Paper – 8: Cost Accounting & Financial Management

The following table lists the learning objectives and the verbs that appear in the syllabus learning aims and examination questions:

	Learning objectives	Verbs used	Definition
LEVEL B	KNOWLEDGE What you are expected to know	List	Make a list of
		State	Express, fully or clearly, the details/facts
		Define	Give the exact meaning of
	COMPREHENSION What you are expected to understand	Describe	Communicate the key features of
		Distinguish	Highlight the differences between
		Explain	Make clear or intelligible/ state the meaning or purpose of
		Identity	Recognize, establish or select after consideration
		Illustrate	Use an example to describe or explain something
	APPLICATION How you are expected to apply your knowledge	Apply	Put to practical use
		Calculate	Ascertain or reckon mathematically
		Demonstrate	Prove with certainty or exhibit by practical means
		Prepare	Make or get ready for use
		Reconcile	Make or prove consistent/ compatible
		Solve	Find an answer to
		Tabulate	Arrange in a table
	ANALYSIS How you are expected to analyse the detail of what you have learned	Analyse	Examine in detail the structure of
		Categorise	Place into a defined class or division
		Compare and contrast	Show the similarities and/or differences between
		Construct	Build up or compile
		Prioritise	Place in order of priority or sequence for action
		Produce	Create or bring into existence

Paper- 8: Cost Accounting & Financial Management

Full Marks: 100 **Time Allowed: 3 Hours**

This paper contains 3 questions. All questions are compulsory, subject to instruction provided against each question. All workings must form part of your answer. Assumptions, if any, must be clearly indicated.

1. Answer all questions: **[2×10= 20]**

(i) Standard time is 60 hours and guaranteed time rate is ₹ 50 per hour. Under Rowan Plan, what is the amount of wages, if job is completed in 48 hours?

Answer:

Amount of wages as per Rowan Plan =
(48 x 50) + (60-48) / 60 x 48 x 50 = ₹ 2,880

(ii) T Ltd. uses pre-determined overhead rate of ₹ 15 per labour hour. The actual labour hours are 5750 and the actual overhead cost is ₹ 85,000. Calculate over/under absorption of overhead.

Answer:

Absorbed OH = 15 x 5750 = 86250
Actual OH = 85000
Over Absorption = ₹1250

(iii) A company buys in lots of 6,250 units, which is a 3 months supply. The cost/unit is ₹ 2.40. Each order costs ₹ 45 and the inventory carrying cost is 15% of the average inventory value. Calculate the EOQ.

Answer:

A = Annual consumption = 6,250 ×12/3 = 25,000 units, B= ordering cost = ₹45
C= Inventory carrying cost = ₹2.40 ×15% = ₹0.36 per unit per annum.

$$EOQ = \sqrt{\frac{2AB}{C}} = \sqrt{\frac{2\times 25{,}000\times 45}{0.36}} = 2{,}500 \text{ units}$$

(iv) For a department, the standard Overhead rate is ₹2.50 per hour and the overhead allowances are as follows:

Activity Levels (hours)	Budgeted overhead allowances (₹)
6,000	20,000
14,000	36,000

22,000	**52,000**

Calculate the fixed cost.

Answer:

Change in activity level = difference in hours = 14,000 – 6,000 or 22,000 -14,000 = 8,000 hours.
Change in budget allowance = 36,000 – 20,000 or 52,000 – 36,000 = 16,000.

Variable portion = $\frac{16,000}{8,000}$ = 2 ₹/hour.

For any level, overhead allowance - 2 x hours = fixed cost.

= 20,000 – 2 x 6,000 = 8,000 or

= 36,000 - 2 x 14,000 = 8,000 or

= 52,000 - 2 x 22,000 = 8,000.

Fixed Cost = 8,000.

(v) A concern producing a single product estimates the following expenses for a production period.

	Figures ₹
Direct Material	**50,000**
Direct Labour	**50,000**
Direct Expenses	**5,000**
Overhead Expenses	**2,10,000**

What will be the overhead recovery rate based on prime cost?

Answer:

Prime cost = DM+DL+ DE = 1,05,000. OH = 2,10,000.
Overhead recovery rate based on prime cost = 2,10,000/1,05,000 = 2 times or 200 % of prime cost.

(vi) How should packing costs be treated in Cost Accounts?

Answer:
Treatment of packing cost in Cost Accounts:
Primary packing material, which is essential to put the product in a saleable condition is charged as production overhead. (e.g., ink in a bottle, jam in a jar, etc.).
Primary packing material that is made decorative for attracting customers should be partly charged as manufacturing overhead and partly as a selling overhead (e.g., fancy bottles and covers for cosmetics/perfumes).
Secondary packing material which is used for easier transportation – like crates for cold drink bottles, etc. should be charged as a selling and distribution overhead.

(vii) A firm has sales of ₹75,00,000 variable cost of ₹42,00,000 and fixed cost of ₹6,00,000.It has a debt of ₹45,00,000 at 9% interest and equity of ₹55,00,000. At what level of sales, the EBIT of the firm will be equal to zero?

Answer:

EBIT to became zero means 100% reduction in EBIT.

F. Leverage = $\frac{EBIT}{EBT} = \frac{2700000}{2295000} = 1.1764$

O. Leverage = $\frac{Contribution}{EBIT} = \frac{3300000}{2700000} = 1.2222$

Combined Leverage = 1.1764 x 1.2222= 1.438

Sales have to drop by 100/1.438 = 69.54%

New Sales will be = 7500000 x (1-0.6954) = ₹ 2284500(approx)

(viii) GEMINI LTD. has total assets of ₹60 crore and a Debt/equity ratio of 0.5. Its sales are ₹27 crore and it has total fixed cost of ₹7 crore. If the company's EBIT is ₹6 crore, its tax rate is 40% and the interest rate on debt is 12%, the ROE of GEMINI LTD. would be how much?

Answer:

Total Equity+ Total Debt	=₹60 crore
Total equity= (60/1.5)	=₹40 crore
Total Debt= (60-40)	=₹20 crore
Net income= [(EBIT)-1] × (1-t)	=(6-2.40) (1-.40)
	=3.60×0.6
	= ₹2.16 crore.
ROE = (2.16/40) ×100	= 5.40%

(ix) What will be the effect on NPV of a one year project if fixed costs are increased from ₹200 to ₹300. When the firm is profit making, pays tax @ 35% and has 12% cost of capital?

Answer:

Increase in Fixed Cost =₹100, increase, in each outflow after tax =₹65, NPV =65/1.12 = ₹58.04 decrease in NPV

(x) State the basic propositions of the MM Approach.

Answer:

Basic Propositions:

M -M Hypothesis can be explained in terms of two propositions of Modigliani and Miller. They are:

- The overall cost of capital (K_o) and the value of the firm are independent of the capital structure. The total market value of the firm is given by capitalizing the expected net operating income by the rate appropriate for that risk class.
- The financial risk increases with more debt content in the capital structure. As a result cost of equity (K_e) increases in a manner to offset exactly the low-cost advantage of debt. Hence, overall cost of capital remains the same.

2. (Answer any three questions) [3×16=48]

(a)

(i) From the records of an oil distributing company, the following summarized information is available for the month of March 2015:

Sales for the month : ₹ 19,25,000
Opening Stock as on 01.03.2015: 1,25,000 liters @ ₹ 6.50/litre.

Purchases (including freight and insurance):

March 5	**1,50,000 litres @ ₹ 7.10/litre**
March 27	**1,00,000 litres @ ₹ 7.00/litre**
Closing Stock as on 31.03.2015:	**1,30,000 litres**
General Administration expenses for the month:	**₹ 45,000**

On the basis of the above information, work out the following using FIFO and LIFO methods of inventory valuation assuming pricing of issues is being done at the end of the month after all receipts during the month:

I. Value of closing stock as on 31.03.2015
II. Cost of goods sold during March 2015
III. Profit or loss for March 2015 [3+4+2=9]

Answer:

I. Valuation of Closing Stock as on 31.03.2015:

FIFO Method. (the closing stock will comprise the items purchased in the end)

1,00,000	Litres purchased on 27.03.2015 @ ₹ 7.00	₹ 7,00,000
30,000	Litres from purchases made on 05.03.2015 @ ₹ 7.10	2,13,000
1,30,000	Value of closing stock under FIFO method	9,13,000

LIFO Method: (The closing stock will comprise the item lying in opening stock and purchased in the beginning)

1,25,000	Litres from opening stock @ ₹ 6.50	₹ 8,12,500
5,000	Litres from purchases made on 05.03.2015 @ ₹ 7.10	35,500
1,30,000	Value of closing stock under LIFO method	8,48,000

II. Cost of Goods Sold

	FIFO Method ₹	LIFO Method ₹
Opening Stock as on 01.03.2015	8,12,500	8,12,500
Purchases made on 5th March	10,65,000	10,65,000
Purchases made on 27th March	7,00,000	7,00,000
Total	25,77,500	25,77,500
Less: Closing Stock as per (I)	9,13,000	8,48,000
Cost of material consumed	16,64,500	17,29,500
Add: General Administration Expenses	45,000	45,000
Cost of goods sold	17,09,500	17,74,500

III. Profits

	FIFO Method ₹	LIFO Method ₹
Cost of goods sold	17,09,500	17,74,500
Sales	19,25,000	19,25,000
Profit	2,15,500	1,50,500

(ii) A firm has purchased a plant to manufacture a new product. The cost data are given below:

Estimated annual sales	**36,000 units**
Material	**₹ 4 per unit**
Direct labour	**₹ 0.6 per unit**
Overheads – Manufacturing	**₹ 24,000 p.a.**
Administrative expenses	**₹ 28,800 p.a.**
Selling Expenses	**15% of sale**

Calculate the selling price if profit per unit is ₹1.50. Assume whatever is produced is sold. [3]

Answer:

Variable cost p. u = 4+0.6 = 4.6

Profit = 15

Total = 6.1

Let, Selling price per unit be 'x'

6.1 × 36,000 + 24,000 + 28,800 = 0.85 × s × 36,000.

Selling price per unit = s = 8.9019 = 8.90

(iii) What is imputed cost? Give an example of imputed cost. Explain its position in a product cost sheet and in the decision making evaluation process. [2+1+1]

Answer:

Imputed costs are hypothetical or notional costs, not involving cash outlay, computed only for the purpose of decision making. Imputed costs are like opportunity costs. E.g. interest on funds generated internally.

CAS specifically provide for exclusion of imputed cost from the cost sheet in every form-material, labour and overhead. When alternative capital investment proposals are evaluated, imputed cost of capital from internal funds is used for decision making.

2 . (b)

(i) In a manufacturing concern 20 workmen work in a group. The concern follows a group incentive bonus system whereby each workman belonging to the group is paid a bonus on the excess output over the hourly production standard of 250 pieces, in addition to his normal wages at hourly rate. The excess of production over the standard is expressed as a percentage and two-thirds of this percentage is considered to be the share of the workman and is applied on the notional hourly rate of ₹6.00 (considered only for purpose of computation of bonus). The output data for a week are stated below:

Days	Man hours worked	Output (in pieces)
Monday	**160**	**48,000**
Tuesday	**172**	**53,000**
Wednesday	**164**	**40,000**
Thursday	**168**	**52,000**
Friday	**160**	**46,000**
Saturday	**160**	**42,000**
	984	**2,81,000**

You are required to:

(I) Work out the amount of bonus for the week and the average rate at which each workman is to be paid the same.

(II) Compute the total wages including bonus payable to Ram Jadav who worked for 48 hours at an hourly rate of ₹ 2.50 and to Francis Williams who worked for 52 hours at an hourly rate of ₹ 3.00. [3+2+2=7]

Answer:

(I)

Actual production per week	2,81,000 pieces
Standard production (250 pieces × 984)	2,46,000
Excess production over standard	35,000

Excess production as a percentage over standard production

= (35,000 ÷ 2,46,000) × 100 = 14.228%

Each workman's share 2/3 × 14.228 = 9.485%

Bonus on notional hourly rate ₹6 × 9.485% = ₹0.569

Amount of bonus 984 hrs. × ₹0.569 = ₹560

(II) Computation of wages

Ram Jadav

Basic wages: 48 hrs × ₹2.50	₹120.00
Bonus : 48 hrs. × ₹0.569	27.31
Total	147.31

Francis William

Basic wages: 52 × ₹3	156.00
Bonus : 52 × ₹0.569	29.59
Total	185.59

(ii) A machine shop has 8 identical Drilling Machines manned by6 operators. The machines cannot be worked without an operator wholly engaged on it. The original cost of all these 8 machines works out to ₹8 lakhs. These particulars are furnished for a six month period :-

Normal available hours per month	**208**
Absenteeism (without pay) - hours	**18**
Leave (with pay) -- hours	**20**
Normal idle time unavoidable - hours	**10**
Average rate of wages per day of 8 hours	**₹20**

Production Bonus estimated	**15% on wages**
Value of Power consumed	**₹8,050**
Supervision and Indirect Labour	**₹3,300**
Lighting and Electricity	**₹1,200**

These particulars are for a year:

Repairs and maintenance including consumables 3% on value of machines.

Insurance ₹ 40,000.
Depreciation 10% on original cost.
Other sundry works expenses ₹12,000.
General Management expenses allocated ₹54,530.
You are required to work out a comprehensive machine hour rate for the Machine Shop. [9]

Answer:
Before computing the comprehensive machine hour rate, it is necessary to find out the total machine hours utilized and total wages paid to the operators.

Computation of total machine hours utilized

Normal available hours p.m. per operator		208 hours
Less: Unutilised hours due to :		
Absenteeism	18 hours	
Leave	20	
Idle time	10	48
Total hours utilized p. m. per operator		160

Total hours utilized for 6 months for 6 operators = 160 × 6 × 6 or 5,760 hrs.

It is given in the question that the machines cannot work without an operator wholly engaged on it.
Therefore, hours utilized for 6 operators, i.e. 5,760 hrs. represents the total machine hours.

Total wages to 6 operators for 6 months
Average rate of wages per hour = ₹ 20 ÷ 8 hrs. = ₹ 2.50
Normal hours for which wages are to be paid = 208 -18 or 190 hrs.
Wages for 6 months for 6 operators @ ₹ 2.50/hr. = 190 × 6 × 6 × 2.50 or ₹ 17,100.

Computation of Comprehensive Machine hour rate for the Machine Shop

Operators wages (as above)	₹17,100
Production Bonus (15% of wages)	2,565
Power consumed	8,050
Supervision and indirect labour	3,300
Lighting and electricity	1,200
Repairs and maintenance (3% of ₹8 lakhs) ÷ 2	12,000
Insurance (given for 12 months ; reduced to 50% for 6 months)	20,000
Depreciation for 6 months	40,000
Other sundry works expenses for 6 months	6,000
General management expenses for 6 months	27,265
Total overheads for 6 months	1,37,480

Comprehensive Machine Hour rate = 1,37,480 ÷ 5,760 hrs. = ₹23.87 per hr.

2. (c)

(i) List out the causes of labour turnover. [4]

Answer:

Causes of Labour Turnovers:

The causes giving rise to high labour turnover may be broadly classified under the following three heads:

- **Personnel Causes**: Workers may leave employment purely on personal grounds, e.g.,
  - Dislike for the job, locality or environments.
  - Domestic troubles and family responsibilities.
  - Change of line for betterment.
  - Retirement due to old age and ill health.
  - Death.

In all such cases, personal factors count the most and employer can practically do nothing to help the situation.

- **Unavoidable Causes** : In certain circumstances it becomes obligatory on the part of the management to ask some of the workers to leave. These circumstances are:
  - Retrenchment due to seasonal trade, shortage of any material and other resources, slack market for the product, etc.
  - Discharge on disciplinary grounds.
  - Discharge due to continued or long absence.
- **Avoidable Causes**: Under this head, may be grouped the causes which need the attention of the management most so that the turnover may be kept low by taking remedial measures. The main reasons for which workers leave are:
  - Unsuitability of job.
  - Low pay and allowance.
  - Unsatisfactory working conditions.
  - Unhappy relations with co-workers and unsatisfactory behavior of superiors.
  - Dispute between rival trade unions.
  - Lack of transport, accommodation, medical and other factors.
  - Lack of amenities like recreational centres, schools, etc.

(ii) From the following details of stores receipts and issues of material, "EXE" in a manufacturing unit, prepare the Store Ledger using Weighted Average Method of valuing the issues.

Nov. 1.	**Opening stock 2,000 units @ ₹ 5.00 each**	**19. Returned to supplier 200 units out of the quantity received on Nov. 4**
3.	**Issued 1,500 units to production**	**20. Received 1,000 units @ ₹ 7.00 each**
4.	**Received 4,500 units @ ₹ 6.00 each**	**24. Issued to production 2,100 units**
8.	**Issued 1,600 units to production**	**27. Received 1,200 units @ ₹ 7.50 each**

9. Returned to stores 100 units by Production Department (from the issues of Nov.3)

16. Received 2,400 units @ ₹ 6.50 each

29. Issued to production, 2,800 units. (Use rates up to two decimal places).

[8]

Answer:

Stores Ledger (Weighted average Method)

Date	Receipts			Issues			Stock		
	Qty.	Rate	Amount	Qty.	Rate	Amount	Qty.	Rate	Amount
Nov.		₹	₹		₹	₹		₹	₹
1							2,000	5.00	10,000
3				1,500	5.00	7,500	500	5.00	2,500
4	4,500	6.00	27,000				5,000	5.90	29,500
8				1,600	5.90	9,440	3,400	5.90	20,060
9	100	5.00	500				3,500	5.87	20,560
16	2,400	6.50	15,600				5,900	6.13	36,160
19				200	6.00	1,200	5,700	6.13	34,960
20	1,000	7.00	7,000				6,700	6.26	41,960
24				2,100	6.26	13,146	4,600	6.26	28,814
27	1,200	7.50	9,000				5,800	6.52	37,814
29				2,800	6.52	18,256	3,000	6.52	19,558

***** Retuned to supplier out of the quantity received on Nov. 4

(iii) List the factors that should be disclosed in the cost statements as per CAS-3. [4]

Answer:

CAS – 3 relates to principles and methods of determining overheads. The following factors are to be disclosed:

- The basis of assignment of overheads to cost objects.
- Overhead incurred in foreign exchange.
- Overheads relating to resources received from or supplied to related parties.
- Any subsidy / grant / incentive or any amount of similar nature received / receivable reduced from overhead.
- Credits / recoveries relating to overheads.
- Any abnormal Cost not forming part of the overheads.
- Any unabsorbed overheads.

2. (d)

(i) A product passes through two processes, machining and finishing. Each is a cost centre. 1000 kgs of raw material (i.e. 100 pieces) are machined in a production period. 5% of the input in kgs is the normal machining loss in the form of machining waste, but 100 pieces come out of the process. There is a further loss of 4% in the Finishing process from the weight of each piece that was sent in. 10% of the number of pieces were finally scrapped and sold at ₹ 2.50 per piece. Some of the expenses incurred are listed below:

1) For every 100 pieces of input, the machining dept. uses a special cleaning material pack which is purchased at a base price of ₹10,000; VAT 14.5%. The additional cost of transporting it to the shop floor is ₹ 1,200 per pack.

2) There are two special computers used for designing specifications in the machine shop. A computer professional who is on a monthly salary of ₹ 30,000 attends to the repairs and maintenance of this machine and 19 other machines in the company. The company feels it is not economical to establish a procedure to time his work on various machines since log of computer down-time is not maintained.

3) The Finishing Department hires special equipment at ₹25,000 per production period.

4) Since the Finishing Dept. did not finish on time, 15,000 was payable to the customer as penalty.

Present a statement showing the direct expenses of each department— Machining and Finishing. What will be the components of direct expenses per piece and per kg of the final product relating to the given information? Present your answer in line with the disclosure requirement as per CAS 10. [8]

Answer:

Calculation of Machining

	Input (Kg.)	Value (₹)
	1,000 kg	10,000
Add: Vat	……	1,450
Add: Transport Cost	…….	1,200
Less Normal loss 5%	50	
Total cost for 950 kg	950	12,650
Cost per kg (12,650/950)		13.32

Calculation of Finishing

	Input Kg.	Value (₹)
	950	12,650
Add: Repair and Maintenance Cost	……	1,500
Add: Special Equipment	…….	25,000
Less: Normal loss 4%	38	
Total Cost for 912 kg	912	39,150
Less: 10% scrapped	91.2	228
Total Cost for 820.8 kg	820.8	38,922
Cost per unit (38,922/820.80)		47.42

Penalty- Financial Charges; Not a direct expenses; Not to be taken as any cost. Direct expenses includes material or labour traceable into the cost unit, but not part of the output. Cost of material includes purchase cost, taxes and transport inwards.

(ii) A plant that manufactures Tiffin boxes has an installed capacity of 1,20,000 units per year distributed evenly over each calendar month. The following is the cost structure of the product:

Raw Material	**₹20 per unit**
Direct Labour	**₹12 per unit**
Direct Expenses	**₹2 per unit**
Variable overheads	**₹16 per unit**
Fixed overhead	**₹3,00,000 per annum (i.e. ₹1,50,000 per half year)**

Semi-variable overheads: ₹ 7500 per month up to 50% capacity and an additional ₹2500 per month for every additional 25% capacity utilization or part thereof.
The plant will operate at 50% capacity during the first 6 months of the calendar year 2014 and at 100% capacity in the remaining months.
The selling price for the period from 1st January to 30th June was fixed at ₹ 70 per unit. The firm wishes to revise the selling price for the next half year, which should be fixed effective 1st July to achieve a total profit of ₹9,00,000 during 2014.
You may assume that whatever is produced is sold and that the market is likely to absorb the production after the revision in price.
You are required to prepare a statement showing the element wise total cost and profit for each half year and the revised selling price in the second half of the year to achieve the overall annual profit of ₹9,00,000 in 2014. Compute the semi-variable and fixed cost per unit for each of the half yearly periods. [8]

Answer:

Variable Cost per unit = 20 + 12 + 2 + 16 = 50
Selling Price 1st half year = 70
Contribution p. u. (January to June) = 20

	Jan to June ₹	Jan to June ₹/Unit	July to Dec. ₹	July to Dec ₹/unit
Contribution 20 p.u. × 5000 units p.m. × 6 months	6,00,000	20		
Balancing figure (4,95,000 + 1,50,000 + 75,000)=			7,20,000	
Contribution per unit (7,20,000 / 60,000 units) =				12
Semi Variable Overheads:	45,000			
7500 p.m. × 6 months (50% capacity)				
₹ Per unit (Jan – Jun) (45,000/30,000) =		1.5		
(7500+2500+2500) p.m. × 6 months = 12,500 × 6 =			75,000	
₹ / unit 75,000 / 60,000				1.25
Fixed overheads	1,50,000	5	1,50,000	2.5
Profit	4,05,000			
Profit required to make total profit 9,00,000			4,95,000	

Contribution per unit required in July – December = 12. Hence, selling price = 12 + 50 = 62 ₹ per unit should be fixed in the second half of the year.

3. (Answer any two questions) [2×16=32]

(a)

(i) C Ltd. is considering investing in a project. The expected original investment in the project will be ₹ 2,00,000, the life of project will be 5 year with no salvage value. The expected net cash inflows after depreciation but before tax during the life of the project will be as following:

Year	1	2	3	4	5
₹	85,000	1,00,000	80,000	80,000	40,000

The project will be depreciated at the rate of 20% on original cost. The company is subjected to 30% tax rate.

Required:
(I) Calculate payback period and average rate of return (ARR)
(II) Calculate net present value and net present value index, if cost of capital is 10%.

(III) Calculate internal rate of return.

Note: The P. V. factors are:

Year	P. V. at 10%	P.V.at 37%	P. V. at 38%	P. V. at 40%
1	**0.909**	**0.730**	**0.725**	**0.714**
2	**0.826**	**0.533**	**0.525**	**0.510**
3	**0.751**	**0.389**	**0.381**	**0.364**
4	**0.683**	**0.284**	**0.276**	**0.260**
5	**0.621**	**0.207**	**0.200**	**0.186**

[2+2+3+1+4]

Answer:

Project Outflow ₹2,00,000

Year	1 ₹	2 ₹	3 ₹	4 ₹	5 ₹	
Profit after depreciation but before tax	85,000	1,00,000	80,000	80,000	40,000	
Tax (30 %)	25,500	30,000	24,000	24,000	12,000	
PAT	59,500	70,000	56,000	56,000	28,000	Average = ₹ 53,900
Add: Dep.	40,000	40,000	40,000	40,000	40,000	
Net cash inflow	99,500	1,10,000	96,000	96,000	68,000	Average =₹93,900

Average = ₹93,900

(I) Calculation of Payback period And ARR

$$\text{Payback Period} = 1 + \frac{2,00,000 - 99,500}{1,10,000} = 1.91 \text{ years}$$

Calculation of ARR

Initial investment	2,00,000	1,60,000	1,20,000	80,000	40,000	
Depreciation	40,000	40,000	40,000	40,000	40,000	
Closing investment	1,60,000	1,20,000	80,000	40,000	0	
Average investment	1,80,000	1,40,000	1,00,000	60,000	20,000	Average = 1,00,000

ARR = Average of Profit after tax/Average investment = 53.90%

(II) Calculation of net present value @ 10%

Net cash inflow	99,500.00	1,10,000.00	96,000.00	96,000.00	68,000.00	
P.V.F.	0.909	0.826	0.751	0.683	0.621	
Present value	90,445.50	90,860.00	72,096.00	65,568.00	42,228.00	3,61,197.50

Net Present value = ₹3,61,197.50 – ₹2,00,000 = ₹1,61,197.50
Net present value index = ₹1,61,197.50/₹2,00,000 = 0.81

(III) Calculation of IRR
Present value factor = Initial Investment/Average annual cash inflow
2,00,000/93,900 = 2.13

It lies in between 38% and 40%

Net Cash Inflows	99,500	1,10,000	96,000	96,000	68,000	
Present Value Factor @38%	0.725	0.525	0.381	0.276	0.200	
Present value @ 38% (P1)	72,137.50	57,750	36,576	26,496	13,600	Total = 2,06,559.50
Net Cash Inflows	99,500	1,10,000	96,000	96,000	68,000	
Present Value Factor @ 40%	0.714	0.510	0.364	0.260	0.186	
Present value @ 40% (P2)	71,043	56,100	34,944	24,960	12,648	Total = 1,99,695

IRR is calculated by Interpolation:

IRR = LDR + (P1 – Q)/ (P1 – P2) x (SDR – LDR)

= 38 + (2,06,559.50 – 2,00,000)/(2,06,559.50 – 1,99,695) × (40 – 38)

= 39.911137%

(ii) Explain the term Desirability factor [4]

Answer:

Desirability Factor: In certain cases we have to compare a number of proposals each involving different amount of cash inflows. One of the methods of comparing such proposals is to work out, what is known as the 'Desirability Factor' or 'Profitability Index'.
In general terms, a project is acceptable if the Profitability Index is greater than 1.
Mathematically,

$$\text{Desirability Factor} = \frac{\text{Sum of discounted cashinflows}}{\text{Initial Cash outlay or Total Discounted Cash outflows}}$$

3. (b)

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

	P	Q	R
Output (units)	**2,50,000**	**1,25,000**	**7,50,000**
Fixed Cost (₹)	**5,00,000**	**2,50,000**	**10,00,000**
Unit Variable Cost (₹)	**5**	**2**	**7.50**
Unit Selling Price (₹)	**7.50**	**7**	**10.0**
Interest Expense (₹)	**75,000**	**25,000**	**—**

[3+3+3 = 9]

Answer:

Estimation of Degree of Operating Leverage (DOL), Degree of Financial Leverage (DFL) and Degree of Combined Leverage (DCL)

	P	Q	R
Output (in units)	2,50,000	1,25,000	7,50,000
Selling Price (per unit)	7.50	7	10

Sales Revenues	18,75,000	8,75,000	75,00,000
Less: Variable Cost	12,50,000	2,50,000	56,25,000
Contribution Margin	6,25,000	6,25,000	18,75,000
Less: Fixed Cost	5,00,000	2,50,000	10,00,000
EBIT	1,25,000	3,75,000	8,75,000
Less: Interest Expense	75,000	25,000	-
EBT	50,000	3,50,000	8,75,000
DOL = $\frac{\text{Contribution}}{\text{EBIT}}$	5	1.67	2.14
DFL = $\frac{\text{EBIT}}{\text{EBT}}$	2.5	1.07	-
DCL = DOL × DFL	12.5	1.79	2.14
Comment	Aggressive Policy	Moderate Policy	Moderate Policy with no financial leverage

(ii) The turnover of X Ltd. is ₹72 lakhs of which 80% is on credit. Debtors are allowed one month to clear off the dues. A factor is willing to advance 90% of the bills raised on credit for a fee of 2% a month plus a commission of 4% on the total amount of debts. X Ltd. as result of this arrangement is likely to save ₹25,920 annually in management costs and avoid bad debts at 1% on the credit sales.

A Nationalised bank has come forward to make an advance equal to 90% of the debts at an interest rate of 18% p.a. However, its processing fee will be at 2% on the debts.

Would you accept factoring or the offer from the bank? [7]

Answer:

Working Notes: ₹ In lakhs

Total sales p.a.	72.00
Less: cash sales p.a. 20%	14.40
Credit sales per annum 80%	57.60
Credit sales per month 57.60/12	4.80
Amount eligible for factoring or advance by the bank	
90% credit sales	4.32

Alternative I:

Cost of factoring Book Debts.		₹
Fees payable for Factoring ₹4,32,000 × 2%		8,640
Commission 4,80,000 × 4%		19,200
		27,840
	₹	
Less: Saving of management costs per month 25,920/12 =	2,160	
Bad debts 4,80,000 × 1% =	4,800	6,960
Net Cost of factoring		20,880

Alternative II:

Cost of BANK ADVANCE against Book debts ₹

Interest charges 4,32,000 x 18% x 1/12	6,480
Processing fee 4,80,000 x 2%	9,600
Bad debts loss unavoidable	4,800
Management costs	2,160
	23,040

So, X LTD. may opt for alternative I, i.e, Factoring.

3. (c)

(i) Classify the following independent items of cash flows under AS-3

(I) Cash receipts from future contracts held for trading purpose.

(II) Cash receipts from repayment of advances to third parties other than a financial enterprise.

(III) Cash interest received from by a financial enterprise.

(IV) Cash received from disposal of fixed assets.

(V) Cash receipts from interests in joint venture.

(VI) Dividends paid by a non- financial enterprise.

(VII) Cash payments on account of acquisition of a subsidiary.

(VIII) Cash flows arising from taxes on income, not specifically identifiable. **[4]**

Answer:

Classification of the following independent items of cash flows under AS-3 :

(I) Cash receipts from future contracts held for trading purpose – **Operating Activities**

(II) Cash receipts from repayment of advances to third parties other than a financial enterprise – **Investing Activities**

(III) Cash interest received from by a financial enterprise – **Operating Activities**

(IV) Cash received from disposal of fixed assets – **Investing Activities**

(V) Cash receipts from interests in joint venture - **Investing Activities**

(VI) Dividends paid by a non- financial enterprise – **Financing Activities**

(VII) Cash payments on account of acquisition of a subsidiary - **Investing Activities**

(VIII) Cash flows arising from taxes on income, not specifically identifiable - **Operating Activities**

(ii) Write a short note on Foreign Currency Convertible Bonds (FCCBs) **[4]**

Answer:

Foreign Currency Convertible Bonds (FCCBs)

The FCCB means bonds issued in accordance with the relevant scheme and subscribed by a non-resident in foreign currency and convertible into ordinary shares of the issuing company in any manner, either in whole or in part, on the basis of any equity related warrants attached to debt instruments. The FCCBs are unsecured, carry a fixed rate of interest and an option for conversion into a fixed number of equity shares of the issuer company. Interest and redemption price (if conversion option is not exercised) is payable in dollars. Interest rates are very low by Indian domestic standards. FCCBs are denominated in any freely convertible foreign currency.

FCCBs have been popular with issuers. Local debt markets can be restrictive in nature with comparatively short maturities and high interest rates. On the other hand, straight equity-issue may cause a dilution in earnings, and certainly a dilution in control, which many shareholders, especially major family shareholders, would find unacceptable. Thus, the low coupon security which defers shareholders dilution for several years can be alternative to an issuer. Foreign investors also prefer FCCBs because of the Dollar denominated servicing, the conversion option and the arbitrage opportunities presented by conversion of the FCCBs into equity at a discount on prevailing Indian market price.

(iii) The beta co- efficient of a security 'X' is 1.4. The risk free rate of return is 10% and the required rate of return is 14% on the market portfolio. If the dividend expected during the coming year is ₹3.50 per share and the growth rate of dividend and earning is 8%, at what price should the security 'X' be sold, based on the CAPM? [5]

Answer:

Expected rate of Return by applying CAPM Formula:

$E(R_i) = R_f + B_i (R_m - R_f)$

$= 10\% + 1.4 (14\% - 10\%) = 10\% + 5.6\% = 15.6\%$

Price of security X is calculated with the use of dividend growth model formula.

$$R_e = \frac{D_1}{P_0} + g$$

$$0.156 = \frac{3.50}{P_0} + 0.08$$

Or

$$0.156 = \frac{3.50}{P_0} + \frac{0.08}{1}$$

Or

$$0.156 = \frac{3.50 + 0.08P_0}{P_0}$$

$0.156P_0 = 3.50 + 0.08P_0$

$0.156P_0 - 0.08P_0 = 3.50$

$0.076P_0 = 3.50$

$$P_0 = \frac{3.50}{0.076} = ₹46.05$$

(iv) List out the features of venture Capital. [3]

Answer:

Features of Venture Capital:

- High Degree of risk – venture capital financing is, invariably, an investment in a highly risky project with the objective of earning a high rate of return.
- Equity participation – venture capital financing is, invariably, an actual or potential equity participation where in the object of venture capital is to make capital gain by selling the share once the project become profitable.
- Long-term investments – venture capital financing is a long term investment. It generally

takes a long period to encase the investment in securities made by the venture capitalists.