

PAPER – 3 : COST ACCOUNTING AND FINANCIAL MANAGEMENT

Question No. 1 is compulsory
Attempt any five questions from the remaining six questions.
Working notes should form part of the answer

Question 1

Answer the following:

- (a) Compute the sales variances (total, price and volume) from the following figures:

Product	Budgeted quantity	Budgeted Price per Unit (₹)	Actual quantity	Actual Price per unit (₹)
P	4000	25	4800	30
Q	3000	50	2800	45
R	2000	75	2400	70
S	1000	100	800	105

- (b) ABC Limited has received an offer of quantity discounts on its order of materials as under:

Price per tonnee
(₹)

4,800

4,680

4,560

4,440

4,320

Tonnes
Nos.

Less than 50

50 and less than 100

100 and less than 200

200 and less than 300

300 and above

The annual requirement for the material is 500 tonnes. The ordering cost per order is ₹ 6,250 and the stock holding cost is estimated at 25% of the material cost per annum.

Required :

- (i) Compute the most economical purchase level.
- (ii) Compute E.O.Q. if there are no quantity discounts and the price per tone is ₹ 5,250.
- (c) MNP Limited has made plans for the next year 2010 -11. It is estimated that the company will employ total assets of ₹ 25,00,000; 30% of assets being financed by debt at an interest cost of 9% p.a. The direct costs for the year are estimated at ₹ 15,00,000 and all other operating expenses are estimated at ₹ 2,40,000. The sales revenue are estimated at ₹ 22,50,000. Tax rate is assumed to be 40%. Required to calculate:

(i) Net profit margin (ii) Return on Assets
 (iii) Asset turnover (iv) Return on equity

(d) PQR Ltd. has the following capital structure on October 31, 2010:

The market price of equity share is ₹ 30. It is expected that the company will pay next year a dividend of ₹ 3 per share, which will grow at 7% forever. Assume 40% income tax rate.

Answer

Product	Budgeted Price (Rs.)	Actual Price (Rs.)	Budgeted Qty.	Actual Qty.	Budgeted Sales (Rs.)	Standard Sales (Actual Sales at Budgeted price) (Rs.)	Actual sales (Rs.)
	a	b	c	d	e = a x c	f = a x d	g = b x d
P	25	30	4,000	4,800	1,00,000	1,20,000	1,44,000
Q	50	45	3,000	2,800	1,50,000	1,40,000	1,26,000
R	75	70	2,000	2,400	1,50,000	1,80,000	1,68,000
S	100	105	1,000	800	<u>1,00,000</u>	<u>80,000</u>	<u>84,000</u>
					5,00,000	5,20,000	5,22,000

$$\begin{aligned}\text{Sale Price Variance} &= \text{Actual Quantity (Actual Price – Budgeted Price)} \\ &= \text{Actual Sales – Standard. Sales} \\ &= 5,22,000 - 5,20,000 = \text{Rs. 2,000 (Favourable)}\end{aligned}$$

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Sales Volume Variance = Budgeted Price (Actual Quantity – Budgeted Quantity)
 = Standard Sales (Actual Sale at Standard Price) – Budgeted Sales
 = 5,20,000 – 5,00,000 = Rs. 20,000 (Favourable)

Total Sales Variance = Actual Sales – Budgeted Sales
 = 5,22,000 – 5,00,000 = Rs. 22,000 (Favourable)

Verification: Total Sales Variance (Rs.20,000/- Favourable) = Sales Price Variance (Rs.2,000/- Favourable) + Sales Volume Variance (Rs.20,000 Favourable)

(b) (i) Calculation of most economical purchase level:

A= Annual requirement = 500 tonnes

Order size	No. of Orders	Cost of Purchase	Ordering Cost	Carrying Cost	Total Cost
(Q) Units	(A/Q)	(A x Cost/total)	(A/Q x Rs. 6,250)	(Q/2 x Price/ tonne x 25%)	Rs.
40	500/40= 12.5	500×4,800 = 24,00,000	12.5×6,250 = 78,125	$\frac{40}{2} \times 4,800 \times .25 = 24,000$	25,02,125
50	500/50= 10	500 X 4,680 = 23,40,000	10×6,250 = 62,500	$\frac{50}{2} \times 4,680 \times .25 = 29,250$	24,31,750
100	500/100= 5	500 X 4,560 = 22,80,000	5×6,250 = 31,250	$\frac{100}{2} \times 4,560 \times .25 = 57,000$	23,68,250
200	500/200= 2.5	500× 4,440= 22,20,000	2.5× 6,250=15,625	$\frac{200}{2} \times 4,440 \times .25 = 1,11,000$	23,46,625
300	500/300=1.67	500 X 4,320 = 21,60,000	1.67 X 6,250 = 10,437.50	$\frac{300}{2} \times 4,320 \times .25 = 1,62,000$	23,32,437.50

The total cost of purchase, ordering cost and carrying cost of 500 tonnes is minimum Rs. 23,32,437.50 when the order size is 300 tonnes. Hence most economical purchase level is 300 tonnes.

$$(ii) \quad EOQ = \sqrt{\frac{2AO}{C \times i}} = \sqrt{\frac{2 \times 500 \text{ tonnes} \times \text{Rs.} 6250 \text{ per order}}{\text{Rs.} 5250 \times .25}}$$

= 69 tonnes

A is the annual requirement for the material.

O is the ordering Cost per order

Ci is the carrying Cost per unit per annum.

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(c) The net profit is calculated as follows:

	₹
Sales Revenue	22,50,000
Less: Direct Costs	<u>15,00,000</u>
Gross Profits	7,50,000
Less: Operating Expense	<u>2,40,000</u>
EBIT	5,10,000
Less: Interest (9% × 7,50,000)	<u>67,500</u>
EBT	4,42,500
Less: Taxes (@ 40%)	<u>1,77,000</u>
PAT	<u>2,65,500</u>

(i) Net Profit Margin

$$\text{Net Profit Margin} = \frac{\text{EBIT} (1 - t)}{\text{Sales}} \times 100 = \frac{5,10,000 (1 - 0.4)}{22,50,000} = 13.6\%$$

(ii) Return on Assets (ROA)

$$\begin{aligned} \text{ROA} &= \frac{\text{EBIT} (1 - t)}{\text{Total Assets}} \\ &= \frac{5,10,000 (1 - 0.4)}{25,00,000} = \frac{3,06,000}{25,00,000} \\ &= 0.1224 = 12.24\% \end{aligned}$$

(iii) Asset Turnover

$$\text{Asset Turnover} = \frac{\text{Sales}}{\text{Assets}} = \frac{22,50,000}{25,00,000} = 0.9$$

$$\text{Asset Turnover} = 0.9$$

(iv) Return on Equity (ROE)

$$\text{ROE} = \frac{\text{PAT}}{\text{Equity}} = \frac{2,65,500}{17,50,000} = 15.17\%$$

$$\text{ROE} = 15.17\%$$

(d) Computation of Weighted Average Cost of Capital (WACC): Existing Capital Structure

Calculation of Cost of Equity

$$\text{Cost of Equity} = \frac{D_1}{P_0} + g$$

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$$= \frac{\text{Rs. 3}}{\text{Rs. 30}} + 0.07 = 0.1 + 0.07$$

$$= 0.17 = 17\%$$

	After Tax Cost	Weights	Weighted Cost
9% Debentures (K_d)	0.054*	0.375	0.0203
12% Preference Shares	0.12	0.125	0.015
Equity Capital	0.17	0.500	<u>0.085</u>
			<u>0.1203</u>

$$*K_d = rd * (1 - T_c) = 9\% \times (1 - 0.4) = 5.4\% \text{ or } 0.054$$

Weighted Average Cost of Capital = 0.1203 or 12.03%

Question 2

- (a) PQR Construction Ltd. commenced a contract on April 1, 2009. The total contract was for ₹ 27,12,500. It was decided to estimate the total profit and to take to the credit of P/L A/c the proportion of estimated profit on cash basis which work completed bear to the total contract. Actual expenditure in 2009-10 and estimated expenditure in 2010-11 are given below:

	2009-10 Actual (₹)	2010-11 Estimated (₹)
Material issued	4,56,000	8,14,000
Labour : Paid	3,05,000	3,80,000
: Outstanding at end	24,000	37,500
Plant purchased	2,25,000	-
Expenses : Paid	1,00,000	1,75,000
: Outstanding at the end	-	25,000
: Prepaid at the end	22,500	-
Plant returned to stores (a historical stores)	75,000	1,50,000 (on Dec 31 2010)
Material at site	30,000	75,000
Work-in progress certified	12,75,000	Full
Work-in-progress uncertified	40,000	----
Cash received	10,00,000	Full

The plant is subject to annual depreciation @ 20% of WDV cost. The contract is likely to be completed on December 31, 2010.

required:

- (i) Prepare the Contract A/c for the year 2009-10.

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- (ii) Estimate the profit on the contract for the year 2009-10 on prudent basis which has to be credited to P/L A/c. (8 Marks)
- (b) RST Limited is considering relaxing its present credit policy and is in the process of evaluating two proposed policies. Currently, the firm has annual credit sales of ₹ 225 lakhs and accounts receivable turnover ratio of 5 times a year. The current level of loss due to bad debts is ₹ 7,50,000. The firm is required to give a return of 20% on the investment in new accounts receivables. The company's variable costs are 60% of the selling price. Given the following information, which is a better option?

	Present Policy	Policy Option I	Policy Option II
Annual credit sales(₹)	225	275	350
Accounts receivable turnover ratio	5	4	3
Bad debt losses (₹)	7.5	22.5	47.5

(8 Marks)

Answer

(a)

PQR Construction Ltd. Contract A/c (April 1, 2009 to March 31, 2010)			
Dr.			Cr.
To Materials Issued	4,56,000	By Plant returned to Stores	60,000
To Labour		(Working Note 1)	
Paid	3,05,000	By Materials at Site	30,000
Outstanding	<u>24,000</u>	By W.I.P.	
To Plant Purchased	2,25,000	Certified	12,75,000
To expenses		Uncertified	<u>40,000</u>
Paid	1,00,000		13,15,000
(-) Prepaid	<u>22,500</u>	By Plant at Site	1,20,000
To Notional Profit c/d	<u>4,37,500</u>	(Working Note No. 2)	-
	<u>15,25,000</u>		<u>15,25,000</u>
To Profit & Loss A/c	1,59,263	By Notional Profit b/d	4,37,500
(Refer to Working Note 5)			
To Work-in-Progress A/c	<u>2,78,237</u>		-
(Profit-in-reserve)	<u>4,37,500</u>		<u>4,37,500</u>

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PQR Construction Ltd.
Contract A/c
(April 1, 2009 to December 31, 2010)
(For Computing estimated profit)

Dr.			Cr.
To Materials Issued (4,56,000+8,14,000)	12,70,000	By Material at Site	75,000
To Labour Cost (Paid & Outstanding) 3,05,000 + 24,000 + * 3,56,000 + 37,500)	7,22,500	By Plant returned to Stores on 31.3.2010	60,000
		By Plant returned to Stores on 31.12.2010	1,02,000
To Plant purchased	2,25,000	(Working Note 3)	
To expenses (77,500 + 1,97,500 + 25,000)	3,00,000	By Contractee A/c	27,12,500
To Estimated profit	<u>4,32,000</u>		-
	<u>29,49,500</u>		<u>29,49,500</u>

Working Notes

	Rs.
1. Value of the Plant returned to Stores on 31.03.2010	
Historical Cost of the Plant returned	75,000
Less: Depreciation @ 20% of WDV for one year	<u>15,000</u>
	<u>60,000</u>
2. Value of Plant at Site 31.3.2010	
Historical Cost of Plant at Site	1,50,000
Less: Depreciation @ 20% on WDV for one year	<u>30,000</u>
	<u>1,20,000</u>
3. Value of Plant returned to Stores on 31.12.2010	
Value of Plant (WDV) on 31.3.2010	1,20,000
Less: Depreciation @ 20% of WDV for a period of 9 months	<u>18,000</u>
	<u>1,02,000</u>

* Labour paid in 2010- 11: 3,80,000 – 24,000 = 3,56,000

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4. Expenses Paid for the year 2009-10
- | | |
|---------------------------|---------------|
| Total expenses paid | 1,00,000 |
| Less: Pre-paid at the end | <u>22,500</u> |
| | <u>77,500</u> |
5. Profit to be credited to Profit & Loss A/c on March 31,2010 for the Contract likely to be completed on December 31,2100
- $$= \text{Estimated Profit} \times \frac{\text{Work Certified}}{\text{Total Contract Price}} \times \frac{\text{Cash received}}{\text{Work Certified}}$$
- $$= 4,32,000 \times \frac{12,75,000}{27,12,500} \times \frac{10,00,000}{12,75,000}$$
- = Rs. 15,92,263

(b)

Evaluation of Credit Policies for RST Ltd.

	<i>Amount in Rs. Lakhs</i>		
	<i>Present Policy</i>	<i>Policy Option I</i>	<i>Policy Option II</i>
Annual Credit Sales	225	275	350
Accounts Receivable Turnover	5 times	4 times	3 times
Average Collection period (12/Accounts Receivable Turnover)	2.4 months	3 months	4 months
Average Level of Accounts Receivables (Annual Credit Sales/Accounts Receivable Turnover)	45	68.75	116.67
Marginal Increase in Investment in Receivables less Profit Margin	-	14.25	28.75
Marginal Increase in Sales	-	50	75
Profit on Marginal Increase in Sales (40%)	-	20	30
Marginal Increase in Bad Debt Losses	-	15	25
Net Gain	-	5	5
Required Return on Marginal Investment @ 20%	-	2.85	5.75
Surplus (Deficit) after Required Rate of Return	-	2.15	(0.75)

Advise: It is clear from the foregoing analysis that the Policy Option I has a surplus of Rs. 2.15 lakhs whereas Option II shows a deficit of Rs. 0.75 lakhs on the basis of 20% return. Hence, Policy Option I is better.

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Question 3

(a) Following information is available regarding Process A for the month of October 2010:

Production Record:

(i) Opening work-in progress	40,000 Units
(Material: 100% complete, 25% complete for labour & overheads)	
(ii) Units Introduced	1,80,000 Units
(iii) Units Completed	1,50,000 Units
(iv) Units in-process on 31.10.2010	70,000 Units
(Material: 100% complete, 50% complete for labour & overheads)	

Cost Record:

Opening Work-in-progress:

Material	₹ 1,00,000
Labour	₹ 25,000
Overheads	₹ 45,000

Cost incurred during the month:

Material	₹ 6,60,000
Labour	₹ 5,55,000
Overheads	₹ 9,25,000



Assure that FIFO method is used for W.I.P. inventory valuation.

Required:

- (i) Statement of Equivalent Production
 - (ii) Statement showing Cost for each element
 - (iii) Statement of apportionment of Cost
 - (iv) Process A Account (8 Marks)
- (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

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Unit Variable Cost (₹)	5	2	7.50
Unit Selling Price (₹)	7.50	7	10.0
Interest Expense (₹)	75,000	25,000	-

(ii) Discuss the liquidity vs. profitability issue in management of working capital.

(4+4 =8 Marks)

Answer

(a) **Statement of Equivalent Production
(FIFO Method)**

Particulars			Equivalent Production			
Input (Units)	Output	Units	Material % Completion	Qty.	Labour & Overheads % Completion	Qty.
Opening WIP	40,000	Transfer to Process II				
Introduced	1,80,000	Opening WIP completed	40,000	-	75%	30,000
		Introduced & completed	1,10,000	100%	1,10,000	100%
		Closing WIP	7,000	100%	70,000	50%
	<u>2,20,000</u>	<u>2,20,000</u>		<u>1,80,000</u>		<u>1,75,000</u>

Statement showing Cost for each element

Item of Cost	Equivalent Production	Cost Incurred	Cost per Unit
Material	1,80,000	6,60,000	3.66667
Labour & Overheads	1,75,000	14,80,000	<u>8.45714</u>
			<u>12.12381</u>

Statement of Evaluation

Transfer to Process II		
Opening WIP Completed		
Cost Incurred already	1,70,000	
Cost Incurred during the Month		
Labour & Overheads	<u>2,53,714</u>	4,23,714
30,000 × 8.45714		
Introduced & Completed 1,10,000 × 12.12381		<u>13,33,619</u>
		17,57,333

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Closing WIP

Material 70,000 × 3.6667 = 2,56,667	2,56,667	
Labour and Overheads 35,000 × 8.45714	<u>2,96,000</u>	5,52,667

Process A A/c					
	Units	Amount		Units	Amount
To Opening WIP	40,000	1,70,000	By Process II A/c	1,50,000	17,57,333
To Materials	1,80,000	6,60,000			
To Labour		5,55,000	By Closing WIP	7,000	5,52,667
To Overheads		<u>9,25,000</u>			
	<u>2,20,000</u>	<u>23,10,000</u>		<u>2,20,000</u>	<u>23,10,000</u>

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

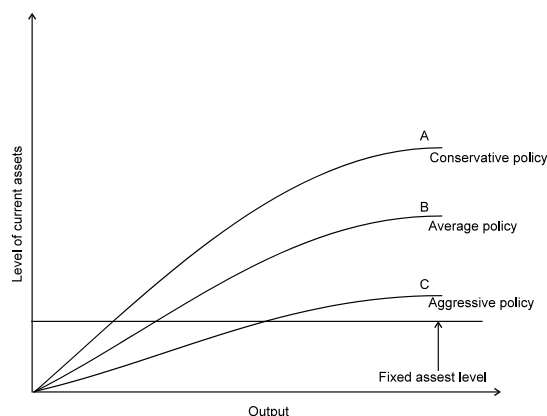
	P	Q	R
Output (in units)	2,50,000	1,25,000	7,50,000
Selling Price (per unit)	7.50	7	10
Sales Revenues	18,75,000	8,75,000	75,00,000
Less: Variable Cost	<u>12,50,000</u>	<u>2,50,000</u>	<u>56,25,000</u>
Contribution Margin	6,25,000	6,25,000	18,75,000
Less: Fixed Cost	<u>5,00,000</u>	<u>2,50,000</u>	<u>10,00,000</u>
EBIT	1,25,000	3,75,000	8,75,000
Less: Interest Expense	<u>75,000</u>	<u>25,000</u>	-
EBT	<u>50,000</u>	<u>3,50,000</u>	<u>8,75,000</u>
DOL = $\frac{\text{Contribution}}{\text{EBIT}}$	5 x	1.67 x	2.14 x
DFL = $\frac{\text{EBIT}}{\text{EBT}}$	2.5 x	1.07 x	-
DCL = DOL × DFL	12.5 x	1.79 x	2.14 x
Comment	Aggressive Policy	Moderate Policy	Moderate Policy with no financial leverage

- (ii) Liquidity versus Profitability Issue in Management of Working Capital

Working capital management entails the control and monitoring of all components of working capital i.e. cash, marketable securities, debtors, creditors etc. Finance manager has to pay particular attention to the levels of current assets and their financing. To decide the level of financing of current assets, the risk return trade off

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must be taken into account. The level of current assets can be measured by creating a relationship between current assets and fixed assets. A firm may follow a conservative, aggressive or moderate policy.



A conservative policy means lower return and risk while an aggressive policy produces higher return and risk. The two important aims of the working capital management are profitability and solvency. A liquid firm has less risk of insolvency i.e. it will hardly experience a cash shortage or a stock out situation. However, there is a cost associated with maintaining a sound liquidity position. So, to have a higher profitability the firm may have to sacrifice solvency and maintain a relatively low level of current assets.

Question 4

(a) Balance Sheets of ABC Ltd as on March 31, 2009 and March 31, 2010 are as under:

Liabilities	31.3.2009 ₹	31.3.2010 ₹	Assets	31.3.2009 ₹	31.3.2010 ₹
Share Capital	40,00,000	40,00,000	Land and Building	30,00,000	28,00,000
General Reserve	8,00,000	9,00,000	Plant and Machinery	36,00,000	35,00,000
Profit and Loss A/c	5,00,000	7,20,000	Investments (long-term)	8,00,000	7,44,000
10% Debentures	20,00,000	16,00,000	Stock	9,60,000	17,00,000
Bank Loan (long-term)	10,00,000	12,00,000	Debtors	12,00,000	15,96,000
Creditors	8,00,000	11,60,000	Prepaid Expenses	1,00,000	80,000
Outstanding Expenses	40,000	50,000	Cash and Bank	2,80,000	1,70,000
Proposed Dividend	6,00,000	7,20,000			
Provision for Taxation	2,00,000	2,40,000			
	99,40,000	1,05,90,000		99,40,000	1,05,90,000

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Additional Information:

- (i) New machinery for ₹ 6,00,000 was purchased but an old machinery costing ₹ 2,90,000 was sold for ₹ 1,00,000 and accumulated depreciation thereon was ₹ 1,50,000.
- (ii) 10% debentures were redeemed at 20% premium.
- (iii) Investments (long term) were sold for ₹ 90,000 and its profit was transferred to general reserve.
- (iv) Income-tax paid during the year 2009-10 was ₹ 1,60,000.
- (v) An interim dividend of ₹ 2,40,000 has been paid during the year 2009-10.
- (vi) Assume the provision for taxation as current liability and proposed dividend as non-current liability.
- (vii) Investments (long-term) are non-trade investments.

Required:

- (i) Schedule of changes in working capital
- (ii) Funds flow from operations for the year ended March 31, 2010. (8 Marks)
- (b) 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 amount to ₹ 35,00,000 (including depreciation of ₹ 15,00,000). there are no beginning or ending inventories.

Required:

- (i) Estimate breakeven sales level quantity and cash breakeven sales level quantity.
- (ii) Estimate the P/V ratio.
- (iii) Estimate the number of units that must be sold to earn an income (EBIT) of ₹ 2,50,000.
- (iv) Estimate the sales level achieve an after-tax income (PAT) of ₹ 2,50,000. Assume 40% corporate Income Tax rate. (8 Marks)

Answer

- (a) (i) Schedule of Changes in Working Capital:

	Particulars	31 st March		Working Capital	
		2009 ₹	2010 ₹	Increase ₹	Decrease ₹
(A)	Current Assets				
	Stock	9,60,000	17,00,000	7,40,000	
	Debtors	12,00,000	15,96,000	3,96,000	

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	Prepaid Expenses	1,00,000	80,000		20,000
	Cash and Bank	<u>2,80,000</u>	<u>1,70,000</u>		1,10,000
	Total (A)	<u>25,40,000</u>	<u>35,46,000</u>		
(B)	Current Liabilities				
	Creditors	8,00,000	11,60,000		3,60,000
	Outstanding Expenses	40,000	50,000		10,000
	Provision for Taxation	<u>2,00,000</u>	<u>2,40,000</u>		40,000
	Total (B)	<u>10,40,000</u>	<u>14,50,000</u>		
	Working Capital (A) – (B)	15,00,000	20,96,000	11,36,000	5,40,000
	Increase in Working Capital	<u>5,96,000</u>			<u>5,96,000</u>
	Total	20,96,000	20,96,000	11,36,000	11,36,000

(ii) Funds flow from Operations for the year ended March 31, 2010

Adjusted Profit and Loss A/C

Particulars	Rs.	Particulars	Rs.
To General Reserve	66,000	By Balance b/d	5,00,000
To Depreciation:		By Funds from Operations	21,26,000
		(Balancing figure)	
On Land & Building	2,00,000		
On Plant & Machinery	<u>5,60,000</u>		
	7,60,000		
To Loss on Sale of Machine	40,000		
To Premium on Redemption of Debentures	80,000		
To Proposed Dividend	7,20,000		
To Interim Dividend	2,40,000		
To Balance c/d	<u>7,40,000</u>		
	<u>26,26,000</u>		<u>26,26,000</u>

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Working Notes:

- (i) Depreciation on Land and Building = Rs. 30,00,000 – 28,00,000 = Rs. 2,00,000
- (ii) Loss on Sale of Old Machine = Rs. 2,90,000 (Cost) – 1,50,000 (Cum. Dep.) – 1,00,000 (Sale Value) = 40,000
- (iii) Depreciation on Plant and Machinery

Dr.	Rs.	Cr.	Rs.
To Balance b/d	36,00,000	By Bank a/c (sold)	1,00,000
To Bank a/c (Purchases)	6,00,000	By Profit & Loss a/c (Loss on Sales)	40,000
		By Depreciation (Balancing figure)	5,60,000
		By Balance c/d	<u>35,00,000</u>
	<u>42,00,000</u>		<u>42,00,000</u>

- (iv) Premium on Redemption of Debentures

Amount of Debentures Redeemed = Rs. 20,00,000 – 16,00,000 = Rs. 4,00,000

Premium = 20% of 4,00,000 = Rs. 80,000

(b) (i) Break even Sales Quantity = $\frac{\text{Fixed cost}}{\text{Contribution margin per unit}} = \frac{\text{Rs. } 35,00,000}{\text{Rs. } 20} = 1,75,000 \text{ units}$

Cash Break even Sales Qty = $\frac{\text{Cash Fixed Cost}}{\text{Contribution margin per unit}} = \frac{\text{Rs. } 20,00,000}{\text{Rs. } 20} = 1,00,000 \text{ units.}$

(ii) P/V ratio = $\frac{\text{Contribution/unit}}{\text{Selling Price/unit}} \times 100 = \frac{20}{37.50} \times 100 = 53.33 \%$

- (iii) No. of units that must be sold to earn an Income (EBIT) of Rs. 2,50,000

$\frac{\text{Fixed cost} + \text{Desired EBIT level}}{\text{Contribution margin per unit}} = \frac{35,00,000 + 2,50,000}{20} = 187,500 \text{ units}$

- (iv) After Tax Income (PAT) = Rs. 2,50,000

Tax rate = 40%

Desired level of Profit before tax

$= \frac{\text{Rs. } 2,50,000}{60} \times 100$

$= \text{Rs. } 4,16,667/-$

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$$\begin{aligned}\text{Estimate Sales Level} &= \frac{\text{Fixed Cost} + \text{Desired Profit}}{\text{P/V ratio}} \\ &= \frac{\text{Rs.35,00,000} + \text{Rs.4,16,667}}{53.33\%} = \text{Rs.73,43,750/-}\end{aligned}$$

Question 5

- (a) A manufacturing company has disclosed a net loss of ₹ 8, 75,000 as per their cost accounting records for the year ended March 31, 2010. However, their financial accounting records disclosed a net loss of ₹ 7, 19,250 for the same period. A scrutiny of the data of both the sets of books of accounts revealed the following information:

	₹
(i) Factory overheads over-absorbed	47,500
(ii) Administration overheads under-absorbed	32,750
(iii) Depreciation charged in Financial Accounts	2,25,000
(iv) Depreciation charged in Cost Accounts	2,42,250
(v) Interest on investments not included in Cost Accounts	62,750
(vi) Income Tax provided in Financial Accounts	7,250
(vii) Transfer fees (credit in Financial Accounts)	12,500
(viii) Preliminary expenses written off	27,500
(ix) Under-valuation of opening stock in Cost Accounts	6,250
(x) Under valuations of closing stock in Cost Accounts'	17,500

Required :

Prepare a Memorandum Reconciliation A/c (8 Marks)

- (b) Distinguish between the following:

- (i) Profit maximization vs. Wealth maximization objective of the firm.
 (ii) Global Depository Receipts and American Depository Receipts (2 × 4 = 8 Marks)

Answer

Memorandum Reconciliation Account

Dr.

Cr.

Particulars	₹	Particulars	₹
To net loss as per Cost Accounting records	8,75,000	By factory overheads over-absorbed	47,500

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To Administrative overheads under -absorbed	32,750	By excess charge of depreciation in Cost Accounts (2,42,250 – 2,25,000)	17,250
To Income tax provided in Financial Accounts	7,250	By Transfer fee	12,500
To Preliminary expenses written off	27,500	By Interest on investment not included in Cost Accounts	62,750
Under valuation of opening stock in Cost Accounts	6,250	Under valuation of Closing stock in Cost Accounts	17,500
		By Net loss as per Financial records	7,91,250
	9,48,750		9,48,750

(b) (i) Profit Maximization versus Wealth Maximization Principle of the Firm

The primary objective of a company is to earn profit; hence the objective of financial management is also profit maximisation. This implies that the finance manager has to make his decisions in a manner so that the profits of the concern are maximised. Each alternative, therefore, is to be seen as to whether or not it gives maximum profit. The company may pursue profit maximization goal but that may not result into creation of shareholder value. Profit maximization is at best a limited objective. It does not take into account the time pattern of returns and it is a narrow objective.

Whereas, Wealth maximisation, on the other hand, means that the company is using its resources in a good manner. If the share value is to stay high the company has to reduce its costs and use the resources properly. Goal of wealth maximization means that the company will promote only those policies that will lead to efficient allocation of resources.

(ii) Global Depository Receipts (GDRs) and American Depository Receipts (ADRs)

Global Depository Receipts are negotiable certificates held in the bank of one country representing a specific number of shares of a stock traded on the exchange of another country. These financial instruments are used by companies to raise capital in either dollars or Euros. These are mainly traded in European countries and particularly in London.

Whereas, American Depository Receipts, on the other hand, are basically negotiable certificates denominated in US dollars that represent a non-US company's publicly traded local currency equity shares. These are created when the local currency shares of Indian Company are delivered to the depository's local custodian bank, against which the depository bank issues Depository Receipts in US dollars. These are deposited in a custodial account in the US. Such receipts have to be issued in accordance with the provisions stipulated by the SEC.

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Question 6

- (a) A company has to make a choice between two machines X and Y. The two machines are designed differently, but have identical capacity and do exactly the same job. Machine 'X' costs ₹ 5,50,000 and will last for three years. It costs ₹ 1,25,000 per year to run. Machine 'Y' is an economy model costing ₹ 4,00,000, but will last for two years and costs ₹ 1,50,000 per year to run. These are real cash flows. The costs are forecasted in Rupees of constant purchasing power. Opportunity cost of capital is 12%. Ignore taxes. Which machine company should buy?

	$t = 1$	$t = 2$	$t = 3$
$PVIF_{0.12, t}$	0.8929	0.7972	0.7118
$PVIFA_{0.12, 2}$	= 1.6901		
$PVIFA_{0.12, 3}$	= 2.4019		

(8 Marks)

- (b) Write short notes on the following :

- Essential factors for installing a Cost Accounting system.
- treatment of under-absorbed and over-absorbed overheads in Cost Accounting.

(2 × 4 = 8 Marks)

Answer

- (a) Statement showing the Evaluation of Two Machines

Machines	X	Y
Purchase cost (Rs.): (i)	5,50,000	4,00,000
Life of Machines (years)	3	2
Running Cost of Machine per year (Rs.): (ii)	1,25,000	1,50,000
Cumulative Present value factor for 1-3 years @ 10%: (iii)	2.4019	-
Cumulative Present value factor for 1-2 years @ 10%: (iv)	-	1.6901
Present Value of Running Cost of Machines (Rs.): (v)	3,00,237.5	2,53,515
	[(ii) × (iii)]	[(ii) × (iv)]
Cash Outflow of Machines (Rs.): (vi)=(i) +(v)	8,50,237.5	6,53,515.0
Equivalent Present Value of Annual Cash Outflow		
Equated Annualized Cost = $\frac{PV \text{ of Machine Cost}}{PVI FA_{0.12, t}}$	3,53,985.39	3,86,672.39
	[(vi) ÷ (iii)]	[(vi) ÷ (iv)]

Advise: The Company should buy Machine X since its equivalent cash outflow (Rs. 3,53,985.39) is less than that of Machine Y (Rs. 3,86,672.39).

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(b) (i) Essential Factors for installing a Cost Accounting System

Before setting up a system of cost accounting following factors should be studied:

(a) Objective

The objective of costing system, for example whether it is being introduced for fixing prices or for insisting a system of cost control.

(b) Type of Business

The areas of operation of business wherein the managements' action will be most beneficial. For instance, in a concern, which is anxious to expand its operations, increase in production would require maximum attention. On the other hand for a concern, which is not able, to sell the whole of its production the selling effort would require greater attention. The system of costing in each case should be designed to highlight, in significant areas, factors considered important for improving the efficiency of operations in that area.

(c) General organisation

The business, with a view of finding out the manner in which the system of cost control could be introduced without altering or extending the organisation appreciably.

(d) The Technical Details

Technical aspects of the concern and the attitude and behaviour that will be successful in winning sympathetic assistance or support of the supervisory staff and workmen.

(e) Change in operations

The manner in which different variable expenses would be affected with expansion or cessation of different operations

(f) Method of maintenance of cost records

The manner in which Cost and Financial accounts could be inter-locked into a single integral accounting system and in which results of separate sets of accounts, cost and financial, could be reconciled by means of control accounts.

(g) Information

The maximum amount of information that would be sufficient and how the same should be secured without too much clerical labour, especially the possibility of collection of data on a separate printed form designed for each process; also the possibility of instruction as regards filling up of the forms in writing to ensure that these would be faithfully carried out.

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(h) Accuracy

How the accuracy of the data collected can be verified? Who should be made responsible for making such verification in regard to each operation and the form of certificate that he should give to indicate the verification that he has carried out?

(i) Informative and Simple

The manner in which the benefits of introducing Cost Accounting could be explained to various persons in the concern, especially those in charge of production department and awareness created for the necessity of promptitude, frequency and regularity in collection of costing data.

(j) Support

Support of top management and employees are essential for installing a Cost Accounting System in any organisation.

(ii) Treatment of Under-absorbed & Over-absorbed Overheads in Cost Accounting

Overheads are usually applied to production on the basis of a pre-determined rate. The actual overhead rate will rarely coincide with the pre-determined overhead rate due to different spending pattern and activity level.

Such over or under absorption as arrived at under different situations may also be termed as overhead variance. The amount of over-absorption being represented by a credit balance in the account and conversely, the amount of under absorption, being a debit balance.

If such balances are small, they should be transferred to costing Profit & Loss A/c.

Where, however the difference is large and due to wrong estimation, it would be desirable to adjust the cost of products manufactured, as otherwise the cost figures would convey a misleading impression. Such adjustments usually take the form of supplementary rates.

Question 7

Answer any Four of the following:

- (a) What are the methods of re-apportionment of service department expenses over the production departments? Discuss.*
- (b) How apportionment of joint costs upto the point of separation amongst the joint products using market value at the point of separation and net realizable value method is done? Discuss*
- (c) Discuss the estimation of working capital need based on operating cycle process.*
- (d) Discuss financial break-even and EBIT-EPS indifference analysis.*
- (e) Discuss the three different methods of calculating labour turnover. (4 × 4 = 16 Marks)*

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Answer

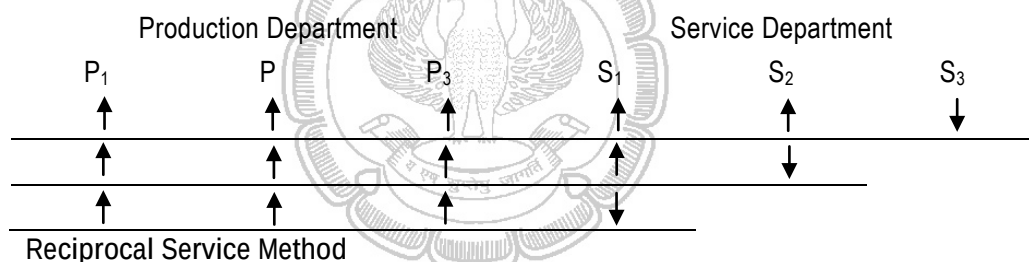
(a) Methods of re-apportionment of service department expenses over the production departments

- (i) Direct re-distribution method.
- (ii) Step method or non-reciprocal method.
- (iii) Reciprocal Service method

Direct re-distribution Method: Service department costs under this method are apportioned over the production departments only, ignoring services rendered by one service department to another. The basis of apportionment could be no. of workers. H.P of machines.

Step Method or Non-Reciprocal Method

This method gives cognizance to the service rendered by service department to another service department. Therefore, as compared to previous method, this method is more complicated because a sequence of apportionments has to be selected here. The sequence here begins with the department that renders service to the maximum number of other service departments.



This method recognises the fact that where there are two or more service departments they may render service to each other and, there these inter-departmental services are to be given due weight while re-distributing the expenses of service department.

The methods available for dealing with reciprocal services are:

- Simultaneous equation method
- Repeated distribution method
- Trial & Error method.

(b) Apportionment of Joint Cost amongst Joint Products using:

Market value at the point of separation

This method is used for apportionment of joint costs to joint products upto the split off point. It is difficult to apply if the market value of the product at the point of separation are not available. It is useful method where further processing costs are incurred disproportionately.

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Net realizable value Method

From the sales value of joint products (at finished stage) are deducted:

- Estimated profit margins
- Selling distribution expenses, if any
- Post split off costs.

The resultant figure so obtained is known as net realizable value of joint products. Joint costs are apportioned in the ratio of net realizable value.

(c) Estimation of Working Capital Need based on Operating Cycle

One of the methods for forecasting working capital requirement is based on the concept of operating cycle. The determination of operating capital cycle helps in the forecast, control and management of working capital. The length of operating cycle is the indicator of performance of management. The net operating cycle represents the time interval for which the firm has to negotiate for Working Capital from its Bankers. It enables to determine accurately the amount of working capital needed for the continuous operation of business activities. The duration of working capital cycle may vary depending on the nature of the business.

In the form of an equation, the operating cycle process can be expressed as follows:

$$\text{Operating Cycle} = R + W + F + D - C$$

Where,

- R = Raw material storage period.
- W = Work-in-progress holding period.
- F = Finished goods storage period.
- D = Debtors collection period.
- C = Credit period availed.

(d) Financial Break-even and EBIT-EPS Indifference Analysis

Financial break-even point is the minimum level of EBIT needed to satisfy all the fixed financial charges i.e. interest and preference dividend. It denotes the level of EBIT for which firm's EPS equals zero. If the EBIT is less than the financial breakeven point, then the EPS will be negative but if the expected level of EBIT is more than the breakeven point, then more fixed costs financing instruments can be taken in the capital structure, otherwise, equity would be preferred.

EBIT-EPS analysis is a vital tool for designing the optimal capital structure of a firm. The objective of this analysis is to find the EBIT level that will equate EPS regardless of the financing plan chosen.

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$$\frac{(\text{EBIT} - I_1)(1 - T)}{E_1} = \frac{(\text{EBIT} - I_2)(1 - T)}{E_2}$$

Where,

EBIT = Indifference point

E_1 = Number of equity shares in Alternative 1

E_2 = Number of equity shares in Alternative 2

I_1 = Interest charges in Alternative 1

I_2 = Interest charges in Alternative 2

T = Tax-rate

Alternative 1 = All equity finance

Alternative 2 = Debt-equity finance.

(e) Three different methods of calculating labour turnover

$$\text{Replacement Method} = \frac{\text{No. of Employee replaced}}{\text{Average number of employees on roll during the period}} \times 100$$

$$\text{Separation Method} = \frac{\text{No. of Employee separated during the year}}{\text{Average number of employees on roll during the period}} \times 100$$

$$\text{Flux Method} = \frac{\text{No. of Employee separated} + \text{No. of employee replaced}}{\text{Average number of employees on roll during the period}} \times 100$$

or

$$\begin{aligned} \text{Flux Method (with new recruitment)} \\ = \frac{\text{No. of separation} + \text{No. of replacement} + \text{No. of new recruitments}}{\text{Average number of workers}} \times 100 \end{aligned}$$