-2 Find the present value of Rs. 1000 receivable 20 years hence if the discount rate is 8 percent.

Q-3 Determine the present value of Rs. 78,67,597 receivable at the end of 4th year at rate of interest of 12% p.a.?

Q-4 A company expects to receive $8,000 after 5 years. Calculate the present value of this sum if the current market interest rate is 12% and the interest is compounded annually. **(ICSI Study Material)**

Q-5 $7,000 for 10 years from now at 7% is worth how much today? **(ICSI Study Material)**

Q-6 What is the present value of $84,253 to be received or paid in 5 years discounted at 11% by table and factor formula? **(ICSI Study Material)**

Q-7 Mr. Nadeem owes a total of $3,060 which includes 12% interest for the three years he borrowed the money. How much did he originally borrow? **(ICSI Study Material)**

Q-8 If Ramesh want $2,000 three years from now and the compounded interest rate is 8%, how much should he invest today? **(ICSI Study Material)**

Q-9 What is the present value of an offer of $14,000 two years from now if the opportunity cost of capital (discount rate) is 17% per year discounted annually? **(ICSI Study Material)**

Q-10 Calculate the present value of Rs. 25,00,000, Rs. 30,00,000 and Rs. 40,00,000 receivable at the end of 1st year, 2nd year and 3rd year respectively at an effective rate of interest of 12% p.a.

Q-11 Calculate present value of cash flows from the following data

Year end	Cash flows
1	20,000
2	25,000
3	50,000

Discount rate is 15% p.a.

Q-12 A project generates the following cash flows;
Beginning of years:
1 – ($100,000) (contractors' fees)
2 – ($200,000) (contractors' fees)
3 – ($200,000) (contractors' fees)
End of Year 3: $1,000,000 (sales)
Calculate the NPV of the project using a risk discount rate of 20% per year **(ICSI Study Material)**

Q-13 An asset is expected to generate annual cash flows of Rs. 17,250 for first 9 years. In the 10th year it is expected to generate cash flow of Rs. 42,250. The minimum rate of return required by company is 15%. Compute of present value of cash flows.

Q-14 An asset is expected to generate annual cash flows of Rs. 27,500 for 10 years. Discount rate is 10%. Present value of annuity of Re. 1 at 10% rate of discount for 9 years is 5.759.
Present value of annuity of Re. 1 at 10% rate of discount received at the end of 10th year is 0.386.

Q-15 Calculate present value of cash flows from the following data

Year end	Cash flows
1	20,000
2	25,000
3-5	50,000

Discount rate is 15% p.a.

Q-16 Calculate present value of cash flows from the following data

Year end	Cash flows
1-3	20,000
4	25,000
5	50,000
6-10	70,000

Discount rate is 10% p.a.

Q-17 ..... is the present value of an asset, if the annual cash inflow is Rs. 1,000 per year for next 5 years and the discount rate is 15%. **(CS Dec 2019)**

Q-18 Find out the present value of a 4 year annuity of Rs. 20,000 discounted at 10 per cent. **(Study Material)**

Q-19 Determine the present value of Rs. 7,000 each paid at the end of each of the next six years. Assume an 8 per cent of interest. **(Study Material)**

Q-20 Rs. 5,000 is paid every year for ten years to pay off a loan. What is the loan amount if interest rate be 14% per annum compounded annually?

Q-21 S borrows Rs. 5,00,000 to buy a house. If he pays equal instalments for 20 years and 10% interest on outstanding balance. What will be the equal annual instalment?

Q-22 A doctor is planning to buy an X-Ray machine for his hospital. He has two options. He can either purchase it by making a cash payment of Rs. 5,00,000 or Rs. 6,15,000 are to be paid in six equal annual installments. Which option do you suggest to the doctor assuming the rate of return is 12%? Present value of annuity of Re. 1 at 12% rate of discount for six years is 4.111.

Q-23 Y bought a TV costing Rs. 13,000 by making a down payment of Rs. 3,000 and agreeing to make equal annual payment for 4 years. How much would be each payment if the interest on unpaid amount be 14% compounded annually?

Q-24 Your mom promise to give you Rs. 1,000 on every 31st December for the next five years. Today is 1st January. But you don't want Rs. 1,000 to be given to you each year. You instead want a lump sum figure today. What will you get if required rate of return is 10%?

Q-25 Your dad purchases a car for Rs. 5,50,000. He gets a loan of Rs. 5,00,000 at 15% p.a. from a bank and balance Rs. 50,000 he pays at the time of purchase. Your dad has to pay whole amount of loan in 12 equal monthly installments with interest starting from the end of first month. Calculate equal monthly installment?

Q-26 What is the present value of an annuity of Rs. 15,000 starting immediately (t = 0) and paying another 5 annual instalments? Assume a discounting rate of 12%. **(CS Dec 2019)**

Q-27 What is the present value of an annuity of Rs. 25,000 starting immediately (t = 0) and paying another 8 annual instalments? Assume a discounting rate of 15%.

Q-28 Your mom decided to gift you Rs. 10,000 every year starting from today for the next five years. You deposit this amount in a bank as and when you receive and get 10% per annum. What is the present value of this annuity?

Q-29 If an investment of Rs. 3,00,000 pays Rs. 25,000 p.a. in perpetuity, what is the Net Present Value, if the interest rate is 9%? **(CS Dec 2019)**

Q-30 If an investment of Rs. 4,00,000 pays Rs. 45,000 p.a. in perpetuity, what is the Net Present Value, if the interest rate is 15%?

Q-31 Magnificent Limited pays $2 in dividends annually and estimates that they will pay the dividends indefinitely. How much are investors willing to pay for the dividend with a required rate of return of 5%? **(ICSI Study Material)**

Q-32 Uday wants to retire and receive Rs. 3,000 a month. He wants to pass this monthly payment to future generations after his death. He can earn an interest of 8% compounded annually. How much will he need to set aside to achieve his perpetuity goal? **(Study Material)**

Q-33 What will be the maturity value of a sum of Rs. 18,000 invested today at the rate of 5% p.a. for 10 years? **(CS Dec 2019)**

Q-34 X invested Rs. 2,40,000 at annual rate of interest of 10%. What is the amount after 3 years if the compounding is done annually? **(CA Nov 2012)**

Q-35 What will be the future value at the end of the 5 years of $1,000 paying a 5% rate of interest? **(ICSI Study Material)**

Q-36 If farm land is currently worth Rs. 1,750 per acre and is expected to increase in value at a rate of 5 percent annually, what will it be worth in 5 years? In 10 years? In 20 years by factor formula and table? **(ICSI Study Material)**

Q-37 What is the future value of Rs. 26 invested for 32 years at an average rate of return of 7%? **(ICSI Study Material)**

Q-38 You are scheduled to receive Rs.13,000 in two years. When you receive it, you will invest it for six more years at 8 percent per year. How much will you have in eight years? **(ICSI Study Material)**

Q-39 If a person deposits $100 at the end of the first year, $200 at the end of the second year, and $250 at the end of the third year in a bank, what will be his future value at the end of third year if the interest rate is 10%? **(ICSI Study Material)**

Q-40 John deposits money into his savings account at the beginning of each year, depending on the returns of the business. He deposits $1000 in the first year, $2000 in the second year, $5000 in the third, and $7000 in the fourth year. The account credits interest at an annual interest rate of 7%. What is the closest value of the accumulated money in the savings account at the beginning of year 4? **(ICSI Study Material)**

Q-41 Find the future value of Rs.100,000 for 15 years. The current five-year rate is 6%. Rates for the second and third five-year periods and expected to be 6.5% and 7.5%, respectively. **(ICSI Study Material)**

Q-42 X invested Rs. 2,40,000 at annual rate of interest of 10%. What is the amount after 3 years if the compounding is done semi-annually? **(CA Nov 2012)**

Q-43 X invested Rs. 2,40,000 at annual rate of interest of 10%. What is the amount after 3 years if the compounding is done quarterly?

Q-44 X invested Rs. 2,40,000 at annual rate of interest of 10%. What is the amount after 3 years if the compounding is done monthly?

Q-45 Rs. 2,000 is invested at annual rate of interest of 10%. What is the amount after two years if compounding is done annually?

Q-46 Rs. 2,000 is invested at annual rate of interest of 10%. What is the amount after two years if compounding is done semi-annually?

Q-47 Rs. 2,000 is invested at annual rate of interest of 10%. What is the amount after two years if compounding is done quarterly?

Q-48 Rs. 2,000 is invested at annual rate of interest of 10%. What is the amount after two years if compounding is done monthly?

Q-49 Determine the compound amount and compound interest on Rs. 1,000 at 6% compounded semi-annually for 6 years.

Q-50 Ascertain the compound value and compound interest of an amount of Rs. 75,000 at 8 percent compounded semiannually for 5 years. **(CA May 2010)**

Q-51 You have Rs.9,000 to deposit. Jupiter Bank offers 12 percent per year compounded monthly, while Saturn Bank offers 12 percent but will only compound annually. How much will your investment be worth in 10 years at each bank? **(ICSI Study Material)**

Q-52 You decide to put $12,000 in a money market fund that pays interest at the annual rate of 8.4%, compounding it monthly. You plan to take the money out after one year and pay the income tax on the interest earned. You are in the 15% tax bracket. Find the total amount available to you after taxes. **(ICSI Study Material)**

Q-53 A company offers a Fixed deposit scheme whereby Rs. 620 matures to Rs. 1,000 after 5 years, on yearly compounding basis. Calculate the rate of interest per annum?

Q-54 You have borrowed $10,000 from a bank with the understanding that you will pay it off with a lump sum of $12,000 after 2 years. Find the annual rate of interest on this loan. **(ICSI Study Material)**

Q-55 A company offers a Fixed deposit scheme whereby Rs. 10,000 matures to Rs. 12,625 after 2 years, on a half yearly compounding basis. Calculate the rate of interest per annum? **(CA Nov 2008)**

Q-56 A company offers a Fixed deposit scheme whereby Rs. 10,000 matures to Rs. 12,625 after 2 years, on a half yearly compounding basis. If the company wishes to amend the scheme by compounding interest every quarter, what will be the revised maturity value? **(CA Nov 2008)**

Q-57 You have borrowed $850 from your sister and you have promised to pay her $1000 after 3 years. With annual compounding, find the implied rate of interest for this loan. **(ICSI Study Material)**

Q-58 If the interest rate is 10% payable quarterly, find the effective rate of interest.

Q-59 Rs. 5,000 is invested in a Term Deposit that fetches interest 6% per annum compounded quarterly. What is effective rate of interest? What will be the interest after one year?

Q-60 Find the effective rate of interest and amount of compound interest if an amount of Rs. 20,000 is deposited in a bank for one year at the rate of 8% per annum compounded semi-annually.

Q-61 Which is better investment 3% per year compounded monthly or 3.2% per year compounded annually?

Q-62 The effective rate of interest for a sum of money compounded quarterly is 12.55%. What is its nominal yield? **(CS Dec 2019)**

Q-63 Given that the effective rate of interest is 9.31% p.a., what is the nominal rate of interest p.a., if compounding is carried out quarterly? **(CS Dec 2019)**

Q-64 A bond carries a coupon rate of 12.4% p.a. compounded quarterly. What will be effective yield on the bond? **(CS June 2022)**

Q-65 Find the amount of an annuity if payment of Rs. 5,000 is made annually for 7 years at interest rate of 14% compounded annually. **(Study Material)**

Q-66 A person is required to pay four equal annual payments of Rs. 4,000 each in his Deposit account that pays 10% interest per year. Find out the future value of an annuity at the end of 4 years. **(CA May 2007)**

Q-67 A person is required to pay four equal annual payments of Rs.5,000 each in his deposit account that pays 8% interest per year. Find out the future value of annuity at the end of 4 years. **(Study Material)**

Q-68 Assume someone decides to invest $125,000 per year for the next five years in an annuity they expect to compound at 8% per year. What will be the expected future value of this payment stream? **(ICSI Study Material)**

Q-69 Suppose Arjun invest $2000 per year in a stock index fund, which earns 9% per year, for the next ten years, what would be the closest value of the accumulated value of the investment upon payment of the last instalment? **(ICSI Study Material)**

Q-70 Rs. 2,000 is invested at the end of each month in an account paying interest 6% per year compounded monthly. What is the amount of this annuity after 10th payment? Given that (1.005)10 = 1.0511 **(Study Material)**

Q-71 Z invests Rs. 10,000 every year starting from today for next 10 years. Suppose interest rate is 8% per annum compounded annually. Calculate future value of the annuity.

Q-72 An individual makes rental payments of $1,200 per month and wants to know the present value of their annual rentals over a 12-month period. The payments are made at the start of each month. The current interest rate is 8% per annum. **(ICSI Study Material)**

Q-73 A company wants to invest $3,500 every six months for four years to purchase a delivery truck. The investment will be compounded at an annual interest rate of 12% per annum. The initial investment will be made now, and thereafter, at the beginning of every six months. What is the future value of the cash flow payments? **(ICSI Study Material)**

Q-74 ABCL Company has issued debentures of Rs. 50 lakhs to be repaid after 7 years. How much should the company invest in a sinking fund earning 12 percent per annum in order to be able to repay debentures? **(Study Material)**

Q-75 How much amount is required to be invested every year so as to accumulate Rs. 3,00,000 at the end of 10 years if interest is compounded annually at 10%?

Q-76 An investor purchases an 8% bond having a face value of Rs. 1,000 and maturity of 5 years for Rs. 900. A year later he sells it for Rs. 960 in the market. The holding period gain of the investor is: **(CS December 2019)**

Q-77 An investor purchases an 8% bond having a face value of Rs. 1,000 for Rs. 900. After 5 years he sells it for Rs. 960 in the market. The holding period gain of the investor is:

Q-78 An investor purchases an 10% bond having a face value of Rs. 500 and maturity of 5 years for Rs. 450. Two years later he sells it for Rs. 510 in the market. The holding period gain of the investor is:

Q-79 If HPR for two years period is 14%, calculate annualized HPR?

Q-80 If HPR for five years period is 95%, calculate annualized HPR?

Q-81 If HPR for 6 month period is 6%, calculate annualized HPR?

Q-82 Mr. A invested Rs. 10,000 in shares of XYZ Company 10 years ago, and that your shares (including reinvested dividends) are currently worth Rs. 23,800. Using this information, calculate total investment return of Mr. A. Also calculate annualized HPR? **(Study Material)**

Q-83 Assuming that the discount rate is 7% per annum, how much would you pay to receive Rs. 500, growing at 5%, annually, forever? **(Study Material)**

Q-84 Due to the large capital needed to establish a factory and warehouse for coffee machines, Akshay have turned to private investors to fund the expenditure. He met with Jacob, who is a high net-worth individual willing to contribute $1,000,000 to Akshay's company.
However, Jacob is only willing to contribute the said amount on the presumption that he will get a 12% annual rate of return on his investment, compounded yearly. He wants to know how long it will take for his investment in Akshay's company to double in value. **(ICSI Study Material)**

Q-85 A sum of Rs. 50,000 is invested @ 12% p.a. for 6 years. What will be the present value of its maturity value, assuming a required rate of return of 10%? **(CS Dec 2019)**

Q-86 The price of a share is Rs. 100 today. It grows to Rs. 125 at the end of the 1st year, Rs. 187.5 at the end of the 2nd year and Rs. 243.75 at the end of the 3rd year. What is the average rate of return? **(CS Dec 2019)**

Q-87 The present value of Rs. 1,000 to be received after one year at the rate of 8% per annum is Rs. 926, if discounted half yearly. Calculate present value. **(CS Dec 2020)**

Q-88 What is the present value of the maturity value of Rs. 10,000 which has been given on 15% interest for five years while required rate of return is 10%? (FV @ 15% after 5 years is 2.01136, FV @ 10% after 5 years is 1.61051) **(CS Dec 2020)**

Q-89 Find the amount of an annuity if payment of Rs. 50,000 is made annually for 7 years at interest rate of 14% compounded annually. **(CS June 2021)**

Q-90 What will be the approx. present value of an annuity of Rs. 25,000 to be received at the end of each of the next 5 years, if the discount rate is 12%? **(CS June 2022)**

Q-91 The present value of Rs. 1,00,000 to be received 3 years later when rate of return is 10% p.a. compounded annually is: **(CS June 2022)**

Q-92 A deposited Rs. 1,00,000 in a bank for a period of 5 years and the rate of interest is 5% p.a. compounded annually. How much amount A will receive after 5 years? **(CS June 2022)**

Q-93 Assume a person has the opportunity to receive an ordinary annuity that pays $50,000 per year for the next 25 years, with a 6% discount rate, or take a $650,000 lump-sum payment. Which is the better option? Using the above formula, the present value of the annuity is: **(ICSI Study Material)**

Q-94 Issac has just won the lottery and decides to take the 20 year annuity option. The lottery commission invests his winnings in an account that pays 4.8% interest, compounded annually. Each year for those 20 years, Tom receives a check from the lottery commission for $250,000. What is the present value of Tom's winnings? (Notice that this would be the amount that Tom would get if he chose the lump-sum option). What is the total amount of money that Tom gets over the 20 year period? **(ICSI Study Material)**

Q-95 John has just received an inheritance of $400,000 and would like to be able to make monthly withdrawals over the next 15 years. She decides on an annuity that pays 6.7%, compounded monthly. How much will her monthly payments be in order to draw the account down to zero at the end of 15 years? **(ICSI Study Material)**

Q-96 Amar is working in a tire factory that offers a pension in the form of an annuity that pays 5% annual interest, compounded monthly. He wants to work for 30 years and then have a retirement income of $4000 per month for 25 years. How much do he and his employer together have to deposit per month into the pension fund to accomplish this? **(ICSI Study Material)**

God is all knowing. Without even saying a word our condition is known to God
- Sant Rajinder Singh Ji

Chapter 12 Capital Budgeting

Q-1 Following data in respect of a machine is given below. Depreciation has been charged on straight line basis and estimated life of machines is five years.

	(In Rupees)
Cost	56,125
Net income after depreciation and taxes:	
1st Year	11,375
2nd Year	9,375
3rd Year	7,375
4th Year	5,375
5th Year	3,375
	36,875

Find out average rate of return

Q-2 Following data in respect of a machine is given below. Depreciation has been charged on straight line basis and estimated life of both machines is five years.

	(In Rupees)
Cost	56,125
Net income after depreciation and taxes:	
1st Year	3,375
2nd Year	5,375
3rd Year	7,375
4th Year	9,375
5th Year	11,375
	36,875

Find out average rate of return if salvage value of machine turns out to be Rs. 3,000.

Q-3 Cost of project Rs. 5,00,000
The project is expected to generate cash inflows of Rs. 1,00,000 each for next 8 years. Calculate Pay Back period.

Q-4 The initial investment a project requires Rs. 5,00,000, the expected annual cash inflow is Rs. 90,000 for ten years. Determine the pay back period. **(CS Dec 2021)**

Q-5 A project costs Rs. 3,00,000 and yields annually a profit of Rs. 80,000 after depreciation @ 12% p.a. but before tax of 50%. Calculate the payback period. **(ICSI Study Material)**

Q-6 A Ltd provides you the following information:
Cost of project Rs. 1,00,000

Year	**1**	**2**	**3**	**4**
Cash inflows	Rs. 20,000	Rs. 30,000	Rs. 45,000	Rs. 20,000

Calculate Payback period

Q-7 What is the payback period (in years) for a project that costs Rs. 1,20,000 and would yield after tax cash flows of Rs. 20,000 the first year, Rs. 22,000 the second year, Rs. 25,000 the third year, Rs. 27,000 the fourth year, Rs. 48,000 the fifth year and Rs. 50,000 the sixth year.

Q-8 A Ltd provides you the following information:

Cost of project Rs. 1,00,000

Year	**1**	**2**	**3**	**4**	**5**
Cash inflows	Rs. 20,000	Rs. 40,000	Rs. 80,000	Rs. 20,000	Rs. 10,000

Calculate Payback period

Q-9 Cost of project Rs. 5,00,000

A Ltd provides you the following information:

Year	**1**	**2**	**3**	**4**	**5**
Cash inflows	Rs. 1,50,000	Rs. 2,50,000	Rs. 15,000	Rs. 3,00,000	Rs. 25,000

Calculate Payback period

Q-10 A project with an outlay of Rs. 12,000 yields Rs. 2,000, Rs. 3,000, Rs. 4,000 and Rs. 6,000 respectively in the first, second, third and fourth year. Calculate the payback period. **(ICSI Study Material)**

Q-11 MNP Ltd. is considering purchasing of an Asset costing Rs 80,000 and having a useful life of 4 years. During the first 2 years, the net incremental after-tax cash flows are Rs 25,000 per annum and for the last two years Rs 20,000 per annum. What is the Payback period for this investment? **(CS Dec 2020)**

Q-12 Following are the details of a project A

Cost (Rs.)	50,000
Life	10 years
Estimated scrap (Rs.)	5,000
Annual Profit Less Taxation (Rs.)	5,000

Calculate Pay back period.

Q-13 Following are the details of a project B

Cost (Rs.)	70,000
Life	12 years
Estimated scrap (Rs.)	10,000
Annual Profit Less Taxation (Rs.)	6,000

Calculate Surplus life over pay back period

Q-14 Following are the details of project C

Cost (Rs.)	70,000
Life	14 years
Estimated scrap (Rs.)	7,000
Annual Profit Less Taxation (Rs.)	5,500

Calculate Surplus cash flows after pay back period

Q-15 The following are the details relating to two projects:

	Project X (Rs.)	Project Y (Rs.)
Cost of Project	1,60,000	2,00,000
Estimated Scrap	16,000	24,000
Estimated Savings:		
1st year	20,000	40,000
2nd year	30,000	60,000
3rd year	50,000	60,000
4th year	50,000	60,000
5th year	40,000	30,000
6th year	30,000	20,000
7th year	10,000	-

Calculate Payback Period and consider which project is better. **(ICSI Study Material)**

Q-16 SK Co. is considering the purchase of a Machine. Model 'A' and Model 'B' are available for this purpose each costing Rs. 1,00,000. Estimated working life of each machine is 5 years and salvage value is Rs. 4,000 and Rs. 6,000 respectively. Estimated annual cash flows are estimated to be as under:

Year	Machine A (Rs.)	Machine B (Rs.)
First	60,000	20,000
Second	50,000	30,000
Third	40,000	40,000
Fourth	20,000	50,000
Fifth	20,000	60,000

Evaluate these proposals according to pay back period method. **(ICSI Study Material)**

Q-17 From the followings details of SK Corporation relating to two projects, calculate the payback period and suggest which project is better:

	Project A	Project B
Cost of the Project	1,80,000	2,00,000
Estimated Scrap Value	20,000	25,000
Estimated Savings:		
1st year	25,000	35,000
2nd year	30,000	50,000
3rd year	45,000	70,000
4th year	50,000	65,000
5th year	40,000	30,000
6th year	30,000	20,000
7th year	10,000	-

(ICSI Study Material)

Q-18 Cost of a Machine is Rs. 2,50,000 and its working life is estimated to be 5 year. Annual cash inflows are as under:

Year	I	II	III	IV	V
Annual Cash Inflows (Rs.)	60,000	70,000	60,000	90,000	50,000

Calculate: A) Pay Back Period B) Post Payback Period C) Post Payback Profits D) Index of Post Payback Profits **(ICSI Study Material)**

Q-19 A company is considering the purchase of a machine. Management does not want to purchase a machine if its payback period is more than 3 years and its rate of return of investment is less than 20%. Two machines – X and Y are under consideration. Cost of each machine is Rs. 10,000 and working life is 4 years. Scrap value is Rs. 1,200 and Rs. 400 respectively. Annual cash inflows are as under:

Year	Machine X	Machine Y
	Rs.	Rs.
First	2,000	3,000
Second	3,000	4,000
Third	4,000	5,000
Fourth	8,000	5,000

Evaluate the two proposals and suggest as to which machine should be purchased?

(ICSI Study Material)

Q-20 SK Ltd. is considering the purchase of a machine. Two machine X and Y are available each costing Rs. 5,000. Earnings after taxation and depreciation on the basis of fixed installment system are expected to be as follows:

Year	Machine X	Machine Y
1	500	200
2	1,000	300
3	1,500	1,000
4	400	2,000
5	100	1,000

Evaluate the two alternatives according to:
(a) The payback period method, and (b) Return on investment method. **(ICSI Study Material)**

Q-21 What is the net present value of the project (in Rs.) with a 3 year life and a cost of Rs. 32,000 generates revenues of Rs. 8,000 in year 1, Rs. 12,000 in year 2 and Rs. 17,000 in year 3. If the discount rate is 5 %

Q-22 Following data is available for a certain project whose initial capital requirement is Rs. 1,00,000 and its salvage value after 4 years is Rs. 10,000.

Year	CFAT
1	10,000
2	15,000
3	50,000
4	70,000

What is the NPV of the project if discount rate is 12% p.a.?

Q-23 Following data is available for a certain project whose initial capital requirement is Rs. 1,00,000 and its salvage value after 3 years is Rs. 20,000.

Year	CFAT
1	40,000
2	35,000
3	30,000

What is the NPV of the project if discount rate is 15% p.a.?

Q-24 The company is expected to receive cash inflows of Rs. 25,000 per annum for next 4 years. Cash outflow is Rs. 60,000. Calculate Net present value assuming cost of capital to be 10% p.a.

Q-25 The company is expected to receive cash inflows of Rs. 30,000 per annum for next 5 years. Cash outflow is Rs. 1,20,000. Calculate Net present value assuming cost of capital to be 12% p.a.

Q-26 Present value of cash inflows - Rs. 1,60,000; Net present value - Rs. 20,000
What are cash outflows of the project?

Q-27 Cash outflows in a project Rs. 5,00,000

Year	**Cash inflows**
1	2,00,000
2	1,00,000
3	3,00,000
4	4,50,000

Discount rate is 15% p.a. Calculate profitability index.

Q-28 Present value of cash inflows - Rs. 1,50,000; Profitability Index - 1.25
Calculate cash outflows of the project.

Q-29 Initial investment on project required Rs. 1,00,000
Profitability index Rs. 1.676
Cash flows are discounted at 15%. This project generates equal cash flow over the five years time. How much cash flows will be generated by the project each year?

Q-30 Profitability index 1.25 Present value of cash inflows Rs. 1,25,000
Calculate Net present value

Q-31 Calculate discounted payback period from the information given below:

Cost of Project	Rs. 10,00,000
Life	5 years
Annual Cash inflow	Rs. 4,00,000
Cut-off Rate 10%.	

(ICSI Study Material)

Q-32 Given data for ABC Ltd.:

Initial Investment	20,000
Net Cash Inflow:	
Ist year	2,000
IInd year	2,000
IIIrd to 10th year	2,500

Work out net present value with a discount rate at 10% and express whether the investment will be worthwhile. **(ICSI Study Material)**

The P.V.F. @ 10% are as follows:

Year	1	2	3	4	5	6	7	8	9	10
P.V.F.	.909	.826	.751	.683	.621	.564	.513	.467	.424	.386

Q-33 SK Ltd. is considering the purchase of a new machine. Two machines A and B are available, each costing Rs. 50,000. Earnings after taxation are expected to be as under:

Year	Cash Flow	
	Machine A	Machine B
	Rs.	Rs.
1	15,000	5,000
2	20,000	15,000
3	30,000	20,000
4	15,000	30,000
5	5,000	20,000

Evaluate the two alternatives according to (a) Payback Period Method (b) Return on Investment Method (c) Present Value Index Method. A discount rate of 10% is to be used.

(ICSI Study Material)

Q-34 ABC & SK Co. Ltd. is considering the purchase of a machine. Two machines, X and Y, are available each costing Rs. 50,000 and salvage is estimated at Rs. 3,000 and Rs. 2,000 respectively. Earnings after taxation are expected to be as follows:

Year	Cash Flow	
	Machine X (₹)	Machine Y (₹)
1	15,000	5,000
2	20,000	15,000
3	25,000	20,000
4	5,000	30,000
5	10,000	20,000

Evaluate the two alternatives according to:

a) The payback method;

b) Unadjusted Rate of Return Method;

c) Net Present value Method. A discount rate of 10% is to be used. **(ICSI Study Material)**

Q-35 Rank the following investment proposals for A&G pvt. Ltd. in order of their profitability using (a) Payback period method, (b) Accounting rate of return method and (c) Present value index method (cost of capital – 10%):

Project	Initial Outlay	Annual Cash Flow	Life
	Rs.	Rs.	(in years)
A	96,000	15,000	12
B	48,000	10,000	8
C	80,000	14,000	10
D	40,000	9,000	8

(ICSI Study Material)

Q-36 ABC Ltd. has to purchase a machine. Two models A and B are available. You are to determine as to which machine should be purchased using (i) Payback Period Method, (ii) Unadjusted Rate of Return Method and (iii) Present Value Index Method (Cost of Capital - 12%):

Particulars	Machine A	Machine B
Cost of Machine	Rs. 42,000	Rs. 54,000
Working Life	4 years	5 years
Scrap Value	Rs. 2,000	Rs. 4,000
Annual Savings after depreciation and tax:		
Ist year	Rs. 12,000	Rs. 12,000
IInd year	Rs. 16,000	Rs. 12,000
IIIrd year	Rs. 10,000	Rs. 12,000
IVth year	Rs. 8,000	Rs. 12,000
Vth year	-	Rs. 12,000 **(ICSI Study Material)**

Q-37 Rank the following investment proposals in order of their profitability according to:
(a) Payback period method,
(b) Unadjusted rate of return method and
(c) Present value index method. The cost of capital is 10%.

Project No.	Initial Quality Rs.	Annual Cash Flow Rs.	Life (in years)
A	60,000	8,000	15
B	25,000	3,000	10
C	3,000	1,000	5
D	2,150	1,000	3
E	20,000	4,000	10
F	40,000	8,000	8

(ICSI Study Material)

Q-38 Golden Brick Company has got up to Rs. 3,50,000 to invest. The following proposals are under consideration:

Proposal	Initial outlay	Annual Cash Flow	Life (years)
A	1,25,000	16,000	15
B	2,50,000	75,000	20
C	3,00,000	25,000	18
D	60,000	9,000	12
E	1,00,000	26,000	11

Cost of Capital is 10%.
Rank these projects according to (i) Payback period and (ii) Net present value index method. Which projects would you recommend? **(ICSI Study Material)**

Q-39 The Capital Budget Committee of SK company is making a preliminary screening of capital expenditure proposals. The following proposals are under consideration:

Proposal	Investment	Annual Net Cash Inflows (after tax but before depreciation)	Life	PVF @ 20%
	₹	₹	In Years	
A	31,300	6,000	10	4.192
B	97,400	20,000	20	4.870
C	98,075	25,000	10	4.192
D	27,200	4,000	15	4.675

a) Rank the proposals according to pay-back period. The period of pay-back should not exceed 6 years.
b) Rank the proposals according to the rate of return on investment (Discounted Cash Flow Method). The Company's cut-off rate is 20% **(ICSI Study Material)**

Q-40 Calculate the 'pay-back period', 'average rate of return' and 'net present value' for a project which requires an initial outlay of Rs. 10,000 and generates year ending cash flows (after tax but before depreciation) of Rs. 6,000; Rs. 3,000; Rs. 2,000; Rs. 5000 and Rs. 5,000 from the end of the first year to the end of fifth year. The required rate of return is 10 percent and pays tax at 50 percent rate. The project has a life of five years and depreciated on straight line basis.

Year	1	2	3	4	5
Discount Rate at 10%	.909	.826	.751	.683	.620

(ICSI Study Material)

Q-41 A company has invested Rs. 7,00,000 in a project, Rs. 5,00,000 initially and remaining at the end of first year. The scrap value realized from project at the end was Rs. 1,50,000. The project generated Cash inflows of Rs. 2,00,000 p.a. through years 1 to 5. If the required rate of return is 12% p.a., the approx. NPV of the project is:

Q-42 A company has invested Rs. 7,00,000 in a project, Rs. 5,00,000 initially and remaining at the end of first year. It also invested Rs. 2,00,000 in working capital at the end of 2nd year, which released back by the end of project life of 5 years. The scrap value realized from project at the end was Rs. 1,50,000. The project generated Cash inflows of Rs. 2,00,000 p.a. through years 1 to 5. If the required rate of return is 12% p.a., the approx. NPV of the project is: **(CS Dec 2022)**

Q-43 Firm A is considering a project A. The project involves cash outlay of Rs. 50,000 (t = 0), working capital outlay of Rs. 20,000 (t = 2), and is expected to generate Cash Flow After Tax (CFAT) of Rs. 12,000 per annum for 5 years excluding working capital release back and terminal value of 20%. What would be your advice to the company using Net Present Value approach, if its cost of capital is 10%? **(CS Dec 2019)**

Q-44 GRI Co. Ltd., decided to invest in plant and machinery Rs. 650.00 lakh and life of asset estimated is 5 years. At the end of the fifth year estimated residual value 3.00 lakh and disposal expenses 1.00 lakh only. The estimated inflow Rs. 75, 90, 110, 125 and 140 lakh respectively and PVF @ 9% for the year 1-5 as (0.9174, 0.8417, 07722, 0.7084 and 0.6499 respectively). Calculate NPV.

(CS Dec 2021)

Q-45 SK. Ltd. is considering the purchase of a new machine which will come out some operations which are at present performed by labour X and Y are alternative models. The following information's are available:

	Machine X	Machine Y
Cost of Machine	15,000	24,000
Estimated life of machine	5 years	6 years
Estimated saving in scrap p.a.	1,000	1,500
Estimated cost of indirect materials p.a.	600	800
Estimated savings in direct wages p.a.	9,000	12,000
Additional cost of maintenance p.a.	700	1,100
Additional cost of supervision p.a.	1,200	1,600

Depreciation will be charged on a straight-line basis. A tax rate of 50% is assumed.

a) The pay back method;
b) Unadjusted return on average investment method; and
c) Net present value index method (cost of capital 8 percent)

Note: - The present value of Re. 1 @ 8% per annum received annually for 5 years is 3,993 and for 6 years are 4.623. **(ICSI Study Material)**

Q-46 The following details of SK & ABC Co. relate to the two machines X and Y:

	Machine X	Machine Y
Cost	Rs. 56,125	Rs. 56,125
Estimated Life	5 years	5 years
Estimated salvage value	Rs. 3,000	Rs. 3,000
Annual income after tax and depreciation:		
Year	Rs.	Rs.
I	3,375	11,375
II	5,375	9,375
III	7,375	7,375
IV	9,375	5,375
V	11,375	3,375

Overhauling charges at the end of third year Rs. 25,000 on machine Y. Depreciation has been charged at straight line method. Discount rate is 10%, P.V.F. at 10% for five years are 0.909, 0.826, 0.751, 0.683 and 0.621. Suggest which project should be accepted. **(ICSI Study Material)**

Q-47 ABC Ltd. is contemplating adding a new product line. The new product line would be marketable for only five years, after which time it would have to be discontinued. The costs and revenues that would be associated with the new line are:

Cost of equipments required	80,000
Working Capital needed	70,000
Salvage value of equipment in 5 years	10,000
Annual sales revenues	75,000
Annual out of pocket costs for salaries, advertising etc.	45,000
Overhaul of the equipment required in 4 years.	5,000

The company's cost of capital is 12%. Would you recommend that the new line be introduced? Ignore income tax.

The Present value of Re. 1 for 5 years at 12% discount factor is .893, .797, .636 and .567

(ICSI Study Material)

Q-48 Calculate NPV with the help of following information

Cost of project Rs. 1,00,000

The project is expected to generate only one cash flow of Rs. 1,20,000 at the end of year 1.

Calculate NPV if discount rate is 10%.

Q-49 Calculate NPV with the help of following information

Cost of project Rs. 1,00,000

The project is expected to generate only one cash flow of Rs. 1,20,000 at the end of year 1.

Calculate NPV if discount rate is 12%.

Q-50 Calculate NPV with the help of following information

Cost of project Rs. 1,00,000

The project is expected to generate only one cash flow of Rs. 1,20,000 at the end of year 1.

Calculate NPV if discount rate is 25%.

Q-51 Calculate NPV with the help of following information

Year	1	2	3	4	5
Cash flow(Rs.)	1,50,000	2,00,000	2,50,000	1,50,000	1,00,000

Calculate NPV assuming discount rate to be 10% and Cash outflow to be Rs. 5,00,000.

Q-52 The management of a company has project under consideration. It requires a capital outlay of Rs. 1,20,000. It is estimated to provide a cash flow for five years of Rs. 40,000 per year. Calculate IRR.

Q-53 The management of a company has project under consideration. It requires a capital outlay of Rs. 1,80,000. It is estimated to provide a cash flow for five years of Rs. 58,000 per year. Calculate IRR.

Q-54 Calculate IRR with the help of following information

Year	0	1	2	3	4
Cash flow(Rs.)	(30,000)	4,000	10,000	20,000	11,000

Q-55 A project costs Rs. 10,000 and cash inflows in the first, second, third and fourth years respectively is Rs. 2,000, Rs. 3,000, Rs. 5,000 and Rs. 6,000. Calculate time adjusted rate of return for the project. **(ICSI Study Material)**

Q-56 A project requires an initial outlay of Rs. 32,400. Its estimated economic life is 3 years. The cash streams generated by it are expected to be as follows:

Year	Estimated Annual Cash Flows (Rs.)
1	16,000
2	14,000
3	12,000

Compute its IRR. If the cost of capital to the firm is 12%, advise the management whether the project should be accepted or rejected. **(ICSI Study Material)**

Q-57 A company has a budget constraint of Rs lakh for Capital expenditure and is considering five projects using the net present value method. The particulars are:

Project	Project Cost (₹)	Net Present Value (₹)
A	1,80,000	75,000
B	1,50,000	60,000
C	1,20,000	50,000
D	75,000	36,000
E	60,000	30,000

Assuming that project B and C are mutually exclusive and all other project are independent, select the combination which all maximise the net present value. **(ICSI Study Material)**

Q-58 The following investment proposals are competing for selection. The Profitability Index (PI) of each of these proposals is also given:

Project Initial	Cash outlay (₹)	PI
A	25,000	1.13
B	35,000	1.11
C	40,000	1.15
D	30,000	1.08

If the budgeted fund is ₹60,000. Select the most profitable projects, which completely utilise the available funds. **{(CS Dec 2020 (P)}**

God is all knowing. Without even saying a word our condition is known to God

- Sant Rajinder Singh Ji

Q-59 Fast-run Automobiles Spares Ltd. (FASL) is considering investment in one of three mutually exclusive projects Zeta-10, Meta-10 and Neta-10. The company's cost of capital is 15% and the risk-free rate of return is 10%. The income-tax rate for the company is 40%. FASL has gathered the following basic cash-flow and risk index data for each project:

	PROJECT		
	Zeta-10	Meta-10	Neta-10
	Rs.	Rs.	Rs.
Initial investment	15,00,000	11,00,000	19,00,000
Cash inflows after-tax for year:			
1	6,00,000	6,00,000	4,00,000
2	6,00,000	4,00,000	6,00,000
3	6,00,000	5,00,000	8,00,000
4	6,00,000	2,00,000	12,00,000
Risk Index	1.80	1.00	0.60

Using the risk adjusted discount rate, determine the risk adjusted NPV for each of the projects. Which project should be accepted by the company? Giver reasons.

Note: Present value of Re. 1 for five years—

	Year				
Rate	**1**	**2**	**3**	**4**	**5**
9%	0.9174	0.8417	0.7722	0.7084	0.6499
11%	0.9009	0.8116	0.7312	0.6587	0.5935
13%	0.8850	0.7831	0.6931	0.6133	0.5428
15%	0.8696	0.7561	0.6575	0.5718	0.4972
17%	0.8547	0.7305	0.6244	0.5337	0.4561
19%	0.8403	0.7062	0.5934	0.4987	0.4190 **(CS Dec 2001)**

Q-60 Determine the risk adjusted net present value of the following projects"

	Project-A	Project-B	Project-C
Net cash outlay (Rs.)	1,00,000	1,20,000	2,10,000
Project life (Years)	5	5	5
Annual cash inflow (Rs.)	30,000	42,000	70,000
Coefficient of variation	0.4	0.8	1.2

The company selects the risk adjusted rate of discount on the basis of coefficient of variation:

Coefficient of Variation	Risk Adjusted Rate of Discount	
0.0	10%	
0.4	12%	
0.8	14%	
1.2	16%	
1.6	18%	
2.0	22%	
More than 2.0	25%	**(CS June 2005)**

Q-61 SK & ABC Company Ltd. is considering the purchase of a new investment. Two alternative investments are available (A and B) each costing Rs. 1,00,000. Cash inflows are expected to be as follows:

Cash Inflows Years	Investments A ₹	Investment B ₹
1	40,000	50,000
2	35,000	40,000
3	25,000	30,000
4	20,000	30,000

The company has a target return on capital of 10%. Risk premium rates are 2% and 8% respectively for investments A and B. Which investment should be preferred? **(ICSI Study Material)**

Q-62 Delta Corporation is considering an investment in one of the two mutually exclusive proposals — Project-A: It involves initial outlay of Rs. 1,70,000.
Project-B: It requires initial outlay of Rs. 1,50,000.
The certainty-equivalent approach is employed in evaluating risky investments. The current yield on treasury bills is 5% and the company uses this as riskless rate. Expected values of net cash inflow with their respective certainty-equivalents are:

	Project-A		**Project-B**	
Year	Cash Inflow (Rs.)	Certainty-equivalent	Cash Inflow (Rs.)	Certainty-equivalent
1	90,000	0.8	90,000	0.9
2	1,00,000	0.7	90,000	0.8
3	1,10,000	0.5	1,00,000	0.6

Answer the following with reasons:

i. Which project should be acceptable to the company?
ii. Which project is riskier and why? Explain.
iii. If the company was to use the risk-adjusted discount rate method, which project would be analysed with higher rate? **(CS June 2003)**

Q-63 The MNO company is considering an investment in one of the two mutually exclusive proposals. Project A which involves an initial outlay of ₹1,50,000 and project B which has an outlay of ₹1,30,000. The certainty equivalent approach is employed in evaluating risky investments. The current yield on treasury bills is 5% p.a. and the company uses this as riskless rate. The expected values of net cash flows with their respective certainty equivalents are:

Year	Project A		Project B	
	Net Cash flow (₹ thousand)	Certainty equivalent	Net Cash flow (₹ thousand)	Certainty equivalent
1	90	0.8	90	0.9
2	100	0.7	90	0.8
3	110	0.5	100	0.6

Which project should be acceptable to the company? **{(CS June 2021 (P)}**

Q-64 There are two projects X and Y. each involves an investment of Rs. 40,000. The expected cash inflows and the certainly coefficients are as under:

Year	Project X		Project Y	
	Cash Inflow Rs.	Certainty Coefficient	Cash Inflow Rs.	Certainty Coefficient
1	25,000	0.8	20,000	0.9
2	20,000	0.7	30,000	0.8
3	20,000	0.9	20,000	0.7

Risk-free cut-off rate is 10%. Suggest which of the two projects should be preferred.
(ICSI Study Material)

Q-65 Two mutually exclusive investment proposals are being considered. The following information is available:

	Project A (Rs.)		Project B (Rs.)	
Cost	6,000		6,000	
	Cash Inflow		Cash Inflow	
Year	Rs.	Probability	Rs.	Probability
1	4,000	0.2	7,000	0.2
2	8,000	0.6	8,000	0.6
3	12,000	0.2	9,000	0.2

Assuming cost of capital at 10%, advice for the selection of the project. **(ICSI Study Material)**

Q-66 From the following information, ascertain which project is more risky on the basis of standard deviation:

Project A		Project B	
Cash Inflow (Rs.)	Probability	Cash Inflow	Probability
2,000	.2	2,000	.1
4,000	.3	4,000	.4
6,000	.3	6,000	.4
8,000	.2	8,000	.1 **(ICSI Study Material)**

Q-67 From the following information, ascertain which project is more risky on the basis of coefficient of variation:

Project A		Project B	
Cash Inflow (Rs.)	Probability	Cash Inflow	Probability
2,000	.2	2,000	.1
4,000	.3	4,000	.4
6,000	.3	6,000	.4
8,000	.2	8,000	.1 **(ICSI Study Material)**

Q-68 The management of SK & ABC Ltd. is considering which of the two mutually exclusive projects to select. Details of each project are as follows:

Project A		Project B	
Probability	Profit (Rs. '000)	Probability	Profit (Rs. '000)
0.3	300	0.2	(800)
0.3	400	0.6	600
0.4	500	0.1	800
		0.1	1600 **(ICSI Study Material)**

Q-69 Mr. ABC, a risky investor is considering two mutually exclusive projects A and B. You are required to advise him about the acceptability of the project from the following information.

	Project A (Rs.)	Project B (Rs.)
Cost of the investment	50,000	50,000
Forecast cash flows per annum for 5 years		
Optimistic	30,000	40,000
Most likely	20,000	20,000
Pessimistic	15,000	5,000

(The cut-off rate may be assumed to be 15%) **(ICSI Study Material)**

Q-70 P Ltd is considering a project with the following details:

Initial Project Cost ₹ 1,00,000

Annual Cash Inflow (₹)	1	2	3	4
	30,000	40,000	50,000	60,000

Project Life = 4 years

Cost of Capital = 10%

i. Measure the sensitivity of the project to change in initial project cost and Annual cash inflows (consider each factor at a time) such that NPV becomes zero.

ii. Identify which of the two factors; the project is most sensitive to affect the acceptability of the project? **(CA May 2022)**

Year	1	2	3	4	5
PVF	0.909	0.826	0.751	0.683	0.621

Q-71 Varun Ltd. is evaluating a project whose life will not fall below 2 years, involving production and sale of 2,60,000 units of canned pineapple tins at the selling price of ₹100 per unit. The following cash flows have been estimated:

Particulars	Amount (₹ '000s)		
	Year 0	Year 1	Year 2
Initial Investment	(28,000)		
Variable costs		(8,000)	(8,000)
Cash inflow		26,000	26,000
Net cash flow	(28,000)	18,000	18,000

The cost of capital is 10%. Required:

(i) Can the project be accepted?

(ii) Measure the sensitivity of the project to change in the following variables:

(a) Initial Outlay
(b) Sales Volume
(c) Selling Price
(d) Variable Costs
(e) Discount Rate.

(iii) Name the variable to which the project is most sensitive and least sensitive. **(CS June 2019)**

Q-72 A firm has an investment proposal, requiring an outlay of Rs. 40,000. The investment proposal is expected to have 2 years' economic life with no salvage value. In Year-I, there is a 0.4 probability that cash flow after tax (CFAT) will be Rs. 25,000 and 0.6 probability that CFAT will be Rs. 30,000. The probabilities assigned to CFAT for the Year-2 are as follows:

If CFAT = Rs. 25,000		If CFAT = Rs. 30,000	
Amount (Rs.)	Probability	Amount (Rs.)	Probability
12,000	0.2	20,000	0.4
16,000	0.3	25,000	0.5
22,000	0.5	30,000	0.1

The firm uses a 10% discount rate for this type of investment.

You are required to —

i. Present the above information in the form of a decision tree.
ii. Find out the NPV under (a) the worst outcome; and (b) under the best outcome.
iii. Find out the profitability or otherwise of the above investment proposal.

(Use PVF: 1st Year: 0.909; Year 2: 0.826) **(CS June 2006)**

Q-73 A company 'X' has an opportunity to invest in equivalent schemes that will last for two years and will cost Rs. 1,00,000 initially. Cost of Capital is 15%. It has the following estimated possible cash flow after tax (CFAT).

In Year-I, there is a 30% chance that cash flow after tax (CFAT) will be Rs. 40,000; 40% chance that CFAT will be Rs. 60,000 and 30% chance that CFAT will be Rs. 80,000. The probabilities assigned to CFAT for the Year-2 are as follows:

If CFAT = Rs. 40,000		If CFAT = Rs. 30,000		If CFAT = Rs. 30,000	
Amount (₹)	Probability	Amount (₹)	Probability	Amount (₹)	Probability
20,000	0.2	70,000	0.3	80,000	0.1
50,000	0.6	80,000	0.4	1,00,000	0.8
80,000	0.2	90,000	0.3	1,20,000	0.1

You are required to —

i. Present the above information in the form of a decision tree.
ii. Find out the NPV under (a) the worst outcome; and (b) under the best outcome.
iii. Find out the profitability or otherwise of the above investment proposal. **(ICSI Study Material)**

Q-74 A textile company is considering one of two mutually exclusive proposals, Project M and N, which require cash outlays of Rs. 8,50,000 and Rs. 8,25,000 respectively. The certainty-equivalent (C.E) approach is used in incorporating risk in capital budgeting decisions. The current yield on government bonds is 6% and this is used as the risk free rate. The expected net cash flows and their certainty equivalents are as follows:

	Project M		Project N	
Year end	Cash Flow	C.E.	Cash Flow	C.E
1	4,50,000	0.8	4,50,000	0.9
2	5,00,000	0.7	4,50,000	0.8
3	5,00,000	0.5	5,00,000	0.7

Present value factors of Rs. 1 discounted at 6% at the end of year 1, 2 and 3 are 0.943, 0.890 and 0.840 respectively. Which one of the project should be accepted.

Q-75 Calculate the Accounting Rate of Return (ARR) and rank the machine accordingly:

Particulars	Machine A	Machine B
Initial Investment	₹ 87,500	₹87,500
Cash flow after tax		
Year 1	26,250	8,750
Year 2	35,000	26,250
Year 3	43,750	35,000
Year 4	26,250	52,500
Year 5	17,500	35,000

Machine has to be written off over a period of 5 years by straight line method.

(CS June 2019)

Q-76 An initial outlay of ₹24 lakh is contemplated in a project, for which the following cash flow estimates have been prepared:

Year	Net CFAT (₹)	Probability
Year 1	8,00,000	0.30
	7,00,000	0.40
	5,00,000	0.30
Year 2	7,00,000	0.25
	9,00,000	0.35
	10,00,000	0.40
Year 3 to 5	5,20,000	0.45
	6,40,000	0.25
	8,20,000	0.30

Advise whether the project is worthwhile, if the Discount Rate is 17%? What should be the maximum project cost, if it were to be taken up? **(CS Dec 2018)**

God is all knowing. Without even saying a word our condition is known to God
- Sant Rajinder Singh Ji

Chapter 13 Dividend Policy

Q-1 RST Ltd. has a capital of Rs. 10,00,000 in equity shares of Rs. 100 each. The shares are currently quoted at par. The company proposes declaration of a dividend of Rs. 10 per share. The capitalization rate for the risk class to which the company belongs is 12%. What will be the market price of the share at the end of the year, if— (i) no dividend is declared; and (ii) 10% dividend is declared?

Assuming that the company pays the dividend and has net profits of Rs. 5,00,000 and makes new investments of Rs. 10,00,000 during the period, how many new shares must be issued? Use the M.M. Model. **(CS Dec 1999)**

Q-2 D Ltd. has 10 lakhs equity shares outstanding at the beginning of the accounting year 1997. The current market price of the shares is Rs. 150 each. The Board of directors of the company has recommended Rs. 8 per share as dividend. The rate of capitalization, appropriate to the risk-class to which the company belongs, is 12%.

i. Based on M-M Approach, calculate the market price of the share of the company when the recommended dividend is (a) declared; and (b) not declared.

ii. How many new shares to be issued by the company at the end of the accounting year on the assumption that the net income for the year is Rs. 2 crores and the investment budget is Rs. 4 crores when (a) the above dividends are distributed; and (b) dividends are not declared,

iii. Show that the market value of the shares at the end of accounting year will remain the same whether dividends are distributed or not declared. **(CS June 1999)**

Q-3 Rama Ltd. had 1,00,000 equity shares of Rs. 10 each outstanding on 1st January, 2007. The shares are currently being quoted at par in the market. In the wake of the removal of the dividend restraint, the company now intends to pay a dividend of Rs. 2 per share for the current financial year. It belongs to a risk class whose appropriate capitalization rate is 15%. Using Modigliani-Miller Model and assuming no taxes, ascertain the price of the company's shares as it is likely to prevail at the end of the year —

(i) when dividend is declared; and.

(ii) when no dividend is declared.

Also find out the number of new equity shares that company must issue to meet its investment needs of Rs. 4 lakh assuming that the dividend is paid and the earnings per share works out @ Rs. 2.20. **(CS Dec 2007)**

Q-4 Harish Engineering company has a cost of equity capital 15%. The current market value of the firm is Rs. 6,00,000 @ Rs. 30 per share. Assume value for I (New Investment) Rs. 18,00,000, E (Earnings) Rs. 10,00,000 and total dividends (D) Rs. 6,00,000. You are required to show that under the MM assumptions the payment of dividend does not affect the value of the firm.

Q-5 A company belongs to a risk class for which the appropriate rate of capitalization is 10%. The total number of equity shares is 30,000. The current market price of an equity share is Rs.80. The company is thinking to declare a dividend of Rs.4 per share at the end of the current year. The company expects to have a net income of Rs.3,00,000. It has proposal of making investment of Rs.6,00,000 in new proposals. If MM approach is adopted, show that payment or non-payment of dividend does not affect the value of equity shares of the company. **(ICSI Study Material)**

Q-6 Ram Company belongs to a risk class for which the appropriate capitalization rate is 12%. It currently has outstanding 30000 shares selling at Rs. 100 each. The firm is contemplating the declaration of dividend of Rs. 6 per share at the end of the current financial year. The company expects to have a net income of Rs. 3,00,000 and a proposal for making new investments of Rs. 6,00,000. Show that under the MM assumptions, the payment of dividend does not affect the value of the firm. How many new shares issued and what is the market value at the end of the year? **(ICSI Study Material)**

Q-7 A Company belongs to a risk class for which the capitalization rate is 20%. Its total number of existing shares is 1,00,000 at a selling price of Rs.100 each. The company is thinking to declare dividend of Rs.5 per share at the end of the current year. Using the Modigliani and Miller Model and assuming no taxes, answer the price of equity share at the end of the year, when (i) dividend is declared and (ii) dividend is not declared. Explain that whether dividend is paid or not, the wealth of shareholders is equal. **(ICSI Study Material)**

Q-8 A Ltd. has 25,000 equity shares outstanding and its shareholders' expected rate of return is 10%. The current market price of a share is Rs.100. It is expected that the firm would pay dividend of Rs.5 per share in the next year. The firm has project in hand requiring new investment of Rs.5,00,000. The expected net income of the firm is Rs.2,50,000. Calculate the market value of the firm under both the conditions, i.e., when dividends are paid and are not paid. Also calculate the number of equity shares to be issued to meet the financial requirement of the new investment policy. **(ICSI Study Material)**

Q-9 A Ltd. had 50,000 equity shares of Rs.10 each outstanding on Jan. 1, 1999. The shares are currently quoted at par in the market. The company now intends to pay dividend of Rs.2 per share for the current year. It belongs to a risk class, whose capitalization rate is 15%. Using MM Model and assuming no taxes, ascertain the price of the company's share at the end of the year (i) When dividend is declared and (ii) when no dividend is declared. Also find out the number of new equity shares that the company must issue to meet its investment needs of Rs.2 lakhs assuming net income of Rs.1.1 lakhs. Show that the payment or non-payment of dividend does not affect the value of the firm as per MM approach. **(ICSI Study Material)**

Q-10 SK Company has 1,000 000 outstanding equity shares at the beginning of the accounting year. The price per share on the market right now is Rs. 150. At the end of the current fiscal year, the company's BOD is considering paying a dividend of Rs. 8 per share. The company's capitalization rate is 12%, which is adequate for the risk class it is in.

a) Determine the market price per share of the company using the Modigliani-Miller Approach when the anticipated dividend is (i) announced and (ii) not declared.

b) Assuming a net income of Rs. 2 Cr. for the year, how many new shares will the firm issue at the end of the accounting year? The investment budget is Rs. 4 Cr., of which (i) the aforementioned dividends were dispersed and (ii) they were not.

c) Demonstrate that whether or not dividends are distributed, the overall market value of the shares at the conclusion of the accounting year will stay the same. Additionally, ascertain the firm's current market value in both scenarios. **(ICSI Study Material)**

Q-11 The cost of capital and the rate of return on investments of Pal Hospitalities Ltd. is 10% and 15% respectively. The company has 10 lakh equity shares of Rs. 10 each outstanding and its earnings per share is Rs. 5. Calculate the value of the firm in the following situations using Walter's model (i) 100% retention (ii) 50% retention and (iii) no retention.

Q-12 The EPS of a company is Rs. 16. The market rate of discount (capitalization rate) applicable to the company is 12.5%. Retained earnings can be employed to yield a return of 10%. The company is considering a payout of 25%, 50% and 75%. Which of these, if any, would maximize the wealth of shareholders as per the Walter's Model? **(ICSI Study Material; CS June 2001)**

Q-13 ABC Ltd. was started a year back with a paid-up equity capital of Rs. 40,00,000. The other details are as under:

Earnings of the company	Rs. 4,00,000
Dividend paid	Rs. 3,20,000
Price-earnings ratio	12.5
Number of shares	40,000

You are required to find out whether the company's dividend payout ratio is optimal, using Walter's formula. Will the company change its dividend policy if P/E ratio is 8 instead of 12.5?
(CS June 2000; June 2010)

Q-14 The following figures are collected from the annual report of XYZ Ltd.:

Net Profit	Rs. 30 lakhs
Outstanding 12% preference shares	Rs. 100 lakhs
No. of equity shares	Rs. 3 lakhs
Return on Investment	20%
Cost of Capital (Ke)	16%

What should be the approximate dividend pay-out ratio so as to keep the share price at Rs. 42 by using Walter model? **(CA Final May 2005)**

Q-15 In the current year, the company reports net profits of Rs. 10,00,000. It is estimated that the company can earn Rs. 2,50,000 if such profits are retained. The investors have alternative investment opportunities that will yield them 12%. The company has 1,00,000 shares outstanding. What would be the dividend payout ratio of the company, if it wishes to maximize the wealth of the shareholders? Also calculate market price at that payout ratio. Use Walter's model.
(CS June 2006)

Q-16 The earnings per share of a company are Rs.8 and the rate of capitalization applicable to the company is 10%. The company has before it an option of adopting a payout ratio of 25% or 50% or 75%. Using Walter's formula of dividend payout, compute the market value of the company's share if the productivity of retained earnings is (A) 15%, (B) 10% and (C) 5%. Explain fully what inference can be drawn from the above exercise. **(ICSI Study Material)**

Q-17 The Best Performers Ltd. which earns Rs. 10 per share, is capitalized 20% and has a return on investment of 25%. Determine the price per share, using Walter's model
(ICSI Study Material)

Q-18 The earnings per share of a company are Rs.20. The capitalization rate is 15% and retained earnings can be employed to yield a return of 18%. The company is considering a payout of 25%, 50% and 75%. Which of these would maximize the wealth of shareholders?
(ICSI Study Material)

Q-19 AR Company earns Rs.5 per share. Its rate of capitalization is 10% and rate of return on investment is 18%. According to Walter's formula, what should be the price per share at 25% dividend payout ratio? Is this the optimum payout ratio according to Walter? **(ICSI Study Material)**

Q-20 The par value of equity shares of PG Ltd. is Rs.100 per share. The company's earning per share is Rs.15. The rate of capitalization in the market is 15%. The following are the alternatives before the management regarding dividends:

a) If payout ratio is zero per cent
b) If payout ratio is 20 per cent
c) If payout ratio is 40 percent and
d) If payout ratio is 60 percent

In the above circumstances which alternative do you consider the best if the productivity of retained earnings is (a) 20%, (b) 15% and (c) 10%. **(ICSI Study Material)**

Q-21 Following are the details of three companies' i.e. A Ltd. B Ltd. and C Ltd. All the three companies are from steel sector and having same earning. The market capitalization rate is 10%. The internal rate of return is different for each company as mentioned in the below table:

	A Ltd.	B Ltd.	C Ltd.
Ra	15%	10%	8%
Rc	10%	10%	10%
EPS	Rs. 10	Rs. 10	Rs. 10

Calculate the effect of dividend payment on the value of shares of each company under the following situations by using the Walter model and interpret your findings.

a. When no dividend is paid
b. When dividend is paid at Rs. 8 per share.
c. When dividend is paid at Rs. 10 per share. **(ICSI Study Material)**

Q-22 The following information relates to LMN Ltd.

Earning of the company	₹ 30,00,000
Dividend pay-out ratio	60%
No. of shares outstanding	₹ 5,00,000
Rate of return on investment	15%
Equity capitalized rate	13%

Required:

a. Determine what would be the market value per share as per Walter's model
b. Compute optimum dividend pay-out according to Walter's model and the market value of company's share at that pay-out ratio. **(CA July 2021)**

Q-23 Calculate the market price of a share of Gupta ltd. under
(i) Walter's formula and (ii) Dividend growth model from the following data:

Earning per share	Rs.5
Dividend per share	Rs.3
Cost of Capital	60%
Internal rate of return on investment	20%
Retention ratio	50%

(ICSI Study Material)

Q-24 The following information is available in respect of the rate of return on investment, the cost of capital and earning per share of Arora Ltd.
Rate of return on investment (r) = (i) 15%; (ii) 12%; and (iii) 10%
Cost of Capital (CR) = 12%
Earning per share (E) = Rs.10
Determine the value of its shares using Gordon's Model assuming the following:

	D/p Ratio (1 – b)	Retention Ratio (b)
(a)	100	0
(b)	80	20
(c)	40	60

(ICSI Study Material)

Q-25 The required rate of return of investors is 15%. ABC Ltd. declared and paid annual dividend of Rs. 4 per shares. It is expected to grow @ 20% for the next 2 years and 10% thereafter. Compute the price at which the shares should sell. **(CS June 2002)**

Q-26 A large sized chemical company has been expected to grow at 14% per year for the next 4 years and then to grow indefinitely at the same rate as the national economy, i.e., 5%. The required rate of return on the equity shares is 12%. Assume that the company paid a dividend of Rs. 2 per share last year (Do=2). Determine the market price of the shares today. **(CS June 2001)**

Q-27 Consider a common stock whose dividends are expected to grow at a 25% for 2 years, after which the growth rate is expected to fall to 5%. The dividend paid last year was Rs. 2. The investor desires a 12% return. You are required to find the value of this stock.

Q-28 The dividends of A & G Company Ltd. are expected to grow at a rate of 25% for 2 years, after which the growth rate is expected to fall to 5%. The dividend paid last year was Rs.2. The investor desires a 12% return. You are required to find the value of this stock. PV Factor @ 12% is as under:

Year	1	2	3	
Value	0.893	0.797	0.712	**(ICSI Study Material)**

Q-29 The SK Company declared last dividend of Rs. 1.50 last year. The company is likely to have growth rate of 12% in the next two years, 10% in the third year and fourth year and thereafter the growth rate would stabilize at 8%. Find the price at which the share shall be purchased if the shareholders expected rate of return is 16%. **(ICSI Study Material)**

Q-30 X Ltd. is a multinational company. Current market price per share is Rs. 2,185. During the F.Y. 2020-21, the company paid ₹ 140 as dividend per share. The company is expected to grow @ 12% p.a. for next four years, then 5% p.a. for an indefinite period. Expected rate of return of shareholders is 18% p.a.

a. Find our intrinsic value per share
b. State whether shares are overpriced or underpriced **(CA Dec 2021)**

Year	1	2	3	4	5
Discounting Factor @ 18%	0.847	0.718	0.608	0.515	0.436

Chapter 14 Marginal Costing

Q-1 Sales Rs. 25,000; variable cost Rs. 20,000; fixed cost Rs. 4,000; Calculate P/V ratio.

Q-2 If sales in an organization is Rs. 1,00,000, fixed cost is Rs. 12,000 and profit is Rs. 8,000, Calculate P/V Ratio. **(CS Dec 2020)**

Q-3 Variable cost ratio = 20%, Sales Rs. 1,00,000. Calculate P/V Ratio.

Q-4 In a concern, sales increased from Rs. 4,00,000 to Rs. 8,00,000 and corresponding profit from Rs. 2,00,000 to Rs. 3,00,000, Calculate P/V ratio. **(CS Dec 2020)**

Q-5 When the sales increase from Rs.45,000 to Rs.60,000, the profit increase by Rs.5,000. Calculate P/V ratio. **(CS June 2015)**

Q-6 If total cost is Rs. 30,000 for the sales of Rs. 50,000 and Rs. 22,000 for the sales of Rs. 30,000, Calculate Profit Volume (P/V) Ratio. **(CS June 2022)**

Q-7 From the following information, calculate the amount of profit:
Sales Rs. 16,00,000; Fixed cost Rs. 4,00,000; P/V Ratio 30%. **(CS June 2022)**

Q-8 Fixed Cost = Rs. 2,00,000, Sales = Rs. 8,00,000, P/V Ratio = 30%; Calculate amount of profit.

Q-9 If the P/V ratio is 25% and selling price is Rs. 25 per unit, Calculate marginal cost. **(CS Dec 2019)**

Q-10 You are given the following data:

Sales	Rs. 40,00,000
Variable Cost	Rs. 24,00,000
Net Profit	Rs. 4,00,000

Calculate Break Even Point (₹) **(CS Dec 2020)**

Q-11 From the following information, determine by how much amount the sales must be increased to attain break-even:

Net Sales	Rs. 4,00,000;	Fixed Costs	Rs. 2,00,000
Variable Costs	Rs. 2,40,000		

Q-12 Selling price of a product is Rs 550 per unit variable cost Rs 50 per unit and fixed cost Rs 10,000. Calculate the number of units required to be sold to earn a profit of Rs 10,000.

Q-13 From the following particulars calculate:
(a) P/V Ratio (b) Fixed Cost

I year	-	Sales ₹ 1,95,000; Profit ₹ 9,000
II Year	-	Sales ₹ 2,25,000; Profit ₹ 15,000

(ICSI Study Material)

Q-14 X Ltd. Made sales during a certain period for Rs. 1,00,000. The net profit for the same period was Rs. 10,000 and the fixed overheads were Rs. 15,000. Find out: (i) P/V Ratio (ii) Sales needed to generate a profit of Rs. 15,000 (iii) A net profit at sales of ₹ 150,000. (iv) Point sales that break even. **(ICSI Study Material)**

Q-15 For example: DB Ltd furnished the following information

Particulars	2005-2006	2006-2007
Sales (₹ 10/unit)	2,00,000	2,50,000
Profit	30,000	50,000

You are required to compute:

(a) P/V Ratio
(b) Break-even point
(c) Total variable cost for 2005-2006 & 2006-2007
(d) Sales required to earn a profit of Rs. 60,000
(e) Profit/Loss when sales are Rs. 1,00,000 **(ICSI Study Material)**

Q-16 The following details have been provided by ABC Ltd. Sales of 20,000 units (at Rs. 5 per unit) and per unit. for variable costs: Rs. 3. A fixed cost fee of Rs. 80,000 each year. Determine the company's break-even revenue and PV ratio. **(ICSI Study Material)**

Q-17 Following data provided by M Ltd.:

	First Six Months (Rs.)	Last Six Months (Rs.)
Profit	10,00,000	14,00,000
Cost of Sales	70,00,000	76,00,000

Calculate fixed cost for the year.

Q-18 The sales turnover and profit during two periods were as follows:

Preiod-1—Sales: Rs. 20 lakh; and Profit: Rs. 2 lakh
Period-2—Sales: Rs. 30 lakh; and Profit: Rs. 4 lakh

Calculate:

i. P/V ratio; **(20%)**
ii. Sales required to earn a profit of Rs. 5 lakh; and **(35 Lakhs)**
iii. Profit when sales are Rs. 10 lakh. **(Nil)** **(CS Dec 2009)**

Q-19 A company sells its products at Rs. 15 per unit. In a period if it produces and sells 8,000 units, it incurs a loss of Rs. 5 per unit. If the volume is raised to 20,000 units, it earns a profit of Rs. 4 per unit. Calculate break-even point in terms of rupees as well as in units. **(CS Dec 2002)**

Q-20 Aman Ltd. sells its products at ₹ 16 per unit. In a period, if it produces and sells 20,000 units, it incurs a loss of ₹ 2 per unit. If the volume is doubled, it earns a profit of ₹ 2.20 per unit. Calculate the amount of fixed cost and breakeven point (in units).

Q-21 From the following data, you are required to calculate the break-even point and net sales value at that point:

Direct material cost per unit (Rs.)	8
Direct labour cost per unit (Rs.)	5
Fixed overheads (Rs.)	24,000
Selling price per unit (Rs.)	25
Trade discount (%)	4

Variable overheads @ 60% on direct labour.
If sales are 15% and 20% above the break-even volume, determine the net profits.

Q-22 From the following data, you are required to calculate break-even point and net sales value at this point:

Direct Material cost per unit	10
Direct Labour cost per unit	5
Fixed Overhead	50,000
Variable Overheads @ 60% on direct labour	
Selling Price per unit	25
Trade Discount	4%

If sales are 10% and 25% above the break even volume, determine the net profits **(ICSI Study Material)**

Q-23 From the following particulars find out the amount of profit earned during the year using the marginal costing technique:

Product	**A**	**B**	**C**
Output (Units)	10,000	20,000	30,000
Selling Price (₹)	₹ 10	₹ 10	₹ 10
Variable Cost (₹)	₹ 6	₹ 7.50	₹ 9

Total Fixed Cost - ₹ 80,000 **(ICSI Study Material)**

Q-24 The profit volume ratio of X Ltd. is 50% and the margin of safety is 40%. You are required to calculate the net profit if the sales volume is ₹1,00,000 **(ICSI Study Material)**

Q-25 Surya Ltd has a total turnover of Rs. 10 lakhs. It is enjoying 30% margin of safety. Its total variable cost is 60% of sales. Determine Fixed Cost and BEP in Sales. **(ICSI Study Material)**

Q-26 From the following information of Akansha Co. Ltd. Calculate P/V Ratio and Margin of Safety.

i. Sales -- Rs. 10, 00,000
ii. Variable Cost -- Rs. 4, 00,000
iii. Profit -- Rs. 3, 00,000 **(ICSI Study Material)**

Q-27 You have access to XYZ Ltd.'s data for the fiscal year that concluded on March 31, 2009, sales of 100,000 units at Rs. 10 p.u.; Variable costs: Rs. 6 p.u.
₹ 3,00,000 rupees per year in fixed costs. Determine the safety margin. **(ICSI Study Material)**

Q-28 ABC Ltd. shows a break-even sales of Rs. 42,500 and a budgeted sales of Rs. 50,000. Calculate margin of safety ratio. **(CS Dec 2019)**

Q-29 If profit is Rs. 20,000, BEP is Rs. 2,00,000 and P/V Ratio is 40%. What will be margin of safety?

Q-30 If P/V Ratio is 20% and Margin of Safety sales is Rs. 4,00,000. Calculate the amount of profit. **(CS Dec 2019)**

Q-31 Selling price of a product is Rs. 40 per unit. Variable cost ratio is 50%. Fixed cost is Rs. 1,20,000 and units sold are 10,000. What is the Margin of Safety in percentage?

Q-32 Mr. R's sales and profit in 2015 were respectively Rs. 1,20,000 and Rs. 8,000. His sales and profit in 2016 were Rs. 1,40,000 and Rs. 13,000 respectively. Calculate margin of safety for the year 2016. **(CS Dec 2017)**

Q-33 Z Ltd., has a margin of safety of 4,000 units and break-even sales at 1,000 units. If its margin of safety sales is Rs. 2,00,000, total sales shall be:

Q-34 P/V Ratio of A Ltd. is 50% and Margin of Safety is 40%. What is the amount of Break Even Point and Net Profit if the sales volume is Rs. 50 lakh?

Q-35 When margin of safety is 40% of sales, find fixed cost when profit is Rs. 25,000.

Q-36 If Break Even Sales is 60% of current sales and profits is Rs. 4,000, then what is the amount of contribution?

Q-37 The profit volume ratio of Ulysis Manufacturers Ltd. is 40% and the margin of safety is also 40%. Work out the following if the sales volume is 1.5 crore:

(i)	Break-even point	**(Rs. 90 Lakhs)**	
(ii)	Net profit	**(Rs. 24 Lakhs)**	
(iii)	Fixed cost	**(Rs. 36 Lakhs)**	
(iv)	Sales required to earn a profit of Rs. 30 lakh.	**(Rs. 165 Lakhs)**	**(CS Dec 2004)**

Q-38 Calculate the 'break-even point' in units and in rupees and also arrive at 'margin of safety ratio' from the following information:

Estimated sales (1,00,000 units)		20,00,000	
Less: Variable cost	12,00,000		
Fixed cost	4,00,000	16,00,000	
Net profit		4,00,000	**(CS June 2003)**

Q-39 Following data is given for Gopal Ltd. which produces and sells three products X, Y and Z:

Product	*Units sold*	*Selling price per unit* (₹)	*Marginal cost per unit* (₹)
X	1,000	100	60
Y	500	120	90
Z	800	50	25

Calculate Overall PV Ratio.

Q-40 ABC Ltd. has provided the following information:

	Product A	Product B	Product C
Sales	20%	30%	50%
Profit Volume ratio	30%	20%	40%

Total sales – ₹ 50,000. Calculate Overall Profit volume ratio.

Q-41

	Product A	Product B	Product C
Sales	20%	30%	50%
Profit Volume ratio	30%	20%	40%

Calculate Overall Profit volume ratio.

Q-42

Product	X	Y	Z
Sales value mix ratio	20%	30%	50%
Variable cost to sales ratio	50%	30%	20%

Fixed Cost ₹ 35,500

Calculate overall Break-even point (₹) and overall P/V ratio.

Q-43 A company producing three products, *viz*., X,Y and Z has sales mix in the ratio of 2:1:3. The profit volume ratio of the products X, Y and Z are 15%, 30% and 20% respectively. The total fixed cost of the company is ₹ 3,50,000. Calculate break-even point (₹) of the company.

Q-44 Total sales are ₹ 60,000 which is divided in A, B, C and D in 33⅓%, 41⅔%, 16⅔% and 8⅓% respectively.
Variable cost is 60%, 68%, 80% and 40% of selling price of A, B, C and D respectively.
Fixed cost is ₹ 14,700
Calculate composite Break-even point (₹).

Q-45 Following data is given for Gopal Ltd. which produces and sells three products X, Y and Z :

Product	*Units sold*	*Selling price per unit (₹)*	*Marginal cost per unitr (₹)*
X	1,000	100	60
Y	500	120	90
Z	800	50	25

Fixed cost of Gopal Ltd is ₹ 35,000
Overall Break-even point (units) of the company is —

Q-46 Manoj Ltd. manufactures three products P, Q and R. The unit selling price of these products are ₹ 100, ₹ 160 and ₹ 75 respectively. The corresponding unit variable costs are ₹ 50, ₹ 80 and ₹ 30. The proportions (quantity-wise) in which these products are manufactured and sold are 20%, 30% and 50% respectively. Total fixed costs are ₹ 14,80,000. Calculate Overall break-even quantity.

Q-47 A company sells two products, J and K. The sales mix is 4 units of J and 3 units of K. The contribution margin per unit are ₹ 40 for J and ₹ 20 for K. Fixed costs are ₹ 3,08,000 per month. Compute the individual break-even quantity of product J and product K. **(CS Dec 2020)**

Q-48 Mahindra Ltd. sells two products, J and K. The sales mix is 4 units of J and 3 units of K. The contribution margins per unit are ₹ 40 for J and ₹ 20 for K. Fixed costs are ₹ 6,16,000 per month. Compute the individual break-even quantity of product J and product K. **(ICSI Study Material)**

Q-49 PL creates and markets two goods. Compared to the N, which sells for Rs. 15 per unit and has a total variable cost of Rs. 4.5 per unit, the M has a total variable cost per unit of Rs. 2.94 and is priced at Rs. 7. According to the marketing division's prediction, one unit of N will be sold for every five units of M. Total fixed costs for the organisation are Rs. 36,000. Calculate individual Break-even quantity of Product N and M. **(ICSI Study Material)**

Q-50 MNP Ltd sold 2, 75,000 units of its product at ₹ 37.50 per unit. Variable costs are ₹ 17.50 per unit (manufacturing costs of ₹ 14 and selling cost ₹ 3.50 per unit). Fixed costs are incurred uniformly throughout the year and amounting to ₹ 35,00,000 (including depreciation of ₹ 15,00,000). There is no beginning or ending inventories. Required: COMPUTE breakeven sales level quantity and cash breakeven sales level quantity. **(ICSI Study Material)**

Q-51 Fixed cost - ₹ 4,00,000; Selling price per unit - ₹ 100; Variable cost per unit - ₹ 60
It is decided by the management that selling price is to be reduced by 20%.
Calculate original Break even point (Units) and Revised Break even Point (Units)

Q-52 Fixed cost - ₹ 4,00,000; Selling price per unit - ₹ 100; Variable cost per unit - ₹ 60
It is decided by the management that selling price is to be reduced by 20%.
Calculate original Break even point (₹) and Revised Break even Point (₹)

Q-53 The following data is obtained from the records of an industrial unit:

Sale of 4,000 units @ Rs. 25 each		1,00,000
Material consumed	40,000	
Variable overheads	10,000	
Labour charges	20,000	
Fixed overheads	18,000	88,000
Net profit		12,000

You are required to calculate:
(i) The number of units by selling which the company will neither lose nor gain anything.
(ii) The sales needed to earn a profit of 20% on sales.
(iii) The extra units which should be sold to obtain the present profit if it is proposed to reduce the selling price by 20%.
(iv) The selling price to be fixed to bring down its break-even point to 500 units under present conditions. **(CS Dec 2007)**

Q-54 From the following particulars, calculate the selling price per unit, if the break-even point is brought down to 10,000 units :

Selling price per unit	:	₹ 20	
Variable cost per unit	:	₹ 16	
Fixed expenses	:	₹ 60,000	**(CS June 2016)**

Q-55 Following information are available from the cost records of a manufacturing company:

Fixed expenses	Rs. 4,000
Break-even point	Rs. 10,000

You are required to calculate:
(i) P/V ratio
(ii) Profit where sales are Rs. 20,000
(iii) New break even point if selling price is reduced by 20%.

Q-56

Fixed cost	₹ 1,00,000
Existing Profit volume ratio	70%

Calculate Break even point (₹) revised Break even point (₹) if selling price is reduced by 15%.

Q-57 The under mentioned information is given below:
i. The P/V Ratio of a firm is 40%.
ii. The firm wants to increase its selling price by 10%.
iii. The firm's variable cost is higher now by 5%.
iv. The fixed expenses of the firm have gone up from ₹ 2,00,000 to ₹ 2,58,500.
Work out the original BEP sales and the revised BEP sales.

Q-58 Star X Ltd. Sold goods for ₹ 30,00,000 in a year. In that year, the variable cost is 60% of sales and profit is ₹ 8,00,000. Find out: (i) P/V Ratio, (ii) Fixed Cost, (iii) Break-even sales, (iv) Revised Break Even Sales if the selling price were cut by 10% but fixed costs were raised by ₹ 1,00,000.
(ICSI Study Material)

Q-59 Capacity of the factory 10,000 units
Sales of the company 7,000 units
What is the percentage capacity utilization of the company?

Q-60 Sales of the company is 15,000 units which is 30% of the total capacity of the company. Calculate 100% capacity sales.

Q-61 For a given product, the sales of a company @ ₹ 200 per unit is ₹ 20,00,000. Variable cost is ₹ 12,00,000 and fixed cost is ₹ 6,00,000. The capacity of the factory is 15,000 units. Find out Capacity utilization at break-even point level.

Q-62 The ratio of variable cost to sales is 75%. The break-even point occurs at 64% of the capacity sales when fixed cost is ₹ 1,20,000. Find out 100% capacity sales. **(CS June 2016)**

Q-63 A company manufactures a product, currently providing 80% capacity with a turnover of ₹ 8,00,000 at ₹ 25 per unit. The cost data are as under: Material cost ₹ 7.50 per unit, Labour cost ₹ 6.25 per unit. Semi-variable cost (including variable cost of ₹ 3.75 per unit) ₹ 1, 80, 000, Fixed cost ₹ 90,000 up to 80% level of output, beyond this an additional ₹ 20,000 will be incurred. Calculate activity level at Breakeven point. **(ICSI Study Material)**

Q-64 The following data relate to a manufacturing company:
Plant capacity: 4,00,000 units per annum
Present utilization: 40%
Actuals for the year were:

Selling price	Rs. 50 per unit
Materials cost	Rs. 20 per unit
Variable manufacturing costs	Rs. 15 per unit
Fixed costs	Rs. 27 lakhs

In order to improve capacity utilization the following proposals are being considered:
Reduce selling price by 10%.
Spend additionally Rs. 3 lakhs on sales promotion.
How many units should be made and sold in order to earn a profit of Rs. 5 lakhs per year?
(3,50,000 Units) **(ICSI Study Material)**

Q-65 The National Company has just been formed. They have a patented process that will make them the sole suppliers of Product A.
During the first year, the capacity of their plant will be 9,000 units, and this is the amount they will be able to sell. Their costs are:
Direct labor = $15 per unit; Raw materials = $5 per unit; Other variable costs = $10 per unit
Fixed costs = $240,000
There are two parts to this question:
(a) If the company aims to make a profit of $210,000 for the first year, what should the selling price be? What is the contribution margin at this price?
(b) If, at the end of first year, the company aims to increase its volume, how many units will they have to sell to realize a profit of $760,000 given the following conditions?

- An increase of $100,000 in the annual fixed costs will increase their capacity to 50,000 units
- Selling price is at $70 per unit and no other costs change
- $500,000 is invested in advertising **(ICSI Study Material)**

Q-66 There are two plants manufacturing the same products under one corporate management which decides to merge them.

Following particulars are available regarding the two plants:

	Plant I	*Plant II*
Capacity operation	100%	60%
Sales	Rs. 6,00,00,000	Rs. 2,40,00,000
Variable costs	Rs. 4,40,00,000	Rs. 1,80,00,000
Fixed costs	Rs. 80,00,000	Rs. 40,00,000

You are required to calculate for the consideration of the Board of directors:

(a) What would be the capacity of merged plant to be operated for purpose of break-even?

(b) What would be the profitability on working at 75 per cent of the merged capacity?

Q-67 Two manufacturing companies which have the following operating details decided to merge:

	Company-I	Company-II
Capacity utilization (%)	90	60
Sales (Rs. in lakhs)	540	300
Variable costs (Rs. in lakhs)	396	225
Fixed costs (Rs. in lakhs)	80	50

Assuming that the proposal is implemented, calculate-

i. Break-even sales of the merged plant and the capacity utilization at that stage.

ii. Profitability of the merged plant at 80% capacity utilization.

iii. Sales turnover of the merged plant to earn a profit of Rs. 75 lakh.

iv. When the merged plant is working at a capacity to earn a profit of Rs. 75 lakh, what percentage increase in selling price is required to sustain an increase of 5% in fixed overheads? **(CS June 2010)**

Q-68 The particulars of two plant producing an identical product with the same selling price are as under:

Capacity Utilization	Plant X (70%) (in Lacs)	Plant Y (60%) (in Lacs)
Sales	150	90
Variable Cost	105	75
Fixed Cost	30	20

It has been decided to merge Plant Y with Plant X. The additional fixed expenses involved in the merger amount to 2 lacs. You are required to find out –

(a) the break even point of Plant X and Plant Y before merger and the break -even point of the merged plant.

(b) the capacity utilization of the integrated plant required to earn a profit of ₹ 18 lacs.

(ICSI Study Material)

Q-69 Two companies A Ltd. and B Ltd. sell the same type of product. Their income statement are as follows:

	A Ltd (₹)	**A Ltd (₹)**
Sales	2,40,000	2,40,000
Less: Variable Cost	96,000	1,20,000
Fixed Costs	64,000	40,000
Profit	80,000	80,000

State which company is likely to earn greater profit if there is: (i) heavy demand, (ii) poor demand for its products. **(ICSI Study Material)**

Q-70 A cost sheet shows the following situations prevailing in Star Ltd., which is facing depression: Direct Materials -- ₹ 50,000 Direct Wages -- ₹ 20,000 Overheads: Variable -- ₹ 10,000 Fixed -- ₹ 20,000 -- ₹ 30,000 Total Cost -- ₹ 1,00,000 Sales 4,000 units @ ₹ 23 per unit -- ₹ 92,000 Loss: -- ₹ 8,000 There is no sign of improvement in the situation. Therefore, the management wants to know whether it is desirable to stop the production. What should be the minimum price at which company should shut down its production? **(ICSI Study Material)**

Q-71 Dinesh Ltd. has provided following information:

Sale price	Rs. 20 per unit
Variable cost	Rs. 14 per unit
Fixed overheads	Rs. 7,92,000 per annum

Calculate Sales value and sales units to earn 10% of sales? **(CS Dec 2003)**

Practice Questions

Q-72 The following information is given by PQR Ltd:

Year	Sales (₹)	Profit/(Loss) (₹)
2022-23	1,80,00,000	(3,80,000)
2023-24	2,40,00,000	11,20,000

You are required to:

a. Calculate the Break even sales
b. In 2024-25, it is estimated that the variable cost will go up by 5% and fixed cost will reduce by ₹ 4,80,000. Selling price will remain same. Calculate the sales volume to earn a profit of ₹ 15,00,000. **(CA May 2024)**

Q-73 AZ company has prepared its budget for the production of 2,00,000 units. The variable cost per unit is ₹ 16 and fixed cost is ₹ 4 per unit. The company fixes its selling price to fetch a profit of 20% on total cost.

You are required to calculate:

i. Present break-even sales (in ₹ and in quantity)
ii. Present profit-volume ratio.
iii. Revised break-even sales in Rs. and the revised profit-volume ratio, if it reduces its selling price by 10%.
iv. What would be revised sales – in quantity and the amount, if a company desires a profit increase of 20% more than the budgeted profit and selling price is reduced by 10% as above in point (iii) **(CA December 2021; 10 Marks)**

Q-74 A company is providing an identical product in two factories. The following are the details in respect of both factories:

	Factory X	Factory Y
Selling price per unit (₹)	50	50
Variable cost per unit (₹)	40	35
Fixed Cost (₹)	2,00,000	3,00,000
Depreciation included in above fixed cost (₹)	40,000	30,000
Sales in units	30,000	20,000
Production capacity (units)	40,000	30,000

You are required to determine:

i. Break Even Point (BEP) for each factory individually
ii. Cash Break Even Point (BEP) for each factory individually
iii. BEP for company as a whole, assuming the present product mix is in sales ratio.

iv. Consequence on profit and BEP if product mix is changed to 2:3 and total demand remain same. **(CA May 2018; 8 Marks)**

Q-75 A company, with 90% Capacity utilization, is manufacturing a product and makes a sale of ₹ 9,45,000 at ₹ 30 per unit. The cost data is as under:

Materials	₹ 9.00 per unit
Labour	₹ 7.00 per unit
Semi Variable cost	₹ 2,10,000
(including variable cost of ₹ 4.25 per unit)	

Fixed cost is ₹ 94,500 upto 90% level of output (capacity). Beyond this, an additional amount of ₹ 15,000 will be incurred.

You are required to calculate:

(i) Level of output at break-even point.

(ii) Number of units to be sold to earn a net income of 10% of sales

(iii) Level of output needed to earn a profit of ₹ 1,41,375 **(CA November 2017; 8 marks)**

Q-76 R Ltd. produces and sells 60,000 units of product 'AN', at its Noida Plant. The selling price of the product is ₹ 15 per unit. The variable cost is 80% of selling price per unit. Fixed cost during this period is ₹ 4,20,000. The company is continuously suffering losses, and management plans to shut down the Noida Plant.

The fixed cost is expected to be reduced by Rs. 2,50,000.

Additional cost of plant shut down are expected at ₹ 25,000.

You are required to comment on:

(i) Whether the Noida Plant should be shut down?

(ii) Find the shut-down point in units. **(CA November 2023)**

Q-77 ABC Ltd. provides the following information regarding the cost of the product. Direct materials ₹ 20,000 Direct Wages ₹ 16,000 Variable Factory Overhead: 25% of wages Variable Administration Overhead : 10% of the factory cost Variable Selling and Distribution Overhead : ₹ 4 per unit Fixed Overhead : ₹ 8,000 Units sold 1,000 @ ₹ 64 per unit From the above data of ABC Ltd., you are required to calculate :

(i) Profit-Volume Ratio

(ii) Break-Even Point

(iii) Margin of Safety

(iv) Profit. **(CS December 2023 (NS); 5 Marks)**

Q-78 The following information pertains to ZB Limited for the year:

Profit Volume Ratio	30%
Margin of Safety (as % of total sales)	25%
Fixed Cost	₹ 12,60,000

You are required to calculate:

(i) Break even sales value (₹)

(ii) Total sales value (₹) at present

(iii) Proposed sales value (₹) if company wants to earn the present profit after reduction of 10% in fixed cost

(iv) Sales in value (₹) to be made to earn a profit of 20% on sales assuming fixed cost remains unchanged,

(v) New Margin of safety if the sales value at present as computed in (ii) decreased by 12.5%. **(CA May 2023; 5 Marks)**