

PAPER – 3 : COST ACCOUNTING AND FINANCIAL MANAGEMENT

PART I : COST ACCOUNTING

QUESTIONS

Material

1. The following information has been extracted from the records of a cotton merchant, for the month of March, 2013:

Sales for the month: ₹ 62,00,000

Opening Stock as on 01.03.2013: 22,000 kgs @ ₹ 58.50.

Purchases made during the month

Date	Quantity (kgs.)	Rate (₹)
03.03.2013	35,000	59.00
18.03.2013	32,000	59.50
25.03.2013	22,000	60.00

(on all the above purchases, freight is paid @ ₹ 1.75 per kgs)

Closing stock as on 31.03.2013: 23,000 kgs

Salary paid to accountant ₹ 11,000.

From the above information you are required to calculate the following:

- (i) Value of closing stock as on 31.03.2013 (using First In First Out (FIFO) method)
- (ii) Cost of goods sold during March, 2013 and
- (iii) Profit for the month of March, 2013.

Labour

2. Mr. X had been allotted a work which had to be completed within 80 hours. He took 74 hours to complete the work. The company pays incentive bonus of 10% on the hourly rate if standard time is achieved and a further incentive bonus of 2% on hourly rate for each 1% in excess of 100% efficiency is payable. The normal wage rate is ₹ 30 per hour.

Calculate the effective wage rate per hour worked and total wages to be paid to Mr. X.

Overheads

3. A textile company purchases cotton from the farmers and produces shirtings as final product. Cotton is processed into two departments namely Weaving department and Dying department. The following are the cost details for the two departments for the month of January, 2013.

	Weaving Deptt.	Dying Deptt.
Capacity	7200 hours	3000 hours
	(₹)	(₹)
Direct Labour	1,72,800	72,000
Material consumed	1,80,000	64,000
Depreciation	30,000	10,000
Overhead apportioned	15,000	3,200
Power consumption per hour @ ₹3.20 per unit	96	32

During the month both departments worked at 80% of their capacity and out of these 400 hours were expected to be lost due to unavoidable reasons. The normal processing time to process 100 meter of raw product is 3.5 hours and 2 hours in Weaving department and Dying department respectively.

At the end of the month 1,00,000 meter of completed shirting were produced and 50,000 meter of the shirting were in incomplete condition on which processing in Dying department is needed. There was no stock at the beginning of the month. No power is consumed during idle time.

You are required to calculate:

- (i) Machine hour rate for the two departments.
- (ii) Cost of 1,00,000 meter of completed shirtings
- (iii) Cost of abnormal idle time to be charged to costing profit and loss account.

Non Integrated Accounts

4. The following incomplete accounts are furnished to you for the month ended 31st March, 2013.

Dr.		Stores Control Account			Cr.
1.03.13	To Balance b/d	54,000			

Dr.		Work in Progress Control Account			Cr.
1.03.13	To Balance b/d	6,000			

Dr.		Finished Goods Control Account			Cr.
1.03.13	To Balance b/d	75,000			

Dr.	Factory Overhead Control Account					Cr.
	Total debits for March,13	45,000				
Dr.	Fixed Overhead Applied Account					Cr.
Dr.	Cost of Goods Sold Account					Cr.
Dr.	Creditors Account					Cr.
			1.03.13	By Balance b/d	30,000	

Additional Information:

- The factory overheads are applied by using a budgeted rate based on direct labour hours. The budget for overheads for 2012-13 is ₹ 6,75,000 and budget of direct labour hours is 4,50,000.
- The balance in the account of creditors on 31.03.2013 is ₹ 15,000 and payments made to creditors in March, 2013 amount to ₹ 1,05,000.
- The finished goods inventory as on 31st March, 2013 is ₹ 66,000.
- The cost of goods sold during the month was ₹ 1,95,000.
- on 31st March, 2013, there was only one unfinished job in the factory. The cost records show that ₹ 3,000 (1,200 direct labour hours) of direct labour cost and ₹ 6,000 of direct material cost had been charged.
- A total of 28,200 direct labour hours were worked in March, 2013. All factory workers earn same rate of pay.
- All actual factory overheads incurred in March, 2013 have been posted.

You are required to find:

- Materials purchased during March, 2013.
- Cost of goods completed in March, 2013.
- Overheads applied to production in March, 2013.
- Balance of work in progress on 31st March, 2013.
- Direct materials consumed during March, 2013.
- Balance of Stores Control Account on 31st March, 2013.

(vii) Over-absorbed or under-absorbed overheads for March, 2013.

Method of Costing (I)

5. Giant Construction Ltd. has been constructing a flyover for 15 months and is under progress. The following information relating to the work on the contract has been prepared for the period ended 31st March, 2013.

	Amount (₹)
Contract price	65,00,000
Value of work certified at the end of the year	57,20,000
Cost of work not yet certified at the end of the year	1,20,000
Opening balances:	
Cost of work completed	8,00,000
Materials on site	80,000
Costs incurred during the year:	
Material delivered to site	15,90,000
Wages	14,95,000
Hire of plant	2,86,000
Other expenses	2,30,000
Closing balance: Material on site	40,000

As soon as materials are delivered to the site, they are charged to the contract account. A record is kept on actual use basis, periodically a stock verification is made and any discrepancy between book stock and physical stock is transferred to a general contract material discrepancy account. The stock verification at the year end revealed a stock shortage of ₹ 15,000.

In addition to the direct charges listed above, general overheads are charged to contracts at 5% of the value of work certified. General overheads of ₹ 35,000 had been absorbed into the cost of work completed at the beginning of the year.

It has been estimated that further costs to complete the contract will be ₹ 5,72,000. This estimate includes the cost of materials on site at the end of the year (31.3.2013) and also a provision for rectification.

Required:

- Determine profitability of the above contract and recommend how much profit should be taken for the year just ended. (Provide a detailed schedule of costs).
- State how your recommendation in (i) would be affected if the contract price was ₹ 80,00,000 (rather than ₹ 65,00,000) and if no estimate has been made of costs to completion.

Method of Costing (II)

6. MTK Ltd. purchased 10,000 kgs. of a basic material @ ₹ 12 per kg and issued it for further processing in purifying department. In purifying department wages paid amounted to ₹ 4,200 and overhead was applied @ 150% of the labour cost. Indirect materials costing ₹ 1,500 were introduced into the process. The normal yield from the process is 90%. 9,100 kgs of output was obtained from this purifying process. Any difference in weight between the input of basic material and output of purified material can be sold @ ₹ 1.50 per kg.

The process is operated under a licence for which royalty @ ₹ 0.20 per kg. of purified material produced is paid.

You are required to prepare:

- (i) Purifying process Account
- (ii) Normal loss Account
- (iii) Abnormal loss/ gain Account
- (iv) Royalty Payable Account.

Standard Costing

7. J&J Ltd. produces an article by blending two basic raw materials. The following standards have been set up for raw materials:

Material	Standard Mix	Standard Price per kg.
A	40%	₹ 5.00
B	60%	₹ 4.00

The standard loss in processing is 10%. During March, 2013, the company produced 2,250 kg. of finished output.

The position of stock and purchases for the month of March, 2013 is as under:

Material	Stock on 1.3.2013	Stock on 31.3.2013	Purchase during March, 2013
A	40 kg.	20 kg.	800 kg. for ₹4,800
B	50 kg.	15 kgs	1800 kg. for ₹ 7,560

Calculate the following variances:

- (i) Material price variance
- (ii) Material usage variance
- (iii) Materials yield variance
- (iv) Materials mix variance

(v) Material Cost Variance

Assume FIFO method for issue of material. The opening stock is to be valued at standard price.

Marginal Costing

8. The ratio of variable cost to sales is 60%. The break-even point occurs at 80% of the capacity sales.
- Find the capacity sales when fixed costs are ₹ 1,60,000
 - Compute profit at 80% of the capacity sales.
 - Find profit if sales is ₹ 5,70,000 and fixed cost remain same as above.
 - Find sales, if desired profit is ₹ 44,000, and fixed cost is ₹ 1,42,000.

Budgets and Budgetary Control

9. M/s NNSG Ltd, specialised in manufacturing of piston rings for motor vehicle. It has prepared budget for 8,000 units per annum at budgeted cost of ₹ 21,64,400 as detailed below:

	(₹)	(₹)
Fixed cost (Manufacturing)		2,28,000
Variable costs:		
Power	18,000	
Repairs, etc.	16,000	
Other variable cost	6,400	
Direct material	6,16,000	
Direct labour	<u>12,80,000</u>	<u>19,36,400</u>
		<u>21,64,400</u>

Considering the possible impact on sales turnover by market trends, the company decides to prepare flexible budget with a production target of 4,000 and 6,000 units. On behalf of the company you are required to prepare a flexible budget for production levels at 50% and 75%.

Assuming the selling price per unit is maintained at ₹ 400 as at present, indicate the effect on net profit. Administration, selling and distribution overheads continue at ₹72,000.

Miscellaneous.

10. (i) Define the terms 'cost centre' and 'cost unit'.
 (ii) Distinguish between Variable cost and direct cost.

- (iii) Define Product costs. Describe three different purposes for computing product costs.
- (iv) Explain briefly the procedure for the valuation of Work-in-process.

SUGGESTED ANSWERS / HINTS

Cost Accounting

1. Working Notes

Date	Particulars	Qty. (kgs)	Rate (₹)	Value (₹)
1.3.2013	Opening Stock (A)	<u>22,000</u>	58.50	<u>12,87,000</u>
3.3.2013	Purchase	35,000	60.75*	21,26,250
18.3.2013	Purchase	32,000	61.25*	19,60,000
25.3.2013	Purchase	<u>22,000</u>	61.75*	<u>13,58,500</u>
	Total Purchase (B)	89,000		54,44,750
	Total (A+B) (C)	1,11,000		67,31,750
31.3.2013	Closing Stock (D)	23,000		
	Quantity issued during March, 13 (C-D)	88,000		53,12,000#

* Cost of purchase includes freight paid @ ₹ 1.75 per kgs

Value of material issued under FIFO method

Quantity (kgs)	Rate (₹)	Value (₹)
22,000	58.50	12,87,000
35,000	60.75	21,26,250
31,000	61.25	18,98,750
88,000		53,12,000

(i) Value of Closing Stock as on 31.03.2013 using FIFO method

	(₹)
Value of Opening Stock	12,87,000
Add: Purchases made	<u>54,44,750</u>

	67,31,750
Less: Value of material issued	<u>53,12,000</u>
Value of Closing Stock	<u>14,19,750</u>
(ii) Cost of Goods Sold	
= Cost of materials issued =	53,12,000
(iii) Profit for the month of March, 2013	
	(₹)
Value of Material issued	53,12,000
Add: Accountant's Salary	<u>11,000</u>
Total Cost	53,23,000
Less: Sales Value	<u>62,00,000</u>
Profit	<u>8,77,000</u>

2. Working Note:

Standard time (Time allowed)	80 hours
Actual time taken	74 hours

$$\therefore \text{Efficiency} = \frac{\text{Standard Time}}{\text{Actual Time Taken}} \times 100$$

$$= \frac{80 \text{ hours}}{74 \text{ hours}} \times 100 = 108\% \text{ (appx.)}$$

(i) Effective wage rate per hour worked

	Amount (₹)
Normal wage rate per hour	30.00
Add: Incentive bonus for work completed within standard time i.e. 10% of ₹ 30.00	3.00
Add: Incentive bonus for efficiency i.e. 2% for every 1% efficiency (108 – 100) x 2% or 16% of ₹ 30.00	4.80
Effective hourly rate	37.80

(ii) Wages to be paid to Mr. X

$$= 74 \text{ hours} \times ₹ 37.80 = ₹ 2,797.20$$

3. (i) Computation of Machine hour rate

	Weaving Deptt.(₹)	Dying Deptt.(₹)
Direct labour	1,72,800	72,000
Material consumed	1,80,000	64,000
Depreciation	30,000	10,000
Overhead apportioned	<u>15,000</u>	<u>3,200</u>
	A <u>3,97,800</u>	<u>1,49,200</u>
Normal production hours	B (7,200 x 80%) – 400 = 5360 hrs	(3000 x 80%) – 400 = 2000 hrs
Rate per hour (A ÷ B)	C 74.22	74.60
Power consumption cost per hour	<u>96.00</u>	<u>32.00</u>
Machine hour rate	<u>170.22</u>	<u>106.60</u>

(ii) Cost of 1,00,000 meter of completed shirtings

$$\text{Weaving cost} = 1,00,000 / 100 \times (3.5 \times 170.22) = 5,95,770$$

$$\text{Dying cost} = 1,00,000 / 100 \times (2 \times 106.60) = \underline{2,13,200}$$

$$\text{Total cost} \quad \quad \quad \underline{8,08,970}$$

(iii) Cost of abnormal idle time to be charged to the costing profit and loss account

	Weaving Deptt.	Dying Deptt.
Total working hours at 80% capacity	5760	2400
Less: Normal idle time	<u>400</u>	<u>400</u>
Normal production hour	A 5360	2000
Hours for production:		
Weaving Deptt.(1000 + 500) mtr x3.5 hour	B 5250	
Dying Deptt. 1000 mtr x 2 hour		2000
Abnormal idle time	C 110	Nil
Abnormal idle time cost	110 hrs x ₹ 74.22 = ₹ 8164.20	

4. Working Notes

(a) Overhead recovery rate per direct labour hour

$$\text{Budgeted factory overheads} \quad \quad \quad \text{₹ 6,75,000}$$

(iv) Balance of Work-in-progress on 31st March, 2013

	(₹)
Direct Material cost	6,000
Direct labour cost	3,000
Overheads (1200 hours x ₹ 1.50)	<u>1,800</u>
	<u>10,800</u>

(v) Direct Material consumed during March, 2013

Dr. Work in progress Control A/c. Cr.

Date	Particulars	Amount (₹)	Date	Particulars	Amount (₹)
1.3.2013	To Opening balance	6,000		By finished goods	1,86,000
	To Direct wages	70,500	31.3.2013	By balance of WIP	10,800
	To Factory Overheads	42,300			
	To Material consumed (balancing figure)	<u>78,000</u>			
		<u>1,96,800</u>			<u>1,96,800</u>

(vi) Balance of Stores Control Account on 31st March, 2013

Dr. Stores Control A/c. Cr.

Date	Particulars	Amount (₹)	Date	Particulars	Amount (₹)
1.3.2013	To Opening balance	54,000		By WIP control A/c	78,000
	To Creditors A/c	<u>90,000</u>	31.3.2013	By Balance c/d	<u>66,000</u>
		<u>1,44,000</u>			<u>1,44,000</u>

(vii) Over-absorbed or under-absorbed overheads for March, 2013

Dr. Factory Overhead A/c. Cr.

Date	Particulars	Amount (₹)	Date	Particulars	Amount (₹)
	To General Ledger adj. A/c.	45,000	31.03.13	By Factory overhead applied	42,300
		<u>45,000</u>		By costing P/L A/c (under- absorbed)	<u>2,700</u>
					<u>45,000</u>

5. Schedule of costs

	Amount (₹)	Amount (₹)
Cost incurred: Opening balance		8,00,000
During the year Material consumed:		
Opening Stock	80,000	
<i>Add:</i> Material delivered during the year	<u>15,90,000</u>	
	16,70,000	
<i>Less:</i> Closing stock	<u>40,000</u>	16,30,000
Wages		14,95,000
Hire of plant		2,86,000
Other expenses		2,30,000
Material discrepancy (Actual)		15,000
General overheads 5% of ₹ 57,20,000	2,86,000	
<i>Less:</i> Absorbed at the beginning of the year	<u>35,000</u>	<u>2,51,000</u>
		47,07,000
Estimated further cost to complete		<u>5,72,000</u>
Estimated Total Cost		52,79,000
Contract Price		<u>65,00,000</u>
Estimated Total Profit		12,21,000

(i) Profit to be transferred to Profit and loss account:

$$\text{Estimated Profit} \times \frac{\text{Value of work certified}}{\text{Contract price}} \times \frac{12 \text{ months}}{15 \text{ months}}$$

$$= ₹ 12,21,000 \times \frac{57,20,000}{65,00,000} \times \frac{12}{15} = ₹ 8,59,584$$

(ii) If contract price was ₹ 80 lakhs and if no estimate has been made of costs to completion

Value of work certified at the end of year = ₹ 57,20,000 i.e. 71.5% of work has been completed. In such case notional profit has to be calculated instead of estimated profit.

Value of work certified	₹ 57,20,000
<i>Add:</i> Cost of work not certified	<u>₹ 1,20,000</u>
	58,40,000

Less: Cost of work upto the end of year	<u>47,07,000</u>
Notional Profit	<u>11,33,000</u>

Recommendation in (i) above would be affected as follows:

Assumption: Cash received is assumed as 90% of value of work certified. Then, the following formula is to be applied for the profit to be credited to Profit and loss A/c. for the year just ended.

$$\frac{2}{3} \times \text{Notional profit} \times \frac{12 \text{ months}}{15 \text{ months}} \times \frac{\text{Cash received}}{\text{Value of work certified}}$$

$$\frac{2}{3} \times 11,33,000 \times \frac{12}{15} \times \frac{90}{100} = ₹ 5,43,840$$

6. (i) **Purifying Process A/c.**

	Qty (kg)	Rate (₹)	Amt. (₹)		Qty (kg)	Rate (₹)	Amt. (₹)
To Basic Material	10,000	12	1,20,000	By Normal loss (10% of 10,000 kgs)	1,000	1.50	1,500
To Wages			4,200	By Work in process A/c (output transferred)	9,100	14.50	1,31,950
To Overheads @ 150% of ₹ 4,200			6,300				
To Indirect materials			1,500				
To Abnormal gain	100	14.50	1,450				
	10,100		1,33,450		10,100		1,33,450

$$* \text{ Cost per unit} = \frac{\text{Total cost} - \text{Realisation from normal loss}}{\text{Quantity introduced} - \text{Normal loss}} = \frac{1,32,000 - 1,500}{10,000 - 1,000} = ₹ 14.50$$

(ii) **Normal loss A/c.**

	Qty (kg)	Rate (₹)	Amt. (₹)		Qty (kg)	Rate (₹)	Amt. (₹)
To Purifying process A/c.	1,000	1.50	1,500	By Cash A/c	900	1.50	1,350
				By Abnormal gain A/c	100	1.50	150
	1,000		1,500		1,000		1,500

(iii) Abnormal gain A/c

	Qty (kg)	Rate (₹)	Amt. (₹)		Qty (kg)	Rate (₹)	Amt. (₹)
To Normal loss A/c	100	1.50	150	By Purifying process A/c	100	14.50	1450
To Costing P&L A/c			1300				
	100		1,450		100		1,450

(iv) Royalty A/c

	Amt. (₹)		Amt. (₹)
		By Production A/c (9100 kgs x ₹ 0.20)	1820

Working Note:

Production A/c

	Qty (kg)	Rate (₹)	Amt. (₹)		Qty (kg)	Rate (₹)	Amt. (₹)
To W-I-P A/c (Purifying Process A/c)	9,100	14.50	1,31,950	By Finished Stock A/c.	9,100	14.70	1,33,770
To Royalty A/c	9,100	0.20	1820				
			1,33,770				1,33,770

7. Working Notes:

$$(a) \text{ Standard input} = \frac{\text{Actual output}}{90\%} = \frac{2,250 \text{ kg.}}{90\%} = 2,500 \text{ kg.}$$

$$\text{Standard input of material- A} \quad 2,500 \text{ kg.} \times 40\% \quad = 1,000 \text{ kg.}$$

$$\text{Standard input of material- B} \quad 2,500 \text{ kg.} \times 60\% \quad = 1,500 \text{ kg.}$$

$$(b) \text{ Actual input} = (\text{Opening Stock} + \text{Purchases} - \text{Closing Stock})$$

$$\text{Actual input of material- A} \quad (40 \text{ kg.} + 800 \text{ kg.} - 20 \text{ kg.}) \quad = 820 \text{ kg.}$$

$$\text{Actual input of material- B} \quad (50 \text{ kg.} + 1800 \text{ kg.} - 15 \text{ kg.}) \quad = \underline{1835 \text{ kg.}}$$

$$\text{Total actual input} \quad \underline{2655 \text{ kg.}}$$

$$(c) \text{ Standard Cost}$$

$$\text{Material- A} \quad 1000 \text{ kg.} @ ₹ 5.00 \text{ per kg} \quad = ₹ 5,000$$

Material- B 1500 kg. @ ₹ 4.00 per kg	= ₹ 6,000
	<u>₹11,000</u>

(d) Actual Cost

Material- A 40 kg. @ ₹ 5.00 per kg	= ₹ 200	
780 kg. @ ₹ 6.00 per kg	= ₹ 4,680	= ₹ 4880
Material- B 50 kg. @ ₹ 4.00 per kg	= ₹ 200	
1,785 kg. @ ₹ 4.20 per kg	= ₹ 7,497	= ₹ 7,697
		<u>₹ 12,577</u>

(i) Material Price Variance = Actual Quantity (Std. Rate – Actual Rate)

Material- A = 40 kg (₹ 5.00 - ₹ 5.00)	=	Nil
780 kg (₹ 5.00 - ₹ 6.00)	=	₹ 780 (A)
Material- B = 50 kg. (₹ 4.00 - ₹ 4.00)	=	Nil
1785 kg (₹ 4.00 - ₹ 4.20)	=	<u>₹ 357 (A)</u>
		<u>₹ 1,137 (A)</u>

(ii) Material Usage Variance = Std. Rate (Standard Quantity – Actual Quantity)

Material- A = ₹ 5.00 (1,000 kg. – 820 kg)	=	₹ 900 (F)
Material- B = ₹ 4.00 (1,500 kg. – 1835 kg.)	=	<u>₹ 1,340 (A)</u>
		<u>₹ 440 (A)</u>

(iii) Material Yield Variance = Std. Rate (Std. Quantity – Revised Std. Quantity)

Material- A = ₹ 5.00 (1,000 kg. – 2655 x 40%)		
= ₹ 5.00 (1,000 kg. – 1062 kg.)	=	₹ 310 (A)
Material- B = ₹ 4.00 (1,500 kg – 2655 x 60%)		
= ₹ 4.00 (1,500 kg. – 1593 kg.)	=	<u>₹ 372 (A)</u>
		<u>₹ 682 (A)</u>

(iv) Material mix variance = Std. Rate (Revised Std. Quantity – Actual Quantity)

Material- A = ₹ 5.00 (2655 x 40% - 820 kg.)		
= ₹ 5.00 (1062 kg. – 820 kg)	=	₹ 1210 (F)
Material- B = ₹ 4.00 (2655 x 60% - 1835 kg.)		
= ₹ 4.00 (1593 kg. – 1835 kg.)	=	<u>₹ 968 (A)</u>
		<u>₹ 242 (F)</u>

$$\begin{aligned} \text{(v) Material Cost Variance} &= \text{Std. Cost} - \text{Actual cost} \\ &= ₹ 11,000 - ₹ 12,577 \\ &= ₹ 1,577 \text{ (A)} \end{aligned}$$

8. (i) Ratio of variable cost to sales = 60%

Hence, P/V ratio is 40%

$$\text{Break-even point} = \frac{\text{Fixed Cost}}{\text{P/V Ratio}} = \frac{₹ 1,60,000}{40\%} = ₹ 4,00,000$$

Break-even point is 80% of sales at 100% capacity

$$\text{Therefore, Sales at 100\% Capacity} = \frac{₹ 4,00,000}{80\%} = ₹ 5,00,000$$

- (ii) at 80% of capacity sales = 80% of ₹ 5,00,000 = ₹ 4,00,000

$$\begin{aligned} \text{Profit at 80\% sales capacity i.e.} &= (\text{₹ 4,00,000} \times \text{P/V ratio}) - \text{Fixed Cost} \\ &= (\text{₹ 4,00,000} \times 40\%) - ₹ 1,60,000 \\ &= \text{Nil} \end{aligned}$$

- (iii) When sales is ₹ 5,70,000 and fixed cost is ₹ 1,60,000

$$\text{Contribution} = ₹ 5,70,000 \times 40\% = ₹ 2,28,000$$

$$\begin{aligned} \therefore \text{Profit} &= \text{Contribution} - \text{fixed cost} \\ &= ₹ 2,28,000 - ₹ 1,60,000 = ₹ 68,000 \end{aligned}$$

- (iv) Required Contribution to earn profit of ₹ 44,000 when fixed cost is ₹ 1,42,000

$$= ₹ 44,000 + ₹ 1,42,000 = ₹ 1,86,000$$

Since, P/V ratio is 40%, therefore, Sales = ₹ 1,86,000 / 40% = ₹ 4,65,000

9. **Flexible Budget**

Activity Level	50%	75%	100%
Production (units)	4,000	6,000	8,000
	(₹)	(₹)	(₹)
Sales @ ₹ 400 per unit	<u>16,00,000</u>	<u>24,00,000</u>	<u>32,00,000</u>
<i>Variable costs :</i>			
Direct Materials	3,08,000	4,62,000	6,16,000
Direct Labour	6,40,000	9,60,000	12,80,000
Power	9,000	13,500	18,000
Repairs etc.	8,000	12,000	16,000

Other variable cost	<u>3,200</u>	<u>4,800</u>	<u>6,400</u>
Total Variable Costs:	<u>9,68,200</u>	<u>14,52,300</u>	<u>19,36,400</u>
<i>Fixed costs :</i>			
Manufacturing	2,28,000	2,28,000	2,28,000
Administration, Selling and Distribution	<u>72,000</u>	<u>72,000</u>	<u>72,000</u>
Total Fixed Costs:	<u>3,00,000</u>	<u>3,00,000</u>	<u>3,00,000</u>
Total Costs	<u>12,68,200</u>	<u>17,52,300</u>	<u>22,36,400</u>
Profit (Sales – Variable Cost) – Fixed Cost	<u>3,31,800</u>	<u>6,47,700</u>	<u>9,63,600</u>

10. (i) **Cost Centre:** The term cost centre is defined as a location, person or an item of equipment or a group of these for which costs may be ascertained and used for the purposes of cost control. Cost centres can be personal cost centres, impersonal cost centres, operation cost centres and process cost centres.

Cost Unit: The term cost unit is defined as a unit of quantity of product, service or time (or a combination of these) in relation to which costs may be ascertained or expressed. It can be for a job, batch, or product group.

- (ii) **Variable and Direct Cost:** A variable cost is a cost that changes in total in direct proportion to changes in the related total activity or volume. Cost of material is an example of variable cost.

Direct cost is a cost which can be identified either with a cost centre or with a cost unit. An example of direct cost is the allocation of direct materials to a department and then to the various jobs. All variable costs are direct-but each direct cost may not be variable.

- (iii) **Definition of Product Costs:** Product costs are inventoriable costs. These are the costs, which are assigned to the product. Under marginal costing variable manufacturing costs and under absorption costing, total manufacturing costs constitute product costs.

Purposes for Computing Product Costs: The three different purposes for computing product costs are as follows:

- (a) **Preparation of Financial Statements:** Here focus is on inventoriable costs.
- (b) **Product Pricing:** It is an important purpose for which product costs are used. For this purpose, the cost of the areas along with the value chain should be included to make the product available to the customer.
- (c) **Contracting with Government Agencies:** For this purpose government agencies may not allow the contractors to recover research and development and marketing costs under cost plus contracts.

- (iv) **Valuation of Work-in process:** The valuation of work-in-process can be made in the following three ways, depending upon the assumptions made regarding the flow of costs.
- First-in-first-out (FIFO) method
 - Last-in-first-out (LIFO) method
 - Average cost method

A brief account of the procedure followed for the valuation of work-in-process under the above three methods is as follows;

FIFO method: According to this method the units first entering the process are completed first. Thus the units completed during a period would consist partly of the units which were incomplete at the beginning of the period and partly of the units introduced during the period. The cost of completed units is affected by the value of the opening inventory, which is based on the cost of the previous period. The closing inventory of work-in-process is valued at its current cost.

LIFO method: According to this method units last entering the process are to be completed first. The completed units will be shown at their current cost and the closing-work in process will continue to appear at the cost of the opening inventory of work-in-progress along with current cost of work in progress if any.

Average cost method: According to this method opening inventory of work-in-process and its costs are merged with the production and cost of the current period, respectively. An average cost per unit is determined by dividing the total cost by the total equivalent units, to ascertain the value of the units completed and units in process.

PART II: FINANCIAL MANAGEMENT

QUESTIONS

1. Answer the following, supporting the same with reasoning/working notes:
 - (a) "Debtors Turnover is a measure of Debt Service capacity of a firm". Do you agree with this statement? Explain.
 - (b) Ratio Analysis can be used to study liquidity, turnover, profitability, etc. of a firm. What does Debt-Equity Ratio help to study?
 - (c) "Equity capital does not carry any cost." Do you agree with this statement? Explain.
 - (d) "In a closed-ended lease, the lessee has the option of purchasing the asset at the end of the lease period." Do you agree with this statement? Explain.
 - (e) What are Certificates of Deposits? Explain in brief.

Working Capital Management

2. Alpha Limited has forecasted the following information for the year ending 31st March, 2012:

	Balance as at 1 st April, 2011	Balance as at 31 st March, 2012
	₹	₹
Raw Material	45,000	65,356
Work-in-progress	35,000	51,300
Finished goods	60,181	70,175
Debtors	1,12,123	1,35,000
Creditors	50,079	70,469
Annual purchases of raw material (all credit)		4,00,000
Annual cost of production		7,50,000
Annual cost of goods sold		9,15,000
Annual operating cost		9,50,000
Annual sales (all credit)		11,00,000

You may take one year as equal to 365 days.

You are required to calculate:

- (i) Net operating cycle period.
- (ii) Number of operating cycles in the year.

(iii) Amount of working capital requirement.

Investment Decisions

3. The management of Beta Limited is evaluating the following data on a capital project:

	Project X
Annual cost saving	₹ 40,000
Useful life	4 years
IRR	15%
Profitability Index (PI)	1,064
NPV	?
Cost of capital	?
Cost of project	?
Payback	?
Salvage value	0

Find the missing values considering the following table of discount factor only:

Discount factor	15%	14%	13%	12%
1 Year	0.869	0.877	0.885	0.893
2 Years	0.756	0.769	0.783	0.797
3 Years	0.658	0.675	0.693	0.712
4 Years	0.572	0.592	0.613	0.636
	2.855	2.913	2.974	3.038

Financing Decisions

4. Calculate the operating leverage, financial leverage and combined leverage from the following data under Situation I and II and Financial Plan A and B:

Installed Capacity	4,000 units
Actual Production and Sales	75% of the Capacity
Selling Price	₹ 30 Per Unit
Variable Cost	₹ 15 Per Unit

Fixed Cost:

Under Situation I	₹ 15,000
Under Situation-II	₹ 20,000

Capital Structure:

	Financial Plan	
	A ₹	B ₹
Equity	10,000	15,000
Debt (Rate of Interest at 20%)	<u>10,000</u>	<u>5,000</u>
	<u>20,000</u>	<u>20,000</u>

Financing Decisions

5. Theta Limited, a manufacturer of steel pipes, has the following book value capital structure:

	₹
Equity Capital (in shares of ₹10 each, fully paid up- at par)	15 crores
11% Preference Capital (in shares of ₹ 100 each, fully paid up- at par)	1 crore
Retained Earnings	20 crores
13.5% Debentures (of ₹ 100 each)	10 crores
15% Term Loans	12.5 crores

The next expected dividend on equity shares per share is ₹ 3.60; the dividend per share is expected to grow at the rate of 7%. The market price per share is ₹ 40.

Preference stock, redeemable after ten years, is currently selling at ₹ 75 per share.

Debentures, redeemable after six years, are selling at ₹ 80 per debenture.

The Income tax rate for the company is 40%. You are required to calculate the weighted average cost of capital using:

- Book value proportions; and
- Market value proportions.

Financial Analysis and Planning

6. You are required to prepare Cash Flow Statement from the information given in Income Statement and Balance Sheet of Zeta Limited:

Income Statement for the year ended March 31, 2012

	₹
Net Sales (A)	<u>2,52,00,000</u>
Less:	

Cash Cost of Sales		1,98,00,000
Depreciation		6,00,000
Salaries and Wages		24,00,000
Operating Expenses		8,00,000
Provision for Taxation		<u>8,80,000</u>
	(B)	<u>2,44,80,000</u>
Net Operating Profit (A – B)		7,20,000
Non-recurring Income – Profits on sale of equipment		<u>1,20,000</u>
		8,40,000
Retained earnings and profits brought forward		<u>15,18,000</u>
		23,58,000
Dividends declared and paid during the year		<u>7,20,000</u>
Profit and Loss Account balance as on March 31, 2012		<u>16,38,000</u>

Balance Sheet as on

Assets	March 31, 2011 (₹)	March 31, 2012 (₹)
Fixed Assets:		
Land	4,80,000	9,60,000
Buildings and Equipment	36,00,000	57,60,000
Current Assets:		
Cash	6,00,000	7,20,000
Debtors	16,80,000	18,60,000
Stock	26,40,000	9,60,000
Advances	<u>78,000</u>	<u>90,000</u>
	<u>90,78,000</u>	<u>1,03,50,000</u>

Balance Sheet as on

Liabilities and Equity	March 31, 2011 (₹)	March 31, 2012 (₹)
Share Capital	36,00,000	44,40,000
Surplus in Profit and Loss Account	15,18,000	16,38,000
Sundry Creditors	24,00,000	23,40,000

Outstanding Expenses	2,40,000	4,80,000
Income-tax payable	1,20,000	1,32,000
Accumulated Depreciation on Buildings and Equipment	<u>12,00,000</u>	<u>13,20,000</u>
	<u>90,78,000</u>	<u>1,03,50,000</u>

The original cost of equipment sold during the year 2005-06 was ₹ 7,20,000.

Investment Decisions

7. Viceroy Limited has to choose between two machines A and B. The two machines are designed differently, but have identical capacity and do exactly the same job. Machine A costs ₹ 1,50,000 and will last for 3 years. It costs ₹ 40,000 per year to run. Machine B is an economy model costing only ₹ 1,00,000, but will last only for 2 years, and costs ₹ 60,000 per year to run. These are real cash flows. The costs are forecasted in rupees of constant purchasing power. Ignore tax. Opportunity cost of capital is 10 per cent. Which machine Viceroy Limited should buy?

Financial Analysis and Planning

8. Gauravi Limited has furnished the following ratios and information relating to the year ended 31st March, 2012.

Sales	₹ 60,00,000
Return on net worth	25%
Rate of income tax	50%
Share capital to reserves	7:3
Current ratio	2
Net profit to sales	6.25%
Inventory turnover (based on cost of goods sold)	12
Cost of goods sold	₹ 18,00,000
Interest on debentures	₹ 60,000
Sundry debtors	₹ 2,00,000
Sundry creditors	₹ 2,00,000

You are required to:

- Calculate the operating expenses for the year ended 31st March, 2012.
- Prepare a balance sheet as on 31st March in the following format:

Balance Sheet as on 31st March, 2012

Liabilities	₹	Assets	₹
Share Capital		Fixed Assets	
Reserve and Surplus		Current Assets	
15% Debentures		Stock	
Sundry Creditors		Debtors	
		Cash	

Working Capital Management

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

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

There will be increase in fixed cost by ₹ 50,000 on account of increase of sales beyond 25% of present level. The company plans on a pre-tax return of 20% on investment in receivables. You are required to calculate the most paying credit policy for the company.

10. Differentiate between the following:
- Deep Discount Bonds and Zero Coupon Bonds
 - Investment Decision and Financing Decision
 - Operating Leverage and Financial Leverage.

SUGGESTED ANSWERS / HINTS

- No, the statement is incorrect. Interest Coverage Ratio is the measure of Debt Service capacity of a firm while debtor's turnover ratio throws light on the collection and credit policies of the firm.
 - Debt-Equity Ratio is an indicator of leverage of a firm. A high ratio means less protection for creditors while a low ratio indicates a wider safety cushion.

- (c) No, the statement is incorrect. The cost of ordinary shares is usually the highest. This is due to the fact that such shareholders expect a higher rate of return (as their risk is the highest) on their investment as compared to other suppliers of long-term funds.
- (d) No, the statement is incorrect. In fact, in the open-ended lease, the lessee has the option of purchasing the asset at the end of the lease period while in the close-ended lease, the assets get transferred to the lessor at the end of lease, the risk of obsolescence, residual value etc., remain with the lessor being the legal owner of the asset.
- (e) 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. The main advantage of CD is that banker is not required to encash the deposit before maturity period and the investor is assured of liquidity because he can sell the CD in secondary market.

2. Working Notes:

1. Raw Material Storage Period (R)

$$= \frac{\text{Average Stock of Raw Material}}{\text{Annual Consumption of Raw Material}} \times 365$$

$$= \frac{\text{₹ } 55,178}{\text{₹ } 3,79,644} \times 365 = 53 \text{ days.}$$

$$\text{Average Stock of Raw Material} = \frac{45,000 + 65,356}{2} = 55,178$$

$$\begin{aligned} \text{Annual Consumption of Raw Material} &= \text{Opening Stock} + \text{Purchases} - \text{Closing Stock} \\ &= 45,000 + 4,00,000 - 65,356 \\ &= \text{₹ } 3,79,644 \end{aligned}$$

2. Work-in-Progress (WIP) Conversion Period (W)

$$\text{WIP Conversion Period} = \frac{\text{Average Stock of WIP}}{\text{Annual Cost of Production}} \times 365$$

$$= \frac{43,150}{\text{₹ } 7,50,000} \times 365 = 21 \text{ days.}$$

$$\text{Average Stock of WIP} = \frac{35,000 + 51,300}{2} = 43,150$$

3. Finished Stock Storage Period (F)

$$= \frac{\text{Average Stock of Finished Goods}}{\text{Cost of Goods Sold}} \times 365$$

$$= \frac{\text{₹ } 65,178}{\text{₹ } 9,15,000} \times 365 = 26 \text{ days.}$$

$$\text{Average Stock} = \frac{60,181 + 70,175}{2} = \text{₹ } 65,178.$$

4. Debtors Collection Period (D)

$$= \frac{\text{Average Debtors}}{\text{Annual Credit Sales}} \times 365$$

$$= \frac{\text{₹ } 1,23,561.50}{\text{₹ } 11,00,000} \times 365 = 41 \text{ days}$$

$$\text{Average debtors} = \frac{1,12,123 + 1,35,000}{2} = \text{₹ } 1,23,561.50$$

5. Creditors Payment Period (C)

$$= \frac{\text{Average Creditors}}{\text{Annual Net Credit Purchases}} \times 365$$

$$= \frac{60,274}{\text{₹ } 4,00,000} \times 365 = 55 \text{ days.}$$

$$\text{Average Creditors} = \frac{50,079 + 70,469}{2} = 60,274$$

(i) Operating Cycle Period

$$= R + W + F + D - C$$

$$= 53 + 21 + 26 + 41 - 55$$

$$= 86 \text{ days}$$

$$\text{Operating Cycle Period} = 86 \text{ days}$$

(ii) Number of Operating Cycles in the Year

$$= \frac{365}{\text{Operating Cycle Period}} = \frac{365}{86} = 4.244$$

$$\text{Number of Operating Cycles in the Year} = 4.24$$

(iii) **Amount of Working Capital Required**

$$= \frac{\text{Annual Operating Cost}}{\text{Number of Operating Cycles}}$$

$$= \frac{\text{₹ 9,50,000}}{4.24} = \text{₹ 2, 24,057}$$

Amount of Working Capital Required = ₹ 2,24,057

3. Cost of Project X

At 15% I.R.R., the sum total of cash inflows = Cost of the project i.e. Initial cash outlay 11
Given:

Annual cost saving	₹ 40,000
Useful life	4 years
IRR	15%

Now, considering the discount factor table @ 15% cumulative present value of cash inflows for 4 years is 2.855

Therefore,

Total of cash inflows for 4 years for Project X is (₹ 40,000 × 2.855) = ₹ 1,14,200

Hence, cost of the project is = ₹ 1,14,200

Payback period of the Project X

$$\text{Payback period} = \frac{\text{Cost of the project}}{\text{Annual cost saving}}$$

$$= \frac{\text{₹ 1,14,200}}{40,000}$$

$$= 2.855 \text{ or } 2 \text{ years } 11 \text{ months approximately}$$

Cost of Capital

If the profitability index (PI) is 1, cash inflows and outflows would be equal. In this case, (PI) is 1.064. Therefore, cash inflows would be more by 0.64 than outflow.

$$\text{Probability index (PI)} = \frac{\text{Discounted cash inflows}}{\text{Cost of the project}}$$

$$\text{Or } 0.064 = \frac{\text{Discounted cash inflows}}{\text{₹ 1,14,200}}$$

$$\text{or } 1.064 \times \text{₹ 1,14,200} = \text{₹ 1,21,509}$$

Hence discounted cash inflows = ₹ 1,21,509

Since, Annual cost saving is ₹ 40,000. Hence, cumulative discount factor for 4 years

$$= \frac{1,21,509}{40,000} = 3.037725 \text{ or } 3.038$$

Considering the discount factor table at discount rate of 12%, the cumulative discount factor for 4 years is 3.038

Hence, the cost of capital is 12%

Net present value of the project

N.P.V. = Total present values of cash inflows – Cost of the project

$$= ₹ 1,21,509 - ₹ 1,14,200 = ₹ 7,309$$

4.

<i>Operating Leverage:</i>	<i>Situation-I</i> ₹	<i>Situation-II</i> ₹
Sales (s) 3000 units @ ₹ 30/- per unit	90,000	90,000
Less: Variable Cost (VC) @ ₹ 15 per unit	<u>45,000</u>	<u>45,000</u>
Contribution (C)	45,000	45,000
Less: Fixed Cost (FC)	<u>15,000</u>	<u>20,000</u>
Operating Profit (OP) (EBIT)	<u>30,000</u>	<u>25,000</u>

(i) Operating Leverages:

$$\frac{C}{OP} = ₹ \frac{45,000}{30,000} = 1.5 \quad ₹ \frac{45,000}{25,000} = 1.8$$

(ii) Financial Leverages:

	A (Rs.)	B (Rs.)
Situation 1		
Operating Profit (EBIT)	30,000	30,000
Less: Interest on debt	2,000	1,000
PBT	28,000	29,000

$$\text{Financial Leverage} = \frac{\text{OP}}{\text{PBT}} = ₹ \frac{30,000}{28,000} = 1.07 \quad ₹ \frac{30,000}{24,000} = 1.04$$

	A	B
	(₹)	(₹)
Situation-II		
Operating Profit (OP) (EBIT)	25,000	25,000
Less: Interest on debt	<u>2,000</u>	<u>1,000</u>
PBT	<u>23,000</u>	<u>24,000</u>

$$\text{Financial Leverage} = \frac{\text{OP}}{\text{PBT}} = ₹ \frac{25,000}{23,000} = 1.09 \quad ₹ \frac{25,000}{24,000} = 1.04$$

(iii) Combined Leverages:

	A	B
	(₹)	(₹)
(a) Situation I	1.5 x 1.07 = 1.6	1.5 x 1.04 = 1.56
(b) Situation II	1.8 x 1.09 = 1.96	1.8 x 1.04 = 1.87

5. (a) Statement Showing Computation of Weighted Average Cost of Capital by using Book Value Proportions.

Source of finance	Amount (Book value) (₹ in crores)	Weight (Book value proportion)	Cost of capital	Weighted cost of capital
		(a)	(b)	(c) = (a)x(b)
Equity capital	15	0.256	0.16	0.04096
		(Refer to working note 1)		
11% Preference capital	1	0.017	0.1543	0.00262
		(Refer to working note 2)		
Retained earnings	20	0.342	0.16	0.05472
		(Refer to working note 1)		
13.5% Debentures	10	0.171	0.127	0.02171
		(Refer to working note 3)		
15% term loans	12.5	0.214	0.09	0.01926

		(Refer to working note 4)	
	<u>58.5</u>	<u>1.00</u>	
	Weighted average cost of capital		<u>0.013927</u> or 13.93%

(b) Statement Showing Computation of Weighted Average Cost of Capital by using Market Value Proportions

Source of finance	Amount (₹ in crores)	Weight (Market value proportions)	Cost of capital	Weighted cost of capital
		(a)	(b)	(c)=(a)x(b)
Equity capital	60.00	0.739	0.16	0.11824
(₹ 1.5 crores x ₹ 40)		(Refer to working note 1)		
11% Preference capital	0.75	0.009	0.1543	0.00138
(₹ 1 lakh x ₹ 75)		(Refer to working note 2)		
13.5% Debentures	8.00	0.098	0.127	0.01245
(₹ 10 lakhs x ₹ 80)		(Refer to working note 3)		
15% Term loans	12.50	0.154	0.09	0.01386
		(Refer to working note 4)		
	<u>81.25</u>	<u>1.00</u>		
	Weighted average cost of capital			<u>0.14593</u> or 14.59%

Note: Since retained earnings are treated as equity capital for purposes of calculation of cost of specific source of finance, the market value of the ordinary shares may be taken to represent the combined market value of equity shares and retained earnings. The separate market values of retained earnings and ordinary shares may also be worked out by allocating to each of these a percentage of total market value equal to their percentage share of the total based on book value.

Working Notes:

1. Cost of equity capital and retained earnings (K_e)

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

Where, K_e = Cost of equity capital

D_1 = Expected dividend at the end of year 1

P_0 = Current market price of equity share

g = Growth rate of dividend

Now, it is given that $D_1 = ₹ 3.60$, $P_0 = ₹ 40$ and $g = 7\%$

$$\text{Therefore, } K_e = \frac{₹ 3.60}{₹ 40} + 0.07$$

$$\text{or } K_e = 16\%$$

2. *Cost of preference capital (K_p)*

$$K_p = \frac{D + \left[\frac{F - P}{n} \right]}{\left[\frac{F + P}{n} \right]}$$

Where, D = Preference dividend

F = Face value of preference shares

P = Current market price of preference shares

N = Redemption period of preference shares

Now, it is given that $D = 11\%$, $F = ₹ 100$, $P = ₹ 75$ and $n = 10$ years

$$\text{Therefore } K_p = \frac{11 + \left[\frac{₹ 100 - ₹ 75}{10} \right]}{\left[\frac{₹ 100 + ₹ 75}{n} \right]} \times 100 = 15.43 \%$$

3. *Cost of debentures (K_d)*

$$K_d = \frac{r(1-t) \left[\frac{F - P}{n} \right]}{\left[\frac{F + P}{n} \right]}$$

Where, r = Rate of interest

t = Tax rate applicable to the company

F = Face value of debentures

P = Current market price of debentures

n = Redemption period of debentures

Now it is given that $r = 13.5\%$, $t = 40\%$, $F = ₹ 100$, $P = ₹ 80$ and $n = 6$ years

$$\text{Therefore, } K_d = \frac{13.5(1-0.40) + \left[\frac{\text{₹ } 100 - \text{₹ } 80}{6} \right]}{\left[\frac{\text{₹ } 100 + \text{₹ } 80}{6} \right]} \times 100 = 12.70\%$$

4. Cost of term loans (K_t)

$$K_t = r(1-t)$$

Where, r = Rate of interest on term loans

t = Tax rate applicable to the company

Now, r = 15% and t = 40%

Therefore, K_t = 15% (1-0.40) = 9%

6. Cash Flow Statement of Zeta Limited for the year ending March 31, 2012

Cash flows from Operating Activities

	₹
Net Profits before Tax and Extra-ordinary Item	16,00,000
Add: Depreciation	<u>6,00,000</u>
Operating Profits before Working Capital Changes	22,00,000
Increase in Debtors	(1,80,000)
Decrease in Stock	16,80,000
Increase in Advances	(12,000)
Decrease in Sundry Creditors	(60,000)
Increase in Outstanding Expenses	<u>2,40,000</u>
Cash Generated from Operations	38,68,000
Income tax Paid	<u>8,68,000</u>
Net Cash from Operations	<u>30,00,000</u>

Cash flows from Investment Activities

	₹
Purchase of Land	(4,80,000)
Purchase of Buildings and Equipment	(28,80,000)
Sale of Equipment	<u>3,60,000</u>
Net Cash used in Investment Activities	<u>(30,00,000)</u>

Cash flows from Financing Activities

		₹
Issue of Share Capital	8,40,000	
Dividends Paid	<u>(7,20,000)</u>	
Net Cash from Financing Activities		<u>1,20,000</u>
Net increase in Cash and Cash Equivalents		1,20,000
Cash and Cash Equivalents at the beginning		<u>6,00,000</u>
Cash and Cash Equivalents at the end		<u>7,20,000</u>

Buildings and Equipment Account

	₹		₹
Balance b/d	36,00,000	Sale of Asset	7,20,000
Cash/Bank (purchase) (Balancing figure)	<u>28,80,000</u>	Balance c/d	57,60,000
	<u>64,80,000</u>		<u>64,80,000</u>

**Accumulated Depreciation on
Buildings and Equipment Account**

	₹		₹
Sale of Asset (Accumulated depreciation)	4,80,000	Balance b/d	12,00,000
Balance c/d	<u>13,20,000</u>	Profit and Loss (Provisional)	6,00,000
	<u>18,00,000</u>		<u>18,00,000</u>

Sale of Asset Account

	₹
Original Cost	7,20,000
Less: Accumulated Depreciation	<u>4,80,000</u>
Net Cost	2,40,000
Profit on Sale of Asset	<u>1,20,000</u>
Sale Proceeds from Asset Sales	<u>3,60,000</u>

7. Statement showing the Evaluation of Two Machines

Machines	A	B
Purchase cost (₹): (i)	1,50,000	1,00,000

Life of machines (years)	3	2
Running cost of machine per year (₹): (ii)	40,000	60,000
Cumulative present value factor for 1-3 years @ 10%: (iii)	2.486	-
Cumulative present value factor for 1-2 years @ 10%: (iv)	-	1.735
Present value of running cost of machines (₹): (v)	99,440	1,04,100
	[(ii) × (iii)]	[(ii) × (iv)]
Cash outflow of machines (₹): (vi)=(i) +(v)	2,49,440	2,04,100
Equivalent present value of annual cash outflow	1,00,338	1,17,637
	[(vi) ÷ (iii)]	[(vi) ÷ (iv)]

Decision: Viceroy Limited should buy machine A since its equivalent cash outflow is less than machine B.

8. (a) Calculation of Operating Expenses for the year ended 31st March, 2012

		(₹)
Net Profit [@ 6.25% of Sales]		3,75,000
Add: Income Tax (@ 50%)		<u>3,75,000</u>
Profit Before Tax (PBT)		7,50,000
Add: Debenture Interest		<u>60,000</u>
Profit before interest and tax (PBIT)		<u>8,10,000</u>
Sales		60,00,000
Less: Cost of goods sold	18,00,000	
PBIT	<u>8,10,000</u>	<u>26,10,000</u>
Operating Expenses		<u>33,90,000</u>

(b) Balance Sheet as on 31st March, 2012

<u>Liabilities</u>	₹	<u>Assets</u>	₹
Share Capital	10,50,000	Fixed Assets	17,00,000
Reserve and Surplus	4,50,000	Current Assets:	
15% Debentures	4,00,000	Stock	1,50,000
Sundry Creditors	2,00,000	Debtors	2,00,000
		Cash	<u>50,000</u>
	<u>21,00,000</u>		<u>21,00,000</u>

Working Notes:**(i) Share Capital and Reserves**

The return on net worth is 25%. Therefore, the profit after tax of ₹ 3,75,000 should be equivalent to 25% of the networth.

$$\text{Net worth} \times \frac{25}{100} = ₹ 3,75,000$$

$$\therefore \text{Net worth} = \frac{₹ 3,75,000 \times 100}{25} = ₹ 15,00,000$$

The ratio of share capital to reserves is 7:3

$$\text{Share Capital} = 15,00,000 \times \frac{7}{10} = ₹ 10,50,000$$

$$\text{Reserves} = 15,00,000 \times \frac{3}{10} = ₹ 4,50,000$$

(ii) Debentures

Interest on Debentures @ 15% = ₹ 60,000

$$\therefore \text{Debentures} = \frac{60,000 \times 100}{15} = ₹ 4,00,000$$

(iii) Current Assets

Current Ratio = 2

Sundry Creditors = ₹ 2,00,000

$$\begin{aligned} \therefore \text{Current Assets} &= 2 \text{ Current Liabilities} \\ &= 2 \times 2,00,000 = ₹ 4,00,000 \end{aligned}$$

(iv) Fixed Assets

Liabilities:	
Share capital	10,50,000
Reserves	4,50,000
Debentures	4,00,000
Sundry Creditors	<u>2,00,000</u>
	21,00,000
<i>Less: Current Assets</i>	<u>4,00,000</u>
Fixed Assets	17,00,000

(v) **Composition of Current Assets**

Inventory Turnover = 12

$$\frac{\text{Cost of goods sold}}{\text{Closing stock}} = 12$$

$$\text{Closing stock} = \frac{\text{₹ 18,00,000}}{12}$$

Closing stock = ₹ 1,50,000

Composition:	(₹)
Stock	1,50,000
Sundry debtors	2,00,000
Cash (balancing figure)	<u>50,000</u>
Total Current Assets	<u>4,00,000</u>

9. **Evaluation of Credit Policy of Sonachandi Limited**

	<i>Present Policy</i>		<i>Proposed Policy</i>	
	1 month	2 months	3 months	
A. Sales (Units)	10,000	11,500	13,000	
B. Sales income	30,00,000	34,50,000	39,00,000	
Variable cost at ₹ 200 per unit	<u>20,00,000</u>	<u>23,00,000</u>	<u>26,00,000</u>	
Contribution	10,00,000	11,50,000	13,00,000	
Fixed Costs	<u>3,00,000</u>	<u>3,00,000</u>	<u>3,50,000</u>	
C. Net Margin	7,00,000	8,50,000	9,50,000	
D. Investment in receivables (see Working notes)	1,91,666	4,33,333	7,37,500	
E. Expected Return on receivables at 20%	38,333	86,666	1,47,500	
F. Bad Debts	30,000	1,03,500	1,95,000	
G. Net Profit (C-E-F)	6,31,667	6,59,834	6,07,500	
H. Increase in profits	-	28,167	(-) 52,334	

Advise: Sonachandi Limited should adopt the 2 months credit policy as it yields higher return.

Working Notes:

Calculation showing investments in receivables:

$$\text{Formula} = \frac{\text{Variable Cost} + \text{Fixed Cost}}{12} \times \text{No. of months credit.}$$

Investment	
1 month :	$\frac{23,00,000}{12} \times 1 = 1,91,666$
2 months :	$\frac{26,00,000}{12} \times 2 = 4,33,333$
3 months :	$\frac{29,50,000}{12} \times 3 = 7,37,500$

10. (a) **Deep Discount Bonds and Zero Coupon Bonds** : Deep Discount Bonds (DDBs) are in the form of zero interest bonds. These bonds are sold at a discounted value and on maturity face value is paid to the investors. In such bonds, there is no interest payout during lock-in period. IDBI was first to issue a Deep Discount Bonds (DDBs) in India in January 1992. The bond of a face value of Rs.1 lakh was sold for ₹ 2,700 with a maturity period of 25 years.

On the other hand, a zero coupon bond (ZCB) does not carry any interest but it is sold by the issuing company at a discount. The difference between discounted value and maturing or face value represents the interest to be earned by the investor on such bonds.

- (b) **Investment Decision and Financing Decision**: The investment of long term funds is made after a careful assessment of the various projects through capital budgeting and uncertainty analysis. However, only that investment proposal is to be accepted which is expected to yield at least so much return as is adequate to meet its cost of financing. This have an influence on the profitability of the company and ultimately on its wealth. Such types of decisions are known as investment decisions.

On the other hand, Financing Decisions relate to raising of funds from various sources. Each source of funds involves different issues. The finance manager has to maintain a proper balance between long-term and short-term funds. With the total volume of long-term funds, he has to ensure a proper mix of loan funds and owner's funds. The optimum financing mix will increase return to equity shareholders and thus maximise their wealth.

- (c) **Operating Leverage and Financial Leverage**: Operating leverage is defined as the "firm's ability to use fixed operating costs to magnify effects of changes in sales on its earnings before interest and taxes." When there is an increase or decrease in sales level the EBIT also changes. The effect of change in sales on the level of EBIT is measured by operating leverage. Operating leverage occurs—when a firm has fixed costs which must be met regardless of volume of sales. When the firm has

fixed costs, the %change in profits due to change in sales level is greater than the % change in sales.

Whereas, Financial leverage is defined as the ability of a firm to use fixed financial charges to magnify the effects of changes in EBIT/Operating profits, on the firm's earnings per share. The financial leverage occurs when a firm's capital structure contains obligation of fixed financial charges e.g. interest on debentures, dividend on preference shares etc. along with owner's equity to enhance earnings of equity shareholders. The fixed financial charges do not vary with the operating profits or EBIT They are fixed and are to be paid irrespective of level of operating profits or EBIT.