PAPER – 3 : COST ACCOUNTING AND FINANCIAL MANAGEMENT

PART I : COST ACCOUNTING

QUESTIONS

Material

1. RTC Limited uses chemical-X in one of its finished products. The chemical-X is purchased from a vendor outside India. RTC Limited purchases 36,000 ltr of chemical-X per year at the rate of ₹ 900 per ltr plus import duty @10% on such purchases.

   The chemical-X is used evenly throughout the year in the production process on a 360-day-per-year basis. The company incurs ₹ 1,75,000 on one year agreement for material supply with the vendor and it estimates that ₹ 35,000 will be incurred to place a single purchase order. The chemical-X is needed to be kept in a very carefully controlled temperature and humidity conditions. RTC Ltd. incurs 1.5% and 0.2676% of the value of inventory as storage cost and as insurance cost respectively.

   Delivery from the vendor generally takes 12 days, but it can take as much as 16 days. The days of delivery time and percentage of their occurrence are shown in the following tabulation:

Delivery time (days)	:	*12*	*13*	*14*	*15*	*16*
Percentage of occurrence	:	*70*	*10*	*10*	*5*	*5*

   Required:

   (i) Compute the economic order quantity (EOQ).

   (ii) Assume the company is willing to assume a 10% risk of being out of stock. What would be the safety stock? The re-order point?

   (iii) Assume 5% stock-out risk. What would be the total cost of ordering and carrying inventory for one year?

Labour

2. A Company is undecided as to what kind of wage scheme should be introduced. The following particulars have been compiled in respect of three workers. Which are under consideration of the management.

	I	*II*	*III*
Actual hours worked	*380*	*100*	*540*
Hourly rate of wages (in ₹)	*40*	*50*	*60*
Productions in units			
Product A	*210*	*-*	*600*
Product B	*360*	*-*	*1,350*

Product C	*460*	*250*	*-*
Standard time allowed per unit of each product is:			
	A	*B*	*C*
Minutes	*15*	*20*	*30*

For the purpose of piece rate, each minute is valued at ₹ 1/-

You are required to calculate the wages of each worker under:

(i) Guaranteed hourly rate basis

(ii) Piece work earning basis, but guaranteed at 75% of basic pay (Guaranteed hourly rate if his earning are less than 50% of basic pay.)

(iii) Premium bonus basis where the worker received bonus based on Rowan scheme.

Overheads

3. Aditya Ltd. has three production departments P_1, P_2 and P_3 and two service departments S_1 and S_2.

The following data are extracted from the records of the Company for the month of May, 2013:

	(₹)
Rent and rates	*1,23,500*
General lighting	*72,000*
Indirect Wages	*68,200*
Power	*85,000*
Depreciation on machinery	*3,25,000*
Insurance of machinery	*95,000*

Other Information:

	P_1	*P_2*	*P_3*	*S_1*	*S_2*
Direct wages (₹)	*84,000*	*66,000*	*72,000*	*24,000*	*6,000*
Horse Power of Machines used	*80*	*40*	*60*	*20*	*10*
Cost of machinery (₹)	*14,00,000*	*16,00,000*	*10,00,000*	*3,00,000*	*4,50,000*
Floor space (Sq. ft)	*3,000*	*3,500*	*4,000*	*1,000*	*500*
Number of light points	*30*	*20*	*20*	*15*	*10*
Production hours worked	*6,240*	*4,150*	*4,050*	*–*	*–*

Expenses of the service departments S_1 and S_2 are reapportioned as below:

	P_1	P_2	P_3	S_1	S_2
S_1	30%	20%	30%	–	20%
S_2	40%	30%	15%	15%	–

Required:

(i) Compute overhead absorption rate per production hour of each production department.

(ii) Determine the total cost of product X which is processed for manufacture in department P_1, P_2 and P_3 for 5 hours, 3 hours and 4 hours respectively, given that its direct material cost is ₹1,215 and direct labour cost is ₹975.

Non Integrated Accounts

4. The financial books of a company reveal the following data for the year ended 31st March, 2013:

Opening Stock:	*(₹)*
Finished goods 625 units	*53,125*
Work-in-process	*46,000*
01.04.2012 to 31.03.2013	
Raw materials consumed	*8,40,000*
Direct Labour	*6,10,000*
Factory overheads	*4,22,000*
Administration overheads	*1,98,000*
Dividend paid	*1,22,000*
Bad Debts	*18,000*
Selling and Distribution Overheads	*72,000*
Interest received	*38,000*
Rent received	*46,000*
Sales 12,615 units	*22,80,000*
Closing Stock: Finished goods 415 units	*45,650*
Work-in-process	*41,200*

The cost records provide as under:

- Factory overheads are absorbed at 70% of direct wages.
- Administration overheads are recovered at 15% of factory cost.

- Selling and distribution overheads are charged at ₹ 3 per unit sold.
- Opening Stock of finished goods is valued at ₹ 120 per unit.
- The company values work-in-process at factory cost for both Financial and Cost Profit Reporting.

Required:

(i) Prepare statements for the year ended 31st March, 2013 show

- *the profit as per financial records*
- *the profit as per costing records.*

(ii) Present a statement reconciling the profit as per costing records with the profit as per Financial Records.

Method of Costing (I)

5. Arnav Automobiles distribute its goods to a regional dealer using a single lorry. The dealer's premises are 20 kilometers away by road. The lorry has a capacity of 10 tonnes and makes the journey twice a day 90% loaded on the outward journeys and 10% on return journeys. The following information is available for a four weekly period during the year 2013:

Petrol consumption	*6 killometer per litre*
Petrol cost	*₹ 64 per litre*
Lubricants	*₹ 125 per week*
Driver's salary	*₹ 2,000 per week*
Repairs	*₹ 1,250 per week*
Garage rent	*₹1,30,000 per annum*
Cost of lorry (excluding tyres)	*₹ 9,80,000*
Life of lorry	*80,000 kilometers*
Insurance	*₹ 13,650 per annum*
Cost of tyres	*₹ 28,000*
Estimated value of lorry at end of its life	*₹ 1,80,000*
Vehicle licence cost	*₹ 5,200 per annum*
Other overhead cost	*₹ 45,500 per annum*
Life of tyres	*28,000 kilometers*
The lorry operates on a six days week	

Required:

(a) A statement to show the total cost of operating the vehicle for the four weekly period.

(b) Calculate the vehicle cost per kilometre and per tonne kilometre.

Method of Costing (II)

6. From the following information for the month of January, 2013, prepare Process-III cost accounts.

Opening WIP in Process-III	1,600 units at ₹ 24,000
Transfer from Process-II	55,400 units at ₹ 6,23,250
Transferred to warehouse	52,200 units
Closing WIP of Process-III	4,200 units
Units Scrapped	600 units
Direct material added in Process-III	₹ 2,12,400
Direct wages	₹ 96,420
Production overheads	₹ 56,400

Degree of completion:

	Opening Stock	*Closing Stock*	*Scrap*
Material	*80%*	*70%*	*100%*
Labour	*60%*	*50%*	*70%*
Overheads	*60%*	*50%*	*70%*

The normal loss in the process was 5% of the production and scrap was sold @ ₹ 5 per unit.

(Students may treat material transferred from Process – II as Material – A and fresh material used in Process – III as Material B)

Standard Costing

7. Compute the missing data indicated by the question marks from the following:

Particulars	A	B
Standard Price/ unit	₹ 12	₹ 15
Actual Price/ unit	₹ 15	₹ 20
Standard Input (kgs.)	50	?
Actual Input (kgs.)	?	70

Material Price Variance	?	?
Material Usage Variance	?	₹ 300 Adverse
Material Cost Variance	?	?

Material mix variance for both products together was ₹ 45 Adverse.

Marginal Costing

8. A laboratory carrying out various tests on products produced by various drug companies to ascertain whether drugs are fit for medical use or not. At present, the laboratory carries out 10,000 tests each year and a survey carried out by the laboratory shows a rise in number of tests to 15,000 tests a year, to carrying out all these tests would require an additional shift to be worked.

The current cost of carrying out a full test is:

	₹ per test
Materials	1,500
Technicians' fees	130
Variable expenses	25
Fixed cost	100

Working the additional shift would

(i) require a shift premium of 50 per cent to be paid to the technicians on the additional shift;

(ii) enable a quantity discount of 10 per cent to be obtained for all materials if an order was placed to cover 15,000 tests;

(iii) increase fixed costs by ₹ 5,00,000 per year.

The current fee per test is ₹ 2,000.

Required

(a) Calculate the profit for the period at the current capacity of 10,000 tests.

(b) A profit statement if the additional shift was worked and 15,000 tests were carried out .

Budget and Budgetary Control

9. Jigyasa Ltd. is drawing a production plan for its two products Minimax (MM) and Heavyhigh (HH) for the year 2013-14. The company's policy is to hold closing stock of finished goods at 25% of the anticipated volume of sales of the succeeding month. The following are the estimated data for two products:

	Minimax (MM)	Heavyhigh (HH)
Budgeted Production units	1,80,000	1,20,000
	(₹)	(₹)
Direct material cost per unit	220	280
Direct labour cost per unit	130	120
Manufacturing overhead	4,00,000	5,00,000

The estimated units to be sold in the first four months of the year 2013-14 are as under

	April	May	June	July
Minimax	8,000	10,000	12,000	16,000
Heavyhigh	6,000	8,000	9,000	14,000

Prepare production budget for the first quarter in monthwise.

Miscellaneous

10. (a) You have been asked to install a costing system in a manufacturing company. What practical difficulties will you expect and how will you propose to overcome the same?

(b) M/s. Builders & Co. is proposing to take a contract to build a housing project for a big client. M/s. Builders & Co. is less confident about the price to be quoted for the contract. Suggest the appropriate contract pricing method to M/s. Builders &Co.

(c) A Ltd. is engaged in production of sugar. While producing sugar molasses is also produced. Molasses is identified as by-product of sugar. Suggest the treatment of molasses in the cost accounts of A Ltd.

(d) Z Ltd. Produces product ZZ in batches, management of the Z Ltd. wants to know the number of batches of product ZZ to be produced where the cost incurred on batch setup and carrying cost of production is at optimum level.

SUGGESTED ANSWERS / HINTS

Cost Accounting

1. Workings

1. Risk of being out of stock

Delivery Time	*Percentage of occurrence (%)*	*Cumulative percentage of occurrence (%)*	*Risk of non occurrence (%)*
12 days	70	70	30

13 days	10	80	20
14 days	10	90	10
15 days	5	95	5
16 days	5	100	0

2. (a) Ordering cost per order (O)- ₹ 35,000

(b) Cost per litre of Chemical –X

Rate per litre	₹ 900
Add: Import duty @10%	₹ 90
	₹ 990

Carrying cost per litre per annum of Chemical-X (C)

1.7676% (1.5% + 0.2676%) of ₹ 990 = ₹ 17.50

Answer to questions

(i) Economic Order Quantity (E.O.Q)

$$= \sqrt{\frac{2AO}{C}} = \sqrt{\frac{2 \times 36,000 \text{Ltrs.} \times ₹35,000}{₹17.50}} = 12,000 \text{ litres}$$

(ii) Safety Stock at 10% risk of being out of stock

Safety stock required for two days i.e. for 13th and 14th day

$$\text{Safety stock} = \frac{36,000 \text{ltr}}{360 \text{days}} \text{x} 2 \text{days} = 200 \text{ litres}$$

Re-Order Point = Minimum Stock level + Average lead time x Average consumption

= 200 + 12 x 100

= 1400 litres

(iii) At 5% risk of being out stock, safety stock will be safety stock for three days

100 ltr. x 3 days = 300 ltr.

$$\text{Total Ordering cost} = \frac{36,000 \text{ltr}}{12,000 \text{ltr}} \text{ x } ₹ 35,000 = ₹ 1,05,000$$

Total Carrying cost of inventory = (Safety stock + Average inventory) Carrying cost per litre per annum

$$= (300 + \frac{1}{2} \times 12{,}000 \text{ ltr.}) ₹ 17.50 = ₹ 1{,}10{,}250$$

∴ Total cost of ordering & carrying inventory = 1,05,000 + 1,10,250 = ₹ 2,15,250

[Note: Amount of ₹ 1,75,000 incurred on making agreement for material supply will be apportioned over the entire quantity of 36,000 ltr and included with cost of Chemical-X. However, for the purpose of calculating carrying cost i.e. storage cost and insurance cost only invoice cost of material is taken. Invoice cost consist of cost per litre of chemical-X plus import duty.]

2. (i) Computation of wages of each worker under guaranteed hourly rate basis

Worker	Actual hours worked (Hours)	Hourly wage rate (₹)	Wages (₹)
I	380	40	15,200
II	100	50	5,000
III	540	60	32,400

(ii) Computation of Wages of each worker under piece work earning basis

Product	Piece rate per unit (₹)	Worker-I		Worker-II		Worker-III	
		Units	Wages (₹)	Units	Wages (₹)	Units	Wages (₹)
A	15	210	3,150	-	-	600	9,000
B	20	360	7,200	-	-	1,350	27,000
C	30	460	13,800	250	7,500	-	-
Total			24,150		7,500		36,000

Since each worker's earnings are more than 50% of basic pay. Therefore, worker-I, II and III will be paid the wages as computed i.e. ₹ 24,150, ₹ 7,500 and ₹ 36,000 respectively.

Working Notes:

1. Piece rate per unit

Product	Standard time per unit in minute	Piece rate each minute (₹)	Piece rate per unit (₹)
A	15	1	15
B	20	1	20
C	30	1	30

2. Time allowed to each worker

Worker	Product-A	Product-B	Product-C	Total Time (Hours)
I	210 units x 15 = 3,150	360 units x 20 =7,200	460 units x 30 = 13,800	24,150/60 = 402.50
II	-	-	250 units x 30 = 7,500	7,500/60 =125
III	600 units x 15 = 9,000	1, 350 units x 20 = 27,000	-	36,000/60 = 600

(iii) Computation of wages of each worker under Premium bonus basis (where each worker receives bonus based on Rowan Scheme)

Worker	Time Allowed (Hr.)	Time Taken (Hr.)	Time saved (Hr.)	Wage Rate per hour (₹)	Earnings (₹)	Bonus (₹)*	Total Earning (₹)
I	402.5	380	22.5	40	15,200	850	16,050
II	125	100	25	50	5,000	1,000	6,000
III	600	540	60	60	32,400	3,240	35,640

$$* \frac{\text{Time Taken}}{\text{Time Allowed}} \times \text{Time Saved} \times \text{Wage Rate}$$

$$\text{Worker-I} = \frac{380}{402.5} \times 22.5 \times 40 = 850$$

$$\text{Worker-II} = \frac{100}{125} \times 25 \times 50 = 1{,}000$$

$$\text{Worker-III} = \frac{540}{600} \times 60 \times 60 = 3{,}240$$

3. Primary Distribution Summary

Item of cost	*Basis of apportionment*	*Total (₹)*	*P_1 (₹)*	*P_2 (₹)*	*P_3 (₹)*	*S_1 (₹)*	*S_2 (₹)*
Rent and Rates	Floor area [6 : 7 : 8 : 2 : 1]	1,23,500	30,875	36,021	41,167	10,292	5,145
General lighting	Light points [6 : 4 : 4 : 3 : 2]	72,000	22,737	15,158	15,158	11,368	7,579
Indirect wages	Direct wages [14 : 11 : 12 : 4 : 1]	68,200	22,733	17,862	19,486	6,495	1,624

Power	Horse Power of machines used [8 : 4 : 6 : 2: 1]	85,000	32,381	16,190	24,286	8,095	4,048
Depreciation of machinery	Value of machinery [28 : 32 : 20 : 6 : 9]	3,25,000	95,789	1,09,474	68,421	20,526	30,790
Insurance of machinery	Value of machinery [28 : 32 : 20 : 6 : 9]	95,000	28,000	32,000	20,000	6,000	9,000
		7,68,700	2,32,515	2,26,705	1,88,518	62,776	58,186

Let S_1 be the overhead of service cost centre S_1 and S_2 be the overhead of service cost centre S_2.

$S_1 = 62,776 + 0.15\ S_2$

$S_2 = 58,186 + 0.20\ S_1$

Substituting the value of S_2 in S_1 we get

$S_1 = 62,776 + 0.15\ (58,186 + 0.20\ S_1)$

$S_1 = 62,776 + 8,728 + 0.03\ S_1$

$0.97\ S_1 = 71,504$

$\therefore S_1$ = ₹73,715

$\therefore S_2$ = $58,186 + 0.20 \times 73,715$

= ₹72,929

Secondary Distribution Summary

Particulars	*Total*	*P_1*	*P_2*	*P_3*
	(₹)	*(₹)*	*(₹)*	*(₹)*
Allocated and Apportioned over-heads as per primary distribution	6,47,738	2,32,515	2,26,705	1,88,518
S_1	73,715	22,115	14,743	22,114
S_2	72,929	29,172	21,879	10,939
		2,83,802	2,63,327	2,21,571

(i) Overhead rate per hour

	P_1	*P_2*	*P_3*
Total overheads cost	₹2,83,802	₹2,63,327	₹2,21,571
Production hours worked	6,240	4,150	4,050
Rate per hour (₹)	₹45.48	₹63.45	₹54.71

(ii) Cost of Product X

Direct material	₹ 1,215
Direct labour	₹ 975
Prime cost	₹ 2,190
Production on overheads	
P_1 5 hours × ₹45.48 = 227.40	
P_2 3 hours × ₹63.45 = 190.35	
P_3 4 hours × ₹54.71 = 218.84	₹636.59
Factory cost	₹ 2,826.59

4. (i) Statement of Profit as per financial records

(for the year ended March 31, 2013)

	(₹)		*(₹)*
To Opening stock of Finished Goods	53,125	By Sales	22,80,000
To Work-in-process	46,000	By Closing stock of finished Goods	45,650
To Raw materials consumed	8,40,000	By Work-in-Process	41,200
To Direct labour	6,10,000	By Rent received	46,000
To Factory overheads	4,22,000	By Interest received	38,000
To Administration overheads	1,98,000		
To Selling & distribution overheads	72,000		
To Dividend paid	1,22,000		
To Bad debts	18,000		
To Profit	69,725		
	24,50,850		24,50,850

Statement of Profit as per costing records

(for the year ended March 31,2013)

	(₹)
Sales revenue (A) *(12,615 units)*	22,80,000
Cost of sales:	
Opening stock *(625 units x ₹120)*	75,000
Add: Cost of production of 12,405 units	21,64,070

(Refer to working note 2)	
Less: Closing stock	72,397
$\left(\frac{₹21,64,070 \times 415 \text{ units}}{12,405 \text{ units}}\right)$	
Production cost of goods sold (12,615 units)	21,66,673
Selling & distribution overheads *(12,615 units x ₹3)*	37,845
Cost of sales: (B)	22,04,518
Profit: {(A) – (B)}	75,482

(ii) Statement of Reconciliation

(Reconciling the profit as per costing records with the profit as per financial records)

	(₹)	*(₹)*
Profit as per Cost Accounts		75,482
Add: Administration overheads over absorbed (₹2,82,270 – ₹1,98,000)	84,270	
Opening stock overvalued (₹75,000 – ₹53,125)	21,875	
Interest received	38,000	
Rent received	46,000	
Factory overheads over recovered (₹4,27,000 – ₹4,22,000)	5,000	1,95,145
		2,70,627
Less: Selling & distribution overheads under recovery (₹72,000 – ₹37,845)	34,155	
Closing stock overvalued (₹72,397 – ₹45,650)	26,747	
Dividend	1,22,000	
Bad debts	18,000	(2,00,902)
Profit as per financial accounts		69,725
Working notes:		
1. Number of units produced		
		Units
Sales		12,615
Add: Closing stock		415
Total		13,030

Less: Opening stock		625
Number of units produced		12,405
2. Cost Sheet		
		(₹)
Raw materials consumed		8,40,000
Direct labour		6,10,000
Prime cost		14,50,000
Factory overheads (70% of direct wages)		4,27,000
Factory cost		18,77,000
Add: Opening work-in-process		46,000
Less: Closing work-in-process		41,200
Factory cost of goods produced		18,81,800
Administration overheads (15% of factory cost)		2,82,270
Cost of production of 12,405 units (Refer to working note 1)		21,64,070
Cost of production per unit: $= \frac{\text{Total Cost of Production}}{\text{No. of units produced}} = \frac{₹\ 21,64,070}{12,405 \text{ units}} = ₹174.45$		

5. (a) Statement of total cost of operating the vehicle for the four weekly period

	Particulars	Amount (₹)	Amount (₹)
A.	*Running Costs:*		
	Petrol cost (Working Note-1)	20,480	
	Lubricant (₹125 x 4 weeks)	500	
	Driver's Salary (₹ 2,000 x 4 weeks)	8,000	
	Cost of tyres $(\frac{₹28,000}{28,000 \text{ km}} \times 1,920 \text{ km.})$	1,920	30,900
B.	*Standing Charges:*		
	Depreciation $(\frac{₹\ 9,80,000 - ₹1,80,000}{80,000 \text{ km}} \times 1,920 \text{ km.})$	19,200	
	Insurance (₹ 13,650/52 x 4)	1,050	
	Vehicle licence (₹ 5,200/52 x 4)	400	
	Other overhead cost (45,500/52 x 4)	3,500	24,150

C.	*Maintenance cost:*		
	Garage rent (1,30,000/ 52 x 4)	10,000	
	Repairs (₹ 1,250 x 4 weeks)	5,000	15,000
	Total Cost (A+B+C)		70,050

(b) Vehicle cost per kilometre = $\frac{₹70,050}{1,920 km} = ₹36.48$

Cost per tonne-km.

Outward journey: 20 km x 9 tonne x 24 days x 2 trip = 8,640

Inward journey: 20 km x 1 tonne x 24 days x 2 trip = 960

Total tonne-km 9,600

Cost per tonne-km = $\frac{₹70,050}{9,600 tonne-km} = ₹7.30$

Working Note:

1. Distance travelled = 20 km x 2 ways x 4 weeks x 6 days x 2 trips = 1,920 km.

Cost of petrol = $\frac{1,920 km}{6 km/ltr.} x ₹64 = ₹20,480$

6. Statement of Equivalent Production

Process III

Input Details	Units	Output Particulars	Units	Equivalent Production					
				Material-A		Material-B		Labour & Overhead	
				%	Units	%	Units	%	Units
Opening WIP	1,600	Work on Op. WIP	1,600	-	-	20	320	40	640
Process-II Transfer	55,400	Introduced & completed during the month	50,600	100	50,600	100	50,600	100	50,600
		Normal loss (5% of 52,800 units)	2,640	-	-	-	-	-	-
		Closing WIP	4,200	100	4,200	70	2,940	50	2,100
		Abnormal Gain	(2,040)	100	(2,040)	100	(2,040)	100	(2,040)
	57,000		57,000		52,760		51,820		51,300

Working note:

Production units = Opening units + Units transferred from Process-II – Closing Units

= 1,600 units + 55,400 units – 4,200 units

= 52,800 units

Statement of Cost

	Cost (₹)	Equivalent units	Cost per equivalent units (₹)
Material A (Transferred from previous process)	6,23,250		
Less: Scrap value of normal loss (2,640 units × ₹ 5)	(13,200)		
	6,10,050	52,760	11.5627
Material B	2,12,400	51,820	4.0988
Labour	96,420	51,300	1.8795
Overheads	56,400	51,300	1.0994
	9,75,270		18.6404

Statement of apportionment of Process Cost

		Amount (₹)	Amount (₹)
Opening WIP	Material A		24,000
Completed opening WIP units-1600	Material B (320 units × ₹ 4.0988)	1311.62	
	Wages (640 units × ₹ 1.8795)	1202.88	
	Overheads (640 units × ₹ 1.0994)	703.62	3,218.12
Introduced & Completed-50,600 units	50,600 units × ₹ 18.6404		9,43,204.24
Total cost of 52,200 finished goods units			9,70,422.36
Closing WIP units- 4,200	Material A (4,200 units × ₹ 11.5627)		48,563.34
	Material B (2,940 units × ₹ 4.0988)		12,050.47
	Wages (2,100 units × ₹ 1.8795)		3,946.95
	Overheads (2,100 units × ₹ 1.0994)		2,308.74
			66,869.50
Abnormal gain units-2,040	(2,040 units × ₹ 18.6404)		38026.42

Process III A/c

Particulars		Units	Amount (₹)	Particulars		Units	Amount (₹)
To	Balance b/d	1,600	24,000	By	Normal loss	2,640	13,200
To	Process II A/c	55,400	6,23,250	By	Finished goods	52,200	9,70,422.36
To	Direct material		2,12,400	By	Closing WIP	4,200	66,874.06*
To	Direct wages		96,420				
To	Production overheads		56,400				
To	Abnormal gain	2,040	38,026.42				
		59,040	10,50,496.42			59,040	10,50,496.42

* Difference in figure due to rounding off has been adjusted with closing WIP

7. (i) Standard input (kgs.) of Material- B:

Material usage variance = Std. Rate (Std. Quantity – Actual Quantity)

₹ 300 Adverse = ₹ 15 (SQ – 70)

Or, -300 = 15 SQ – 1,050

Or, SQ = 50 kgs.

(ii) Actual Input (kgs) of Material- A:

Let the actual input in for Material-A is X kgs.

Material Mix Variance = Std. Price (Actual Quantity in Std. mix – Actual Quantity)

Or, Material Mix Variance (A+B) = Material Mix Variance for Material - A + Material Mix Variance for Material -B

$$\text{Or,} \quad -45 = [₹12\{(\frac{X+70}{2})-X\}]+[₹15\{(\frac{X+70}{2})-70\}]$$

$$\text{Or,} \quad -45 = [₹12\{\frac{X+70-2X}{2}\}]+[₹15\{\frac{X+70-140}{2}\}]$$

$$\text{Or,} \quad -45 = [₹12\{\frac{70-X}{2}\}]+[₹15\{\frac{X-70}{2}\}]$$

$$\text{Or,} \quad -45 = [-6X+420]+[\frac{15X-1,050}{2}]$$

$$\text{Or,} \quad -45 = \left[\frac{-12X + 840 + 15X - 1{,}050}{2}\right]$$

$$\text{Or,} \quad -90 = 3X - 210$$

$$\text{Or,} \quad X = \frac{120}{3} = 40 \text{ kgs.}$$

(iii) (a) Material Price Variance of A = Actual Quantity (Std. Rate – Actual Rate)
= 40 kg. (12 – 15) = ₹ 120 Adverse

(b) Material Price Variance of B = 70 kg. (15 – 20) = ₹ 350 Adverse

(iv) Material usage variance of A = Std. Rate (Std. Quantity – Actual Quantity)
= 12 (50 – 40) = ₹ 120 Favourable

(v) (a) Material Cost variance of A = Std. Cost – Actual Cost
= (50 kgs. @ ₹ 12) – (40 kgs. @ ₹ 15)
= 600 – 600 = Nil

(b) Material Cost variance of B = (50 kgs. @ ₹ 15) – (70 kgs. @ ₹ 20)
= 750 – 1,400 = ₹ 650 Adverse

8. Calculation of profit at current capacity of 10,000 tests

Particulars	Amount (₹)
Fee per test	2,000
Less: Variable costs:	
Direct Materials	1,500
Technician fees	130
Other Variable expenses	25
Contribution per test	345
Total contribution (₹345 × 10,000 tests)	34,50,000
Less: Fixed Overhead	
(₹ 100 × 10,000)	10,00,000
Profit	24,50,000

(b) Statement of Profit for expected 15,000 capacity, with additional shift

Particulars	Amount (₹)	Amount (₹)
Fees (15,000 tests × ₹ 2,000)		3,00,00,000
Less: Variable Costs:		
Direct materials (90% of 1,500) × 15,000 tests		2,02,50,000

Technician's fee		
10,000 tests @ ₹ 130	13,00,000	
5,000 tests @ ₹ (130 × 150%)	9,75,000	22,75,000
Other Variable expenses (₹ 25 × 15,000 tests)		3,75,000
Contribution		71,00,000
Less: Fixed Overheads		
(10,00,000 + 5,00,000)		(15,00,000)
Profit		56,00,000

9. Production budget of Product Minimax and Heavyhigh (in units)

	April		May		June		Total	
	MM	HH	MM	HH	MM	HH	MM	HH
Sales	8,000	6,000	10,000	8,000	12,000	9,000	30,000	23,000
Add: Closing Stock (25% of next month's sale	2,500	2,000	3,000	2,250	4,000	3,500	9,500	7,750
Less: Opening Stock	2,000*	1,500*	2,500	2,000	3,000	2,250	7,500	5,750
Production units	8,500	6,500	10,500	8,250	13,000	10,250	32,000	25,000

* Opening stock of April is the closing stock of March, which is as per company's policy 25% of next month's sale.

Production Cost Budget

Element of cost	Rate (₹)		Amount (₹)	
	MM (32,000 units)	HH (25,000 units)	MM	HH
Direct Material	220	280	70,40,000	70,00,000
Direct Labour	130	120	41,60,000	30,00,000
Manufacturing Overhead				
(4,00,000/ 1,80,000 x 32,000)			71,111	
(5,00,000/ 1,20,000 x 25,000)				1,04,167
			1,12,71,111	1,01,04,167

10. (a) The Practical difficulties with which a Cost Accountant is usually confronted with while installing a costing system in a manufacturing company are as follows:

(i) *Lack of top management support:* Installation of a costing system does not receive the support of top management. They consider it as interference in their work. They believe that such, a system will involve additional paperwork. They also have a misconception in their minds that the system is meant for keeping a check on their activities.

(ii) *Resistance from cost accounting departmental staff*: The staff resist because of fear of loosing their jobs and importance after the implementation of the new system.

(iii) *Non co-operation from user departments:* The foremen, supervisor and other staff members may not cooperate in providing requisite data, as this would not only add to their responsibilities but will also increase paper work of the entire team as well.

(iv) *Shortage of trained staff:* Since cost accounting system's installation involves specialised work, there may be a shortage of trained staff.

To overcome these practical difficulties, necessary steps required are:

- Sell the idea to top management and convince them of the utility of the system.
- Resistance and non co-operation can be overcome by behavioural approach. To deal with the staff concerned effectively.
- Proper training should be given to the staff at each level
- Regular meetings should be held with the cost accounting staff, user departments, staff and top management to clarify their doubts/ misgivings.

(b) M/s. Builder & Co. should follow cost –plus contract to quote price for the contract. Cost-plus contract provide for the payment by the contractee of the actual cost of manufacture plus a stipulated profit, mutually decided between the two parties.

The main features of these contracts are as follows:

(i) The practice of cost-plus contracts is adopted in the case of those contracts where the probable cost of the contracts can not be ascertained in advance with a reasonable accuracy.

(ii) These contracts are preferred when the cost of material and labour is not steady and the contract completion may take number of years.

(iii) The different cost to be included in the execution of the contract are mutually agreed, so that no dispute may arise in future in this respect. Under such type of contacts, contractee is allowed to check or scrutinize the concerned books, documents and accounts.

(iv) Such a contract offers a fair price to the contractee and also a reasonable profit to the contractor.

(v) The contract price here is ascertained by adding a fixed and mutually pre-decided component of profit to the total cost of the work.

Since, M/s Builders & Co. is not confident in quoting the price, so cost plus contact is better option to safeguard it from unexpected losses.

(c) Molasses is a by product of sugar and treatment of by-product in cost accounting is as follows.

(i) When they are of small total value, the amount realized from their sale may be dealt as follows:

- Sales value of the by-product may be credited to Profit and Loss Account and no credit be given in Cost Accounting. The credit to Profit and Loss Account here is treated either as a miscellaneous income or as additional sales revenue.
- The sale proceeds of the by-product may be treated as deduction from the total costs. The sales proceeds should be deducted either from production cost or cost of sales.

(ii) When they require further processing: In this case, the net realisable value of the by-product at the split-off point may be arrived at by subtracting the further processing cost from realisable value of by-product. If the value is small, it may be treated as discussed in (i) above.

(d) *Economic batch quantity in Batch Costing:* In batch costing the most important problem is the determination of 'Economic Batch Quantity'. The determination of economic batch quantity involves two type of costs viz, (i) set up cost and (ii) carrying cost. With the increase in the batch size, there is an increase in the carrying cost but the set up cost per unit of product is reduced. This situation is reversed when the batch size is reduce. Thus there is one particular batch size for which both set up and carrying costs are minimum. This size of a batch is known as economic or optimum batch quantity.

Economic batch quantity can be determined with the help of table, graph or mathematical formula. The mathematical formula usually used for its determination is as follows:

$$E.B.Q = \sqrt{\frac{2DS}{C}}$$

Where, D= Annual demand for the product

S = Setting up cost per batch

C = Carrying cost per unit of production per annum

PART II: FINANCIAL MANAGEMENT

QUESTIONS

1. Answer the following, supporting the same with reasoning/working notes:

   (a) "Financial Managers should concentrate on meeting the needs of shareholders by maximising earnings per share – no other stakeholders matter." Do you agree with this statement?

   (b) "The higher risk of a project can be recognised by decreasing the required rate of return of the project". Comment.

   (c) Describe the term "coupon rate" as applicable in debenture shares?

   (d) Assuming that the market interest rates remain unchanged, an increase in the coupon rate of a bond will have what effect on its selling price?

   (e) If a company's profits are more sensitive to changes in sales volume, then what would be effect on the company's operating leverage?

Working Capital Management

2. Alpha Limited sells its products on a gross profit of 20 percent on sales. The following information is extracted from its annual accounts for the current year ended March 31.

	₹
Sales at 3 months' credit	40,00,000
Raw Material	12,00,000
Wages paid-average time lag 15 days	9,60,000
Manufacturing expenses paid-one month in arrears	12,00,000
Administrative expenses paid-one month in arrears	4,80,000
Sales promotion expenses-payable half-yearly in advance	2,00,000

The company enjoys one month's credit from the suppliers of raw materials and maintains 2 months' stock of raw materials and one and a half month's stock of finished goods. The cash balance is maintained at ₹1,00,000 as a precautionary measure. Assuming a 10 percent margin, you are required to estimate the working capital requirements of Alpha Limited.

Investment Decisions

3. Beta Limited receives ₹ 15,00,000 a year after taxes from an investment in an automatic plant that has 12 more years of service life. The company's required rate is 12%. Beta Limited can make improvements to the plant to raise its service life to 20 years and its annual after tax cash flow to ₹ 48,00,000 per year. These investments would cost ₹ 2,10,00,000. With the improvements, the plant's value at the end of 12 years would rise from ₹7,50,000 to ₹75,00,000. Would the improvements produce a return satisfactory to Beta Limited?

Financing Decisions

4. Company XYZ is unlevered and has a cost of equity of 20 percent and a total market value of ₹10,00,00,000. Company ABC is identical to XYZ in all respects except that it uses debt finance in its capital structure with a market value of ₹4,00,00,000 and a cost of 10 percent. Find the market value of equity, weighted average cost of capital and cost of equity of ABC if the tax advantage of debt is 25 percent.

Financing Decisions

5. The following current data are available concerning Theta Limited:

Share issued	10,000
Market price per share	₹20
Interest rate	12%
Tax Rate	46%
Expected EBIT	₹15,000

The company requires an additional ₹50,000 for the coming year.

You are required to determine:

(i) Which financing option (debt or equity issue) will give higher EPS for the expected EBIT?

(ii) What is indifference level of EBIT for the two alternatives?

(iii) What is EPS for that EBIT?

Financial Analysis and Planning

6. Given here is the Balance Sheet as on March 31, years 1 and 2 for Zeta Limited. Sales for year 2 was ₹2,10,000. Net income after tax was ₹7,000. In arriving at net profit, items deducted from sales included, among others, Cost of goods sold – ₹1,65,000; Depreciation - ₹5,000; Wages and Salaries – ₹20,000 and a gain of ₹1,000 on the sale of a plant. The plant had a historical cost of ₹6,000, a depreciation of ₹4,000 had been accumulated for it and it was sold for ₹3,000. This was the only asset written off during the year. The company declared and paid ₹6,000 as dividends during the year.

Balance Sheet

	March 31, Year 1	March 31, Year 2
	₹	₹
Liabilities		
Accounts Payable	20,000	18,000
Accrued expenses	2,000	4,000

Income Tax payable		1,000		1,100
Capital Stock		30,000		37,000
Retained earnings		12,650		13,650
		65,650		73,750
Assets				
Cash		5,000		6,000
Accounts receivable		14,000		14,000
Inventory		22,000		8,000
Prepaid Insurance		200		250
Prepaid rent		150		100
Pre-paid property tax		300		400
Land		4,000		8,000
Plant & Equipment	30,000		48,000	
Less: Accumulated Dep.	10,000	20,000	11,000	37,000
		65,650		73,750

You are required to prepare funds flow statement and describe the most significant development revealed by this statement.

Investment Decisions

7. A machine purchased six years back for ₹1,50,000 has been depreciated to a book value of ₹90,000. It originally had a projected life of fifteen years and zero salvage value. A new machine will cost ₹2,50,000 and result in a reduced operating cost of ₹30,000 per year for the next nine years. The older machine could be sold for ₹50,000. The new machine shall also be depreciated on a straight-line method on nine-year life with salvage value of ₹25,000. The company's tax rate is 50% and cost of capital is 10%.

   Determine whether the old machine should be replaced.

   Given: Present Value of Re. 1 at 10% on 9th year = 0.424; and Present Value of an annuity of Re. 1 at 10% for 8 years = 5.335.

Financial Analysis and Planning

8. The following information was taken from the financial statements of Gamma Limited (amount in thousands of rupees).

Particulars	*Year 1*	*Year 2*	*Year 3*
Total Assets	750	850	860
Credit Sales	420	520	550

Cost of goods sold	450	595	645
Cash	50	60	55
Debtors	150	165	180
Inventory	130	160	170
Net Fixed Assets	120	250	250
Creditors	75	85	100
Short term debt	125	175	170
Long-term Debt	125	185	175
Equity	200	210	-

You are required to calculate those ratios which indicate the efficient use of assets and discuss potential sources of trouble.

Working Capital Management

9. Delta Limited currently makes all sales on credit and offers no cash discounts. It is considering a 2 percent discount for payments within 10 days (terms offered '2/10 net 30'). The firm's current average collection period is 30 days, sales are 10,000 units, selling price is ₹ 100 per unit and variable cost per unit is ₹ 50; its existing total fixed costs are ₹ 2,00,000 which are likely to remain unchanged with production/ sales volume of 12,000 units.

   It is expected that the offer of cash discount will result in an increase in sales to 11,000 units and the average collection period will be 20 days as a result. However, due to increased sales, increased working capital required will be for ₹ 20,000 (without taking into account the effect of debtors).

   Assuming that 50 percent of the total sales will be on cash discount and 20 percent is the required return on investment, should the proposed discount be offered?

10. Answer the following:
    (a) Explain the concept of Indian depository receipts.
    (b) Discuss the advantages of preference share capital as an instrument of raising funds.
    (c) Explain the relevance of time value of money in financial decisions.

SUGGESTED ANSWERS / HINTS

1. (a) Financial managers are concerned with managing the company's funds on behalf of the shareholders, and producing information which reflects the effect of management decisions on shareholders wealth. However, management decisions will be made only after considering other stakeholders also and a good financial

manager will be aware that financial information is only one input to the final decision.

(b) The higher risk of a project can be recognised by decreasing the required rate of return of the project. This statement is not true. In fact the higher the risk of the project, the greater is the required rate of return of the project.

(c) The coupon rate as in debenture shares gives the annual interest based on the nominal value of the debenture shares.

(d) If the market interest rates remain unchanged, the yield to maturity will also remain unchanged. If the coupon rate increases, the annual interest payment will increase. Therefore, in order for the yield to remain unchanged, the selling price of the bond must increase.

(e) If a company's profits are more sensitive to changes in sales volume, then the contribution will increase, with a resultant increase in the company's operating leverage.

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

2. Statement Showing the Estimation of Working Capital Requirements of Alpha Limited

		₹	₹
(A)	*Current Assets :*		
	Cash balance		1,00,000
	Inventories :		
	Raw materials (₹12,00,000 × 2/12)	2,00,000	
	Finished goods (₹32,00,000 * × 1.5/12)	4,00,000	6,00,000
	Debtors (₹32,00,000 ×3)/12		8,00,000
	Prepaid sales expenses (₹ 2,00,000 × 6)/12		1,00,000
			Total 16,00,000
(B)	*Current Liabilities*		
	Creditors for raw material (₹12,00,000 × 1) /12		1,00,000
	Wages (₹9,60,000 × 0.5) /12		40,000
	Manufacturing expenses (₹12,00,000 × 1)/12		1,00,000
	Administrative expenses (₹4,80,000 × 1) / 12		40,000
			Total 2,80,000
(C)	*Net working capital (A–B)*		13,20,000
	Add : Margin (0.10)		1,32,000
	Working Capital Requirements of Alpha Limited		14,52,000

* ₹ 40,00,000 × 80%

3. Calculation of the Present value of the inflows before improvements to the automatic plant

	₹
Income after taxes per year	15,00,000
Income after taxes for 12 years (₹15,00,000 × 6.194)	92,91,000
Plant value at the end of 12 years (₹7,50,000 × 0.257)	1,92,750
Total present value of the inflows before improvements to the plant: (A)	94,83,750

Calculation of the Present value of the inflows after improvement to the automatic plant

	₹
Income after taxes per year	48,00,000
Income after taxes for 12 years (₹48,00,000 × 6.194)	2,97,31,200
Plant value at the end of 12 years (₹75,00,000 × 0.257)	19,27,500
Present value after improvements to the plant: (B)	3,16,58,700

Differential Present value of the inflow after improvements to the automatic plant

= ₹ 3,16,58,700 (B) – ₹ 94,83,750 (A)

= ₹ 2,21,74,950

Net Present value from the investments in the automatic plant

= P.V. of Cash Inflow – Cash Outflow

= ₹ 2,21,74,950 – ₹ 2,10,00,000

= ₹ 11,74,950

Advise: Since the NPV is positive, the improvements produce a satisfactory return to the firm.

4. Computation of Market Value of Equity of Company ABC

Total market value of company ABC

$V_{ABC} = V_{XYZ} + Bt$……(i)

Where,

V_{ABC} = Market value of leveraged company.

V_{XYZ} = Market value of unleveraged company.

B = Market value of debt.

t = Tax rate.

Now, given

V_{xyz} = ₹10,00,00,000

B = ₹4,00,00,000

t = 25%

By substituting values in equation (i) above, we have

V_{ABC} = ₹10,00,00,000 + ₹4,00,00,000 × 0.25%

= ₹11,00,00,000

The market value of equity (s) of company ABC,

= ₹11,00,00,000 – ₹4,00,00,000

= ₹7,00,00,000

Weighted Average Cost of Capital of Company ABC

$WACC_{ABC}$ = $WACC_{XYZ}[1- Bt/V_{ABC}]$

$$= 20\%\left[1-\frac{4,00,00,000}{11,00,00,000}\times 0.25\right]$$

= 18.18%

Where,

$WACC_{ABC}$ is the weighted average cost of capital of the levered company ABC

$WACC_{XYZ}$ is the weighted average cost of capital of the unlevered company XYZ.

Cost of Equity of Company ABC

R_{Eabc} = R_{Exyz}+ [(1 - t)B/E(R_{Exyz}- R_B)]

= 20%+[(1-.25)400,00,000/700,00,000(.20-.10)]

= 24.28% approx.

Where,

R_{EABC} is the cost of equity in the levered company ABC.

R_{Exyz} is the cost of equity in the unlevered company XYZ.

E is the market value of equity.

B is the market value of debt.

5. (i) Computation of Earnings Per Share (EPS) for the Expected Earnings Before Interest and Taxes(EBIT) for the Expected EBIT.

	Debt	*Equity*
	₹	₹
Expected earnings before interest & tax	15,000	15,000
Less: Interest (12% of ₹ 50,000)	6,000	-
Earnings before tax (EBT)	9,000	15,000
Less: Tax (@ 46%) of EBT (₹9000 X 46%)	4,140	6,900
Earnings available to equity shareholder: (A)	4,860	8,100
Number of shares issued: (B)	10,000	12,500
	(Refer to working note)	
Earnings per shares: (A) / (B)	0.486	0.648

Conclusion: Earnings per share is higher when the company raises additional funds by issue of equity shares.

Working note

Number of new shares to be issued:

Amount required:	(i)	₹ 50,000
Market price per share	(ii)	₹ 20
No. of new shares to be issued: (i) / (ii)		2,500

(ii) Computation of indifference level of EBIT for the two alternatives

$$\frac{(EBIT - ₹\ 6,000)\ (1 - 0.46)}{10,000 \text{ shares}} = \frac{EBIT\ (1 - 0.46)}{12,500 \text{ shares}}$$

or, EBIT = ₹ 30,000

Therefore, Indifference level of EBIT for two alternatives is ₹30,000.

(iii) The EPS for the EBIT at the indifference level.

$$EPS = \frac{₹\ 30,000 \times (1 - 0.46)}{12,500 \text{ shares}}$$

= ₹1.296 per share

6. Funds Flow Statement of Zeta Limited for the year 2

	₹
Sources of funds:	
Funds from business operations (Refer to working note (i))	11,000
Sale of non-current assets:	
Plant	3,000
Issuance of long-term liabilities:	
Capital Stock	7,000
Sources : (A)	21,000
Application of funds:	
Purchase of non-current assets:	
Land	4,000
Plant & Equipment [Refer to working note (ii)]	24,000
Recurring payment to investors:	
Dividend paid	6,000
Applications: (B)	34,000
Decrease in working capital [(B) – (A)]	13,000

Comment: The most significant development revealed by the funds flow statement is that Working Capital (WC) has been used to acquire assets. This is not a sound financing policy. WC has declined from ₹18,650 in year 1 to less than one-third, that is ₹5,650 in year 2. *[Refer to working note (iii)]*. As a result, current ratio [(*refer to working note (iv])* has substantially decreased to 1.24 in year 2 from 1.81 in year 1. The fresh issue of stock of ₹7,000 made during the year does not seem to be planned properly; the amount of the issue should have been more, at least by ₹ 13,000.

Working Notes:

		₹
(i)	*Funds from business operations:*	
	Net income after taxes	7,000
	Add: Depreciation	5,000
	Less: Gain on sale of plant	1,000
		11,000

(ii) *Plant and Equipment Account*

Particulars	*Amount (₹)*	*Particulars*	*Amount (₹)*
To Balance b/d	20,000	By Cash (sale of plant)	3,000
To P & L A/c			
(Profit on the sale of plant)	1,000	By Depreciation	5,000
To Cash			
(Purchases, balancing figures)	24,000	By Balance c/d	37,000
	45,000		45,000

(iii) Working Capital

	Year 1 (₹)		*Year 2 (₹)*	
Current Assets :				
Cash	5,000		6,000	
Accounts receivable	14,000		14,000	
Inventory	22,000		8,000	
Prepaid Insurance	200		250	
Prepaid Rent	150		100	
Prepaid Property taxes	300	41,650	400	28,750
Less: *Current Liabilities*:				
Accounts payable	20,000		18,000	
Accrued expenses	2,000		4,000	
Income tax payable	1,000	23,000	1,100	23,100
Working capital		18,650		5,650

(iv) Current Ratio :

$$\text{(Current ratio in year 2)} = \frac{\text{Current assets}}{\text{Current liabilities}} = \frac{₹\ 28,750}{₹\ 23,100} = 1.24$$

$$\text{(Current ratio in year 1)} = \frac{₹\ 41,650}{₹\ 23,000} = 1.81$$

7. Cash outflow

	₹
Cost of new machine	2,50,000.00
Less: Sale of old machine	50,000.00

Less: Tax saving from loss due to sale of old machine ₹40,000 *(₹90,000 – ₹ 50,000) × 50%*	20,000.00
Net Cash Outflow	1,80,000.00

Cash inflow

	Amount before tax ₹	*Amount after tax ₹*
Cost savings	30,000	15,000
Tax savings on depreciation:		
New machine	25,000	
Old machine	10,000	
Differential depreciation	15,000	
Tax savings on ₹15,000 @ 50%		7,500
Cash flow after tax (1 to 8 years)		22,500
Salvage value of new machine (9th year)		25,000
Cash flow after tax (9th year)		47,500

Determination of Net Present Value

Year (1)	*Cash in flow after tax (₹) (2)*	*Present value factor at (10%) (3)*	*Present value of cash inflows (₹) (4)=(2) X (3)*
1 - 8	22,500	5.335	1,20,038
9	47,500	0.424	20,140
		Total Cash Inflow	1,40,178
		Less: Net Cash Outflow	1,80,000
		Net Present Value	(39,822)

Decision: Since the net present value is negative, the old machine should not be replaced.

8. The efficient use of assets is indicated by the following key ratios: (a) Current assets turnover, (b) Debtors' turnover, (c) Inventory turnover, (d) Fixed assets turnover, and (e) Total assets turnover.

Computation of Ratios:

		Year 1	*Year 2*	*Year 3*
(a)	*Current assets turnover ratio* (Cost of goods sold / Total current assets)	1.36	1.55	1.59
(b)	*Debtor's turnover*	2.8*	3.30	3.19

	(Credit sales / Average debtors)			
(c)	*Inventory turnover*	3.46*	4.10	3.91
	(Cost of goods sold/ Average inventory)			
(d)	*Fixed assets turnover*	3.75	2.38	2.58
	(Cost of goods sold/ Fixed Assets)			
(e)	*Total assets turnover*	1.00	0.93	0.98
	(Cost of goods sold/ Total assets)			

* Based on Debtors and Inventory at the end, as their opening balances are not available.

Comments: The first three ratios indicate the efficiency of Current Assets usage, and the latter two, namely, Fixed assets turnover and Total assets turnover ratio, show the efficiency of utilisation of these. Current assets utilisation appears to be very satisfactory as reflected in the first three types of ratios. No major change is noticeable in their values over a period of time, which is presumably indicative of consistency in Debtors collection period and inventory turnover. There does not seem to be any significant problem regarding utilisation of Current assets.

However, it appears that fixed assets are not being fully utilised. Investments in fixed assets have more than doubled during years 2 and 3. The Fixed assets turnover ratio has sharply fallen to 2.58 in year 3 from 3.75 in year 1. Thus, investment in fixed assets are either excessive, or the capacity of the additional plant is under utilised. This is corroborated by the fact that sales in the latter 2-year have increased by around 15%. Therefore, the remedy lies in utilising the plant capacity by increasing production and sales.

9. Incremental analysis whether cash discount should be offered

Particulars	*Amount (₹)*
Incremental sales revenues (1,000 units × ₹100)	1,00,000
Less: Variable costs (1,000 units × ₹ 50)	50,000
Incremental contribution	50,000
Add: Savings in interest cost due to decrease in investment in debtors *[(Refer to working note (iii)]*	3,333
	53,333
Less: Cost of additional working capital required (₹ 20,000 × 0.20)	4,000
Less: Cash discount (0.02 X 11,000 units × 0.5 × ₹ 100)	11,000
Incremental profit	38,333

Recommendation: It is advised that the firm should offer cash discount.

Working Notes:

(i) Savings due to decrease in collection period:

Present investment in debtors (without cash discount)

= [(10,000 × ₹ 50) + ₹ 2,00,000] /12 (360 days/ 30) = ₹ 58,333

(ii) Expected investment in debtors (with cash discount)

[(11,000 × ₹50) + ₹ 2,00,000] /18 (360 days/ 20) = ₹ 41,667

(iii) Decrease in investment in debtors = ₹58,333 - ₹41,667 = ₹ 16,666

(Refer to working notes (i) & (ii)

Savings in interest cost (₹16,666 × 0.20) = ₹3,333

10. (a) Concept of Indian Depository Receipts: The concept of the depository receipt mechanism which is used to raise funds in foreign currency has been applied in the Indian capital market through the issue of Indian Depository Receipts (IDRs). Foreign companies can issue IDRs to raise funds from Indian market on the same lines as an Indian company uses ADRs /GDRs to raise foreign capital. The IDRs are listed and traded in India in the same way as other Indian securities are traded.

(b) Advantages of Issue of Preference Shares are:

(i) No dilution in EPS on enlarged capital base.

(ii) There is no risk of takeover as the preference shareholders do not have voting rights.

(iii) There is leveraging advantage as it bears a fixed charge.

(iv) The preference dividends are fixed and pre-decided. Preference shareholders do not participate in surplus profit as the ordinary shareholders

(v) Preference capital can be redeemed after a specified period.

(c) Time value of money means that worth of a rupee received today is different from the worth of a rupee to be received in future. The preference of money now as compared to future money is known as time preference for money.

A rupee today is more valuable than rupee after a year 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.

Many financial problems involve cash flow accruing at different points of time for evaluating such cash flow an explicit consideration of time value of money is required.