PAPER – 3 : COST ACCOUNTING AND FINANCIAL MANAGEMENT

*Question No. **1** is compulsory.*

*Attempt any **five** questions out of the remaining **six** questions.*

In case, any candidate answers extra question(s)/ sub-question(s) over and above the required number, then only the requisite number of questions first answered in the answer book shall be valued and subsequent extra question(s) answered shall be ignored.

Working notes should form part of the answer.

Question 1

Answer the following:

(a) A company manufactures a product from a raw material which is purchased at ₹ 96 per kg. The company incurs a handling and freight cost of ₹ 1,500 per order. The incremental carrying cost of inventory of raw material is ₹ 7.50 per kg per quarter. The annual production of the product is 2,00,000 units and 5 units are obtained from one kg. of raw material.

You are required to:

(i) Calculate the Economic Order Quantity of raw materials.

(ii) If the company proposes to rationalize placement of order on yearly basis, what percentage of discount in the price of raw materials should be negotiated?

(b) XYZ Ltd. has provided the following information:

	Year 2019	Year 2020
Sales	₹ 5,00,000	?
Profit/Volume Ratio (P/V ratio)	40%	25%
Margin of Safety sales as a % of total sales	20%	15%

There is no change in sales quantity level of year 2019 and year 2020, however, there was reduction in selling price in the year 2020. XYZ Ltd. has done restructuring of business and this has resulted in substantial savings in Fixed Cost in the year 2020.

You are required to calculate the following:

(i) Variable Cost in Rupees for year 2019 and year 2020

(ii) Sales for year 2020 in Rupees

(iii) Break-even sales for year 2020 in Rupees

(iv) Fixed cost for year 2020.

(c) *PQR Limited is considering investing in a project which requires a funding of ₹ 150 Crores. Finance Manager of the company has presented two financing plans for which information is as follows:*

Plan - A: Equity-20%, Debt-80%

Plan - B: Equity-60%, Preference Shares-40%

The Cost of debt is 10% and the Cost of preference shares is also 10%. Tax rate is 25%. Equity shares of the face value of ₹ 100 each will be issued at a premium of ₹ 50 per share. The Expected EBIT is ₹ 60 Crores.

You are required to determine: -

(i) Earnings Per Share (EPS) for Plan A and Plan B

(ii) The Financial Break-Even Point for Plan A and Plan B

(d) *'X' Limited has provided the following information for the year ended on 31.03.2019.*

Net profit before taking into account Income tax but after taking into account the following items was ₹ 20 lakhs:

(i) Depreciation on Fixed Assets is ₹ 5 lakhs.

(ii) Discount on issue of Debentures written off is ₹ 30,000.

(iii) Interest on Debentures paid is ₹ 3,50,000.

(iv) Book value of investments is ₹ 3 lakhs (Sale of Investments for ₹ 3,20,000).

(v) Interest received on investments is ₹ 60,000.

(vi) Income tax paid during the year is ₹ 10,50,000.

Current assets and current liabilities in the beginning and at the end of the years are as detailed below:

	As on 31.03.2018	*As on 31.03.2019*
	₹	*₹*
Stock	*12,00,000*	*13,18,000*
Sundry Debtors	*2,08,000*	*2,13,100*
Bills receivable	*50,000*	*40,000*
Bills payable	*45,000*	*40,000*
Sundry Creditors	*1,66,000*	*1,71,300*
Outstanding expenses	*75,000*	*81,800*

You are required to calculate Net Cash Flow from Operating Activities according to Indirect Method as per AS-3 (Revised) for the year ended 31.03.2019. ***(4 x 5 = 20 Marks)***

Answer

(a) Annual requirement of raw material in kg. (A) = $\frac{2,00,000\,\text{units}}{5\,\text{units per kg.}} = 40,000\,\text{kg.}$

Ordering Cost (Handling & freight cost) (O) = ₹ 1,500

Carrying cost per unit per annum = (₹ 7.5 × 4) = **₹ 30 per kg.**

(i) E.O.Q. = $\sqrt{\frac{2 \times 40,000\,\text{kgs.} \times ₹\ 1500}{₹\ 30}}$ = **2,000 kg.**

(ii) Percentage of discount in the price of raw materials to be negotiated:

Particulars	Yearly order	EOQ
Size of the order	40,000 kg.	2,000 kg.
No. of orders	1	20
Cost of placing orders	₹ 1,500 (1 order × ₹ 1500)	₹ 30,000 (20 orders × ₹ 1500)
Inventory carrying cost	₹ 6,00,000 (40,000 kg. × ½ × ₹ 30)	₹ 30,000 (2,000 kg. × ½ × ₹ 30)
Total Cost	**₹ 6,01,500**	**₹ 60,000**

When order is placed on yearly basis, the ordering cost and carrying cost increased by ₹ 5,41,500 (₹ 6,01,500 - ₹ 60,000). This increase in total cost should be compensated by reduction in purchase price per kg. to make yearly order placement rational.

Reduction per kg. in the purchase price of raw material:

$= \frac{\text{Increased in total cost}}{\text{Annual requirement}} = \frac{₹5,41,500}{40,000\,\text{kg}}$ = ₹ 13.54 per kg.

Discount in the price of raw material to be negotiated = $\frac{₹13.54}{₹96}$ = **14.10%**

(b) (i) Variable cost in Rupees for year 2019 and 2020

In 2019, PV ratio = 40%

Variable cost ratio = 100% - 40% = 60%

Variable cost in 2019 = ₹ 5,00,000 × 60% = **₹ 3,00,000**

In 2020, sales quantity has not changed. Thus, variable cost in 2020 is **₹ 3,00,000**.

(ii) Sales for year 2020 in Rupees

In 2020, P/V ratio = 25%

Thus, Variable cost ratio = 100% – 25% = **75%**

Thus, sales in 2020 = $\frac{₹3,00,000}{75\%}$ = **₹ 4,00,000**

(iii) Break even sales for year 2020 in Rupees

At break-even point, fixed cost is equal to contribution.

In 2020, Break-even sales = 100% – 15% = 85%

Break-even sales = ₹ 4,00,000 × 85% = **₹ 3,40,000**

(iv) Fixed Cost for year 2020

Fixed cost = B.E. sales × P/V ratio

= ₹ 3,40,000 × 25% = **₹ 85,000**

(c) Capital Structure under plan A and Plan B

Financing Plans	Plan A	Plan B
Equity Shares	₹ 30 crores (₹ 150 crores x 20%)	₹ 90 crores (₹ 150 crores x 60%)
Debt	₹ 120 crores (₹ 150 crores x 80%)	--
Preference Shares	--	₹ 60 crores (₹ 150 crores x 40%)
Total	**₹ 150 crores**	**₹ 150 crores**

(i) Computation of Earnings per Share (EPS)

Particulars	Plan A (₹ Crores)	Plan B (₹ Crores)
Earnings before interest & tax (EBIT)	60	60
Less: Interest charges (10% of ₹ 120 crores)	(12)	-
Earnings before tax (EBT)	48	60
Less: Tax @ 25%	12	15
Earnings after tax (EAT)	**36**	**45**

Less: Preference share dividend (10% of ₹ 60 crores)	-	6
Earnings available for equity shareholders (A)	36	39
No. of equity shares (B) Plan A = ₹ 30 Crores / ₹ 150 Plan B = ₹ 90 Crores / ₹ 150	0.20	0.60
E.P.S (in ₹) (A ÷ B)	**180**	**65**

(ii) Computation of Financial Break-even Points

Financial Break-even point = Interest + Preference dividend/(1 - tax rate)

Plan A = **₹ 12 Crores** (Interest charges)

Plan B = Earnings required for payment of preference share dividend

= ₹ 6 crores ÷ (1 - 0.25) = **₹ 8 crores**

(d) Statement of Cash Flow for the year ended 31st March, 2019 [As per AS-3 (Revised)]

	(₹)	(₹)
Cash flow from Operating Activities		
Profit before taxation		20,00,000
Adjustments:		
Add: Depreciation on fixed assets	5,00,000	
Add: Discount on issue of debentures written-off	30,000	
Add: Interest on debentures paid	3,50,000	8,80,000
Less: Profit on sale of investment (₹ 3,20,000 – ₹ 3,00,000)	(20,000)	
Less: Interest received on investments	(60,000)	(80,000)
Operating profit before working capital changes		**28,00,000**
Decrease in Bills receivables (₹ 50,000 – ₹ 40,000)	10,000	
Increase in Sundry creditors (₹ 1,71,300 – ₹ 1,66,000)	5,300	
Increase in Outstanding expenses (₹ 81,800 – ₹ 75,000)	6,800	22,100
Increase in Stock (₹ 13,18,000 – ₹ 12,00,000)	(1,18,000)	
Increase in Sundry debtors (₹ 2,13,100 – ₹ 2,08,000)	(5,100)	
Decrease in Bills payables (₹ 45,000 – ₹ 40,000)	(5,000)	(1,28,100)
Cash generated from operations		**26,94,000**

Less: Income tax paid		(10,50,000)
Net Cash flow from Operating Activities		**16,44,000**

Question 2

(a) PQR Ltd. has provided the following information for Departments A and B of its factory:

Preliminary Estimates of expenses (Per Annum)			
	Total (₹)	*Dept A (₹)*	*Dept B (₹)*
Power	*15,000*	*-*	*-*
Spare parts	*8,000*	*3,000*	*5,000*
Consumable stores	*5,000*	*2,000*	*3,000*
Depreciation on machinery	*30,000*	*10,000*	*20,000*
Insurance on machinery	*3,000*	*1,000*	*2,000*
Indirect labour	*40,000*	*-*	*-*
Building maintenance	*7,000*	*-*	*-*

The final estimates of expenses are to be prepared on the basis of above figures after taking into consideration the following factors:

(a) An increase of 10 per cent in the price of spare parts.

(b) An increase of 20 per cent in the consumption of spare parts for Department B only.

(c) Increase in the straight line method of depreciation from 10 per cent on the original value of machinery to 12 per cent.

(d) 15 per cent increase in wage rates of Indirect Labour.

The following information is also available:

	Dept. A	*Dept. B*
Estimated Direct Labour hours	*80,000*	*1,20,000*
Ratio of K.W. Rating	*3*	*2*
Floor space (sq. ft.)	*15,000*	*20,000*

There are 12 holidays besides Sundays in the year. The manufacturing department works 8 hours in a day. All machines work at 90% capacity throughout the year. (Assume 365 days in a year).

You are required to work out the Machine Hour rates for Departments A and B. ***(8 Marks)***

(b) A Company is capitalized as follows:

7% Preference Shares ₹1 each. ₹6,00,000

Ordinary Shares, ₹ 1 Each *₹ 16,00,000*

Total *₹ 22,00,000*

The following information is relevant as to its financial year just ended:

Profit (after Taxation @ 50%) *₹ 5,42,000*

Ordinary Dividend paid *20%*

Market Price of each Ordinary Share *₹ 4*

Depreciation *₹ 2,20,000*

You are required to calculate the following, showing the necessary workings:

(i) Dividend Yield on the Ordinary Shares

(ii) Preference Dividend Coverage Ratio

(iii) Ordinary Dividend Coverage Ratio

(iv) Earnings Yield

(v) Price-earnings (P/E) Ratio

(vi) Amount transferred to Reserve and Surplus

(vii) Net Cash Flow ***(8 Marks)***

Answer

(a) Computation of Machine Hour Rate

	Basis of apportionment	Total (₹)	Department	
			A (₹)	B (₹)
(A) Standing Charges				
Insurance	Direct	3,000	1,000	2,000
Indirect Labour	Direct Labour (2:3)	46,000	**18,400**	**27,600**
Building maintenance expenses	Floor Space (3:4)	7,000	**3,000**	**4,000**
Total standing charges (A)		56,000	22,400	33,600
Hourly rate for standing charges (H1)			10.33	15.50
(B) Machine Expenses:				
Power	K.W. rating (3:2)	15,000	**9,000**	**6,000**
Spare parts	Final estimates	9,900	**3,300**	**6,600**

Consumable Stores	Direct	5,000	2,000	3,000
Depreciation on machinery	Final estimates	36,000	**12,000**	**24,000**
Total Machine expenses (B)		65,900	**26,300**	**39,600**
Hourly Rate for Machine expenses (H2)			12.13	18.27
Total Cost (A + B)		**1,21,900**	**48,700**	**73,200**
Machine Hour rate* (H1+H2)			**22.46**	**33.76**

*Alternatively, Machine Hour rate can be calculated as total Cost ÷ total effective hours.

Working Notes:

(i) Calculation of effective working hours:

No. of off-days = No. of Sundays + No. of holidays

= 52 + 12 = 64 days

No. of working days = 365 days – 64 days = 301 days

Total working Hours = 301 days × 8 hours

= 2,408 hours

Total effective hours = Total working hours × 90%

= 2,408 hours × 90%

= **2,167.2** or Rounded up to **2,168 hours**

(ii) Amount of Indirect Labour is calculated as under:

Particulars	**(₹)**
Preliminary estimates	40,000
Add: Increase in wages @ 15%	6,000
Estimated total cost of Indirect labour	46,000

(iii) Amount of spare parts is calculated as under:

Particulars	**A (₹)**	**B (₹)**
Preliminary estimates	3,000	5,000
Add: Increase in price @ 10%	300	500
	3,300	5,500

Add: Increase in consumption @ 20%	–	1,100
Estimated cost of spare parts	3,300	6,600

(iv) Amount of Depreciation of machinery is calculated as under:

Particulars	A (₹)	B (₹)
Preliminary estimates	10,000	20,000
Add: Increase in depreciation {₹ 10,000 x 2 (12-10) /10}	2000	4000
Estimated Depreciation (Current depreciation x 12/10)	12,000	24,000

(b) (i) Dividend yield on the ordinary shares

$$= \frac{\text{Dividend per share}}{\text{Market price per share}} \times 100 = \frac{₹\,0.20\,(0.20 \times ₹\,1)}{₹\,4} \times 100 = 5\%$$

(ii) Preference Dividend coverage ratio

$$= \frac{\text{Profit after taxes}}{\text{Diviend payable to preference shareholders}}$$

$$= \frac{₹\,5,42,000}{₹\,42,000\,(0.07 \times ₹\,6,00,000)} = 12.9 \text{ times}$$

(iii) Ordinary Dividend coverage ratio

$$= \frac{\text{Profit after taxes - Preference share dividend}}{\text{Dividend payable to equity shareholders at current rate of ₹ 0.20 per share}}$$

$$= \frac{₹\,5,42,000 - ₹\,42,000}{₹\,3,20,000\,(16,00,000 \text{ shares} \times ₹\,0.2)} = 1.56 \text{ times}$$

(iv) Earnings Yield

$$= \frac{\text{EPS}^*}{\text{Market price per shares}} = \frac{₹\,0.31}{4} = 7.75\%$$

*Earnings per share (EPS)

$$= \frac{\text{Earnings available to equity shareholders}}{\text{Number of equity shares outstanding}} = \frac{₹\,5,00,000}{16,00,0000 \text{ shares}} = ₹\,0.31 \text{ per share}$$

(v) Price-earnings (P/E) ratio

$$= \frac{\text{Market price per share}}{\text{Equity per share}} = \frac{₹\ 4}{₹\ 0.31} = 12.90 \text{ times}$$

(vi) Amount transferred to Reserve and Surplus

= Earnings available for ordinary shareholders – Dividend paid to ordinary shareholders

= ₹ 5,00,000 - ₹ 3,20,000 = ₹ 1,80,000

(vii) Net Cash Flow

= Profit after tax + Depreciation – Dividend paid to Preference shareholders – Dividend paid to ordinary shareholders

= ₹ 5,42,000 + ₹ 2,20,000 - ₹ 42,000 - ₹ 3,20,000 = ₹ 4,00,000

Question 3

(a) A company is considering four alternative proposals for a new toy manufacturing Machine launched in the market. New machine is expected to produce approximately 25,000 toys every year. The proposals are as follows:

(i) Purchase and maintain the new toy manufacturing Machine and bear all related costs. These machines will run on fuel. The average cost of a Machine is ₹ 10,00,000. Life of the machine is 4 years with annual production of 25,000 toys and the Resale value is ₹ 2,00,000 at the end of the fourth year.

(ii) Hire from Agency-A: It can hire the machine from the Agency-A and pay hire charges at the rate of ₹ 20 per toy and bear no other cost.

(iii) Hire from Agency-B: It can hire the machine from the Agency-B and pay hire charges at the rate of ₹ 12 per toy and also bear insurance costs. All other costs will be borne by Agency-B.

(iv) Hire from Agency-C: Hire machine from Agency-C at ₹ 2,50,000 per year. These machines are more advanced and run on electricity and therefore, the running cost is considerably low. The company will have to bear costs of electricity, licensing fees and spare parts. However, Repairs and maintenance and Insurance cost are borne by Agency-C.

The following further details are available:

The cost of Fuel is ₹ 8 per toy, the cost of spare parts is ₹ 0.20 per toy and the cost of electricity is ₹ 2 per toy. Further, the cost of Repairs and maintenance is ₹ 0.25 per toy, the amount of licensing fees to be paid is ₹ 5,000 per machine per annum and the cost of Insurance to be paid is ₹ 25,000 per machine per annum. Consider no taxes.

You are required to:

(i) Calculate the relative costs of four proposals on cost per toy basis.

(ii) Rank the proposals on the basis of total cost for 25,000 toys per year.

(iii) Recommend the best proposal to company in view of (ii) above. ***(8 Marks)***

(b) KLM Ltd., has an operating profit of ₹ 46,00,000 and has employed Debt (Total Interest Charge of ₹ 10,00,000). The existing Cost of Equity and Cost of Debt to the firm are 18% and 10% respectively. The firm has a proposal before it requiring funds of ₹ 100 Lakhs (to be raised by issue of additional debt @ 10%) which is expected to bring additional profit of ₹ 19,00,000. Assume no Tax.

You are required to find out the

(i) Existing Weighted Average Cost of Capital (WACC)

(ii) New Weighted Average Cost of Capital (WACC) ***(8 Marks)***

Answer

(a) Calculation of relative costs of proposals

Particulars	Proposals			
	Purchase of machine (₹)	Hire Agency-A (₹)	Hire Agency-B (₹)	Hire Agency-C (₹)
Depreciation of machine (Working note 1)	2,00,000	-	-	-
Hire charges	-	5,00,000 (₹ 20 × 25,000)	3,00,000 (₹ 12 × 25,000)	2,50,000
Cost of fuel	2,00,000 (₹ 8 × 25,000)	-	-	-
Cost of spare parts	5,000 (₹ 0.2 × 25,000)	-	-	5,000 (₹ 0.2 × 25,000)
Cost of electricity	-	-	-	50,000 (₹ 2 × 25,000)
Repair & maintenance	6,250 (₹ 0.25 × 25,000)	-	-	-
Licencing fees	5,000	-	-	5,000

Insurance cost	25,000	-	25,000	-
Total Cost (A)	**4,41,250**	**5,00,000**	**3,25,000**	**3,10,000**
No. of toys (units) (B)	25,000	25,000	25,000	25,000
(i) Cost per toy (A/B)	**17.65**	**20.00**	**13.00**	**12.40**
(ii) Ranking of proposals	**III**	**IV**	**II**	**I**

(iii) Recommendation: Proposal of Hire machine from Agency-C is acceptable as the cost of manufacturing toys is lowest.

Working Notes:

(1) Depreciation per year:

$$\frac{\text{Cost of machine - Resale value}}{\text{Life of machine}} = \frac{₹\,10,00,000 - ₹\,2,00,000}{4 \text{ years}} = ₹\,2,00,000$$

(b) Workings:

Value of Debt $= \dfrac{\text{Interest}}{\text{Cost of debt } (K_d)}$

$= \dfrac{₹\,10,00,000}{0.10} = ₹\,1,00,00,000$

Value of equity capital $= \dfrac{\text{Operating profit - Interest}}{\text{Cost of equity } (K_e)}$

$= \dfrac{₹\,46,00,000 - ₹\,10,00,000}{0.18} = ₹\,2,00,00,000$

Total capital = ₹ 1,00,00,000 + ₹ 2,00,00,000 = ₹ 3,00,00,000

(i) Computation of Existing Weighted Average Cost of Capital (WACC):

Sources	Amount (₹)	Proportion	Cost of Capital	WACC
Equity	2,00,00,000	0.667	0.18	0.1200
Debt	1,00,00,000	0.333	0.10	0.0333
Total	**3,00,00,000**	**1**		**0.1533 or 15.33%**

(ii) Computation of New Weighted Average Cost of Capital (WACC):

Cost of equity (K_e) = $\frac{\text{Increased Operating profit - Interest on Increased debt}}{\text{Equity capital}}$

= $\frac{(₹\ 46,00,000 + ₹\ 19,00,000) - (₹\ 10,00,000 + ₹\ 10,00,000)}{₹\ 2,00,00,000}$

= $\frac{₹\ 65,00,000 - ₹\ 20,00,000}{₹\ 2,00,00,000} = \frac{₹\ 45,00,000}{₹\ 2,00,00,000}$

= **0.225 or 22.5%**

Calculation of New Weighted Average Cost of Capital (WACC)

Sources	Amount (₹)	Proportion	Cost of Capital	WACC
Equity	2,00,00,000	0.50	0.225	0.1125
Debt	2,00,00,000	0.50	0.100	0.0500
Total	**4,00,00,000**	**1**		**0.1625 or 16.25%**

Note: It is assumed that in the new situation Cost of Debt is constant and value of Equity is unchanged, then Cost of Equity will change. If we assume, Cost of Debt and Cost of Equity is constant, then value of equity will change. Accordingly, the value of equity will be ₹ 2,50,00,000 and the new Weighted Average Cost of capital (WACC) will be 14.45%.

Question 4

(a) XYZ Ltd. has provided following information in respect of Process 'P' from its Cost Records :

Work-in-process as at start of period	*(₹)*
- Materials	*10,000*
- Labour	*5,000*
- Overhead	*5,000*
Total	*20,000*
Cost during the period	
- Materials	*50,000*
- Labour	*22,500*
- Overhead	*22,500*
Total	*95,000*

The following information is available from its Production Records:

Units in process as at start of period	*5,000*
(Degree of completion for Materials is 100% and for Labour and Overhead is 50%)	
New units introduced	*25,000*
Units completed	*19,000*
Units in process as at end of period	*10,000*
(Degree of completion for Materials is 100% and for Labour and Overhead is 75%)	

The degree of completion for scrapped units is 100% for Materials as well as for Labour and Overhead and units scrapped do not fetch any value. There is no normal loss in the Process 'P'.

You are required to prepare following, presuming that Average Method of inventory is used:

(i) Statement of Equivalent Production

(ii) Statement of Cost

(iii) Statement of Distribution of Cost

(iv) Process Account for Process 'P' ***(8 Marks)***

(b) A chemical company is presently paying an outside firm ₹ 1 per gallon to dispose off the waste resulting from its manufacturing operations. At normal operating capacity, the waste is about 50,000 gallons per year.

After spending ₹ 60,000 on research, the company discovered that the waste could be sold for ₹ 10 per gallon if it was processed further. Additional processing would, however, require an investment of ₹ 6,00,000 in new equipment, which would have an estimated life of 10 years with no salvage value. Depreciation would be calculated by straight line method.

Except for the costs incurred in advertising ₹ 20,000 per year, no change in the present selling and administrative expenses is expected, if the new product is sold. The details of additional processing costs are as follows:

Variable : ₹ 5 per gallon of waste put into process.

Fixed : (Excluding Depreciation) ₹ 30,000 per year.

There will be no losses in processing, and it is assumed that the total waste processed in a given year will be sold in the same year. Estimates indicate that 50,000 gallons of the product could be sold each year.

The management when confronted with the choice of disposing off the waste or processing it further and selling it, seeks your advice. Which alternative would you recommend? Assume that the firm's cost of capital is 15% and it pays on an average 50% Tax on its income.

You should consider Present value of Annuity of ₹ 1 per year @ 15% p.a. for 10 years as 5.019. ***(8 Marks)***

Answer

(a) (i) Statement of Equivalent Production

Particulars	Input Units	Particulars	Output Units	Equivalent Production			
				Material		Labour & O.H.	
				%	Units	%	Units
Opening WIP	5,000	Completed and transferred to next Process	19,000	100	19,000	100	19,000
Units introduced	25,000	Abnormal loss (Balancing figure)	1,000	100	1,000	100	1,000
		Closing WIP	10,000	100	10,000	75	7,500
	30,000		**30,000**		**30,000**		**27,500**

(ii) Statement showing cost for each element

Particulars	Materials (₹)	Labour (₹)	Overhead (₹)	Total (₹)
Cost of opening work-in-progress	10,000	5,000	5,000	20,000
Cost incurred during the month	50,000	22,500	22,500	95,000
Total cost: (A)	**60,000**	**27,500**	**27,500**	**1,15,000**
Equivalent units: (B)	30,000	27,500	27,500	**-**
Cost per equivalent unit: (C) = (A ÷ B)	**2**	**1**	**1**	**4**

(iii) Statement of Distribution of cost

Particulars	Amount (₹)	Amount (₹)
Value of units completed and transferred		**76,000**

(19,000 units × ₹ 4)		
Value of Abnormal Loss:		
- Materials (1,000 units × ₹ 2)	2,000	
- Labour (1000 units × ₹ 1)	1,000	
- Overheads (1000 units × ₹ 1)	1,000	**4,000**
Value of Closing W-I-P:		
- Materials (10,000 units × ₹ 2)	20,000	
- Labour (7,500 units × ₹ 1)	7,500	
- Overheads (7,500 units × ₹ 1)	7,500	**35,000**

(iv) Process P A/c

Particulars	Units	(₹)	Particulars	Units	(₹)
To Opening W.I.P:			By Abnormal loss	1,000	4,000
- Materials	5,000	10,000	By Completed units	19,000	76,000
- Labour	--	5,000	By Closing WIP	10,000	35,000
- Overheads	--	5,000			
To Materials introduced	25,000	50,000			
To Direct Labour	--	22,500			
To Overheads	--	22,500			
	30,000	**1,15,000**		**30,000**	**1,15,000**

(b) Evaluation of Alternatives:

Savings in disposing off the waste

Particulars	(₹)
Outflow (50,000 × ₹ 1)	50,000
Less: tax savings @ 50%	25,000
Net Outflow per year	**25,000**

Calculation of Annual Cash inflows in Processing of waste Material

Particulars	Amount (₹)	Amount (₹)
Sale value of waste (₹ 10 × 50,000 gallon)		5,00,000
Less: Variable processing cost (₹ 5 × 50,000 gallon)	2,50,000	
Less: Fixed processing cost	30,000	
Less: Advertisement cost	20,000	
Less: Depreciation	60,000	(3,60,000)
Earnings before tax (EBT)		**1,40,000**
Less: Tax @ 50%		(70,000)
Earnings after tax (EAT)		70,000
Add: Depreciation		60,000
Annual Cash inflows		**1,30,000**

Total Annual Benefits = Annual Cash inflows + Net savings(adjusting tax) in disposal cost

= ₹ 1,30,000 + ₹ 25,000 = ₹ 1,55,000

Calculation of Net Present Value

Year	Particulars	Amount (₹)
0	Investment in new equipment	**(6,00,000)**
1 to 10	Total Annual benefits × PVAF (10 years, 15%)	
	₹ 1,55,000 × 5.019	**7,77,945**
	Net Present Value	**1,77,945**

Recommendation: Processing of waste is a better option as it gives a positive Net Present Value.

Note- Research cost of ₹ 60,000 is not relevant for decision making as it is sunk cost.

Question 5

(a) Define the following terms in Cost Accounting:

(i) Conversion Cost

(ii) Sunk Cost

(iii) Opportunity cost

(iv) Cost Centre

(b) Differentiate between Fixed Budget and Flexible Budget.

(c) Explain any four factors that a Venture Capitalist should consider before financing any risky project.

(d) What is Factoring? What do you understand by Recourse basis factoring and Non-recourse basis factoring? Explain the advantages of Factoring in brief. ***(4 x 4 = 16 Marks)***

Answer

(a) (i) Conversion cost: It is the cost incurred to convert raw materials into finished goods. It is the sum of direct wages, direct expenses and manufacturing overheads.

(ii) Sunk cost: Historical costs or the costs incurred in the past are known as sunk cost. They play no role in the current decision-making process and are termed as irrelevant costs. For example, in the case of a decision relating to the replacement of a machine, the written down value of the existing machine is a sunk cost, and therefore, not considered.

(iii) Opportunity cost: It refers to the value of sacrifice made or benefit of opportunity foregone in accepting an alternative course of action. For example, a firm financing its expansion plan by withdrawing money from its bank deposits. In such a case the loss of interest on the bank deposit is the opportunity cost for carrying out the expansion plan.

(iv) Cost Centre: It is defined as a location, person, or an item of equipment (or group of these) for which cost may be ascertained and used for the purpose of Cost Control.

(b) Difference between Fixed and Flexible Budgets

	Fixed Budget	Flexible Budget
1.	It does not change with actual volume of activity achieved. Thus it is rigid.	It can be re-casted on the basis of activity level to be achieved. Thus it is not rigid.
2.	It operates on one level of activity and under one set of conditions.	It consists of various budgets for different level of activity.
3.	If the budgeted and actual activity levels differ significantly, then cost ascertainment and price fixation do not give a correct picture.	It facilitates the cost ascertainment and price fixation at different levels of activity.
4.	Comparisons of actual and budgeted targets are meaningless particularly when there is difference between two levels.	It provided meaningful basis of comparison of actual and budgeted targets.

(c) Factors to be considered by a Venture Capitalist before financing any Risky Project:

(i) Quality of the management team is a very important factor to be considered. They are required to show a high level of commitment to the project.

(ii) The technical ability of the team is also vital. They should be able to develop and produce a new product / service.

(iii) Technical feasibility of the new product / service should be considered.

(iv) Since the risk involved in investing in the company is quite high, venture capitalists should ensure that the prospects for future profits compensate for the risk.

(v) A research must be carried out to ensure that there is a market for the new product.

(vi) The venture capitalist himself should have the capacity to bear risk or loss, if the project fails.

(vii) The venture capitalist should try to establish a number of exit routes.

(viii) In case of companies, venture capitalist can seek for a place on the Board of Directors to have a say on all significant matters affecting the business.

(d) Factoring: Factoring involves provision of specialized services relating to credit investigation, sales ledger management purchase and collection of debts, credit protection as well as provision of finance against receivables and risk bearing. In factoring, accounts receivables are generally sold to a financial institution (a subsidiary of commercial bank – called "factor"), who charges commission and bears the credit risks associated with the accounts' receivables purchased by it.

Types of factoring - Recourse and Non-recourse:

A non-recourse basis factoring is the arrangement where in the event of default the loss is borne by the factor.

However, in a factoring arrangement with recourse, the accounts receivables will be turned back to the firm by the factor for resolution.

Advantages of Factoring: The main advantages of factoring are-

(i) The firm can convert accounts receivables into cash without bothering about repayment.

(ii) Factoring ensures a definite pattern of cash inflows.

(iii) Continuous factoring virtually eliminates the need for the credit department.

(iv) Unlike an unsecured loan, compensating balances are not required in this case. Another advantage consists of relieving the borrowing firm of substantially credit and collection costs and from a considerable part of cash management.

Question 6

(a) The following data has been collected from the cost records of Nee Ltd. for computing the variances for a period:-

Particulars	*Budget*	*Actual*
Output (units)	*50,000*	*54,000*
Hours	*25,000*	*28,000*
Fixed overhead	*₹ 65,000*	*₹ 54,000*
Working days	*25*	*26*

You are required to calculate :

(i) Fixed Overhead Cost Variance

(ii) Fixed Overhead Expenditure Variance

(iii) Fixed Overhead Volume Variance

(iv) Fixed Overhead Efficiency Variance

(v) Fixed Overhead Capacity Variance

(vi) Fixed Overhead Calendar Variance ***(8 Marks)***

(b) XYZ Ltd. has started business in the year 2020-21 and has provided the under mentioned Projected Profit & Loss Account:

	₹	₹
Sales		*10,00,000*
Less: Cost of Goods Sold		*6,12,000*
Gross profit		*3,88,000*
Administration Expenses	*72,000*	
Selling Expenses	*60,000*	*1,32,000*
Net Profit		*2,56,000*
The Cost of Goods Sold has been arrived at as under:		
Materials Consumed		*3,60,000*
Wages & Manufacturing Expenses		*2,40,000*
Depreciation		*1,20,000*
		7,20,000
Less: Stock of Finished Goods (15% of goods produced not yet sold)		*1,08,000*
Cost of Goods Sold		*6,12,000*

There is no Work in progress and no opening stock of Raw material and Finished goods. The company believes in keeping materials equal to three month's consumption in stock. All expenses will be paid one month in arrear, suppliers of material will extend two months credit, sales will be 50% for cash and the rest at one month credit. The company wishes to keep ₹ 50,000 in cash.

You are required to prepare an estimate of the Requirements of Working Capital on the basis of Estimates on Cash Cost Basis. Assume no Taxes. ***(8 Marks)***

Answer

(a) Basic Calculations:

Standard hours per unit $= \frac{\text{Budgeted hours}}{\text{Budgeted units}} = \frac{25,000}{50,000} = 0.50$ hr.

Std. hrs. for actual output = 54,000 units × 0.50 hr = 27,000 hrs.

Standard overhead rate per hour $= \frac{\text{Budgeted overhead}}{\text{Budgeted hours}}$

For fixed overhead $= \frac{65,000}{25,000} =$ ₹ 2.60 per hr.

Std. F.O. rate per day = ₹ 65,000 ÷ 25 days = ₹ 2,600

Recovered overhead = Std. hrs. for actual output × Std. rate

= 27,000 hrs. × ₹ 2.60 = **₹ 70,200**

Standard overhead = Actual hours × Std. rate

For fixed overhead = 28,000 hrs. × ₹ 2.60 = **₹ 72,800**

Revised budgeted hours $= \frac{\text{Budgeted hours}}{\text{Budgeted days}} \times$ Actual days

$= \frac{25,000}{25} \times 26 =$ 26,000 hrs.

Revised budgeted overhead (for fixed overhead) = 26,000 hrs. × ₹ 2.60 = ₹ 67,600

Calculation of variances

(i) F.O. Cost Variance = Recovered Overhead – Actual Overhead

= ₹ 70,200 – ₹ 54,000 **= ₹ 16,200 (F)**

(ii) F.O. Expenditure Variance = Budgeted Overhead – Actual Overhead

= ₹ 65,000 – ₹ 54,000 **= ₹ 11,000 (F)**

(iii) F.O. Volume Variance = Recovered Overhead – Budgeted Overhead

= ₹ 70,200 – ₹ 65,000 **= ₹ 5,200 (F)**

(iv) F.O. Efficiency Variance = Recovered Overhead – Standard Overhead

= ₹ 70,200 – ₹ 72,800 **= ₹ 2,600 (A)**

(v) F.O. Capacity Variance = Standard Overhead – Revised Budgeted Overhead

= ₹ 72,800 – ₹ 67,600 **= ₹ 5,200 (F)**

(vi) F.O. Calendar Variance $= \begin{pmatrix} \text{Actual} \\ \text{Days} \end{pmatrix} - \begin{pmatrix} \text{Budgeted} \\ \text{Days} \end{pmatrix} \times$ Std. rate per day.

= (26 – 25) × ₹ 2,600 **= ₹ 2,600 (F)**

(b) Statement showing the requirements of Working Capital

Particulars	**(₹)**	**(₹)**
A. Current Assets:		
Inventory:		
Stock of Raw material (₹ 3,60,000 × 3/12)	90,000	
Stock of Finished goods (₹ 6,00,000 × 15/100)	90,000	
Receivables (Debtors) (₹ 3,21,000 × 1/12)	26,750	
Cash in Hand	50,000	
Gross Working Capital	2,56,750	2,56,750
B. Current Liabilities:		
Payables for Raw materials (₹ 4,50,000 × 2/12)	75,000	
Outstanding Expenses:		
Wages & Mfg. Expenses (₹ 2,40,000 × 1/12)	20,000	
Administration expenses (₹ 72,000 × 1/12)	6,000	
Selling Expenses (₹ 60,000 × 1/12)	5,000	
Total Current Liabilities	1,06,000	1,06,000
Net Working Capital requirements (A – B)		**1,50,750**

Working Notes:

(i) Calculation of Stock of Finished Goods and Cost of Sales

Particulars	(₹)
Direct material Cost	3,60,000
Wages & Mfg. Expenses	2,40,000
Depreciation	-
Gross Factory Cost	6,00,000
Less: Closing W.I.P.	-
Cost of goods produced	6,00,000
Less: Closing stock	90,000
	5,10,000
Add: Administration Expenses	72,000
Cost of Goods Sold	5,82,000
Add: Selling Expenses	60,000
Total Cash Cost of Sales	**6,42,000**
Debtors (50% of cash cost of sales)	**3,21,000**

(iii) Calculation of Credit Purchase

Particulars	(₹)
Raw material consumed	3,60,000
Add: Closing Stock	90,000
Less: Opening Stock	-
Credit Purchases	**4,50,000**

Question 7

Answer any four of the following:

(a) List out the assumptions underlying Cost-Volume-Profit Analysis.

(b) Define Integrated Accounting System in brief. State any three essential pre-requisites of this system.

(c) (i) List out two objectives each of Time-keeping and Time-Booking in Cost Accounting.

(ii) Money in the future is 'Worth Less' than similar Money 'Today'. Provide any 2 reasons in support of this statement.

(d) Explain the following:

(i) Inter Corporate Deposits.

(ii) Certificate of Deposit.

(e) Explain the term 'Over-Capitalisation'. Also explain any two causes, two consequences, and two remedies of/for Over-Capitalisation. ***(4 x 4 = 16 Marks)***

Answer

(a) Assumptions underlying CVP Analysis:

(i) Changes in the levels of revenues and costs arise only because of changes in the number of products (or service) units produced and sold.

(ii) Total cost can be separated into two components: Fixed and variable.

(iii) Graphically, the behaviour of total revenues and total cost are linear in relation to output level within a relevant range.

(iv) Selling price, variable cost per unit and total fixed costs are known and constant.

(v) All revenues and costs can be added, sub traded and compared without taking into account the time value of money.

(b) Integrated Accounting System: It is a system of accounting where both costing and financial transactions are recorded in the same set of books.

Essential pre-requisites of Integrated Accounting System: The essential pre-requisites of Integrated Accounting System include the following:

1. The management's decision about the extent of integration of the two sets of books. Some concerns find it useful to integrate upto the stage of primary cost or factory cost while other prefer full integration of the entire accounting records.
2. A suitable coding system must be made available so as to serve the accounting purposes of financial and cost accounts.
3. An agreed routine, with regard to the treatment of provision for accruals, prepaid expenses, other adjustment necessary for preparation of interim accounts.
4. Perfect coordination should exist between the staff responsible for the financial and cost aspects of the accounts and an efficient processing of accounting documents should be ensured.

(c) (i) Time keeping has the following two objectives-

(i) *Preparation of Payroll:* Wage bills are prepared by the payroll department on the basis of information provided by the time keeping department.

(ii) *Computation of Cost:* Labour cost of different jobs, departments or cost centers are computed by costing department on the basis of information provided by the time keeping department.

The objectives of time booking are as follows:

(i) To ascertain the labour time spent on a job and the idle labour hours.

(ii) To ascertain labour cost of various jobs and products.

(iii) To calculate the amount of wages and bonus payable under the wage incentive scheme.

(iv) To compute and determine overhead rates and absorption of overheads under the labour and machine hour method.

(v) To evaluate the performance of labour by comparing actual time booked with standard or budgeted time.

(ii) Money in the future is 'Worth Less' than similar Money 'Today' due to several reasons:

- Risk – there is uncertainty about the receipt of money in future.
- Preference for present consumption – Most of the persons and companies in general, prefer current consumption over future consumption.
- Inflation – In an inflationary period a rupee today represents a greater real purchasing power than a rupee a year hence.
- Investment opportunities – Most of the persons and companies have a preference for present money because of availabilities of opportunities of investment for earning additional cash flow.

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

(ii) Certificate of Deposit (CD): The certificate of deposit is a document of title similar to a time deposit receipt issued by a bank except that there is no prescribed interest rate on such funds.

(e) Over-capitalization: It is a situation where a firm has more capital than it needs or in other words assets are worth less than its issued share capital, and earnings are insufficient to pay dividend and interest.

Causes of Over Capitalization: Over-capitalisation arises due to following reasons:

(i) Raising more money through issue of shares or debentures than company can employ profitably.

(ii) Borrowing huge amount at higher rate than rate at which company can earn.

(iii) Excessive payment for the acquisition of fictitious assets such as goodwill etc.

(iv) Improper provision for depreciation, replacement of assets and distribution of dividends at a higher rate.

(v) Wrong estimation of earnings and capitalization.

Consequences of Over-Capitalisation: Over-capitalisation results in the following consequences-

(i) Considerable reduction in the rate of dividend and interest payments.

(ii) Reduction in the market price of shares.

(iii) Resorting to "window dressing".

(iv) Some companies may opt for reorganization. However, sometimes the matter gets worse and the company may go into liquidation.

Remedies for Over-Capitalisation: Following steps may be adopted to avoid the negative consequences of over-capitalisation:

(i) Company should go for thorough reorganization.

(ii) Buyback of shares.

(iii) Reduction in claims of debenture-holders and creditors.

(iv) Value of shares may also be reduced. This will result in sufficient funds for the company to carry out replacement of assets.