PAPER – 4 : COST ACCOUNTING AND FINANCIAL MANAGEMENT

PART – I : COST ACCOUNTING

QUESTIONS

1. (i) Anuradha Company has a Mumbai Plant that manufactures OTG. One component is an XY chip. Expected demand is for 10,000 of these chips in March, 2009. Anuradha estimates the ordering cost per purchase order to be Rs. 250. The monthly carrying cost for one unit of XY in stock is Rs. 5.

   Required:

   1. Compute the EOQ for the XY chip.
   2. Compute the number of deliveries of XY in March, 2009.

   (ii) The cost accountant of Y Ltd. has computed labour turnover rates for the quarter ended 31st March, 2009 as 5% under 'Replacement method' If the number of workers replaced during that quarter is 30, find out the number of average workers on payroll,

   (iii) A company has made a profit of Rs. 50,000 during the year 2008-09. If the selling price and marginal cost of the product are Rs. 15 and Rs. 12 per unit respectively, find out the amount of margin of safety.

   (iv) If margin of safety is Rs. 2,40,000 (40% of sales) and P/V ratio is 30% of AB Ltd, calculate its (1) Break even sales, and (2) Amount of profit on sales of Rs.9,00,000.

   (v) The standard and actual figures of product 'Z' are as under:

	Standard	Actual
Material quantity	50 units	45 units
Material price per unit	Re. 1.00	Re. 0.80

   Calculate material usage variances.

Introduction to Cost Accounting

2. (i) What items are generally included in good uniform costing manual?

   (ii) What are the main objectives of cost accounting?

Material

3. (i) The purchase department of your company has received an offer of quantity discounts on its orders of materials as under:

Price per ton	Tons ordered	
Rs.		
1,200	less than	500

1,180	500	and less than	1,000
1,160	1,000	and less than	2,000
1,140	2,000	and less than	3,000
1,120	3,000	and above	

The annual requirement for the material is 5,000 tons. The ordering cost per order is Rs. 1,200 and the stock holding cost is estimated at 20% of material cost per annum.

(a) You are required to compute the most economical purchase level.

(b) What will be your answer to the above question, if there are no discount offered and the price per ton is Rs. 1,500.

(ii) Explain the treatment of waste and scrap in cost accounts and suggest a procedure for control.

Labour

4. Calculate the earnings of workers A, B and C under Straight Piece Rate system and Merrick's Multiple Piece Rate system from the following particulars:

Normal Rate per hour Rs. 5.40
Standard time per unit 1 minute
Output per day is as follows:
Worker A 390 units
Worker B 450 units
Worker C 600 units
Working hours per day are 8.

Overheads

5. (i) ABC Limited manufactured two products A and B during the first year of its operations. The company had budgeted Factory Overheads of Rs 3,40,000 against the 2,00,000 budgeted labour hours. This led to an Overhead absorption rate of Rs 1.70 per direct labour hour. This rate was used by the company for Product Costing purposes. Details of Budgeted Overheads and Labour hours are as follows,

	Budgeted Overhead	Budgeted Hours
Department 1	Rs. 2,40,000	Rs. 1,00,000
Department 2	Rs. 1,00,000	Rs. 1,00,000
	Rs 3,40,000	Rs. 2,00,000

The number of labour hours required to manufacture each of these products was:

	Product A	Product B
In Department 1	4	1
In Department 2	1	4
	5	5

There was no work-in-progress at the end of the year. There were, however, 2,000 and 6,000 finished units respectively of products A and B on hand. Assume that budgeted activity was attained.

(a) What was the effect on the Company's income of using a plant wise overhead rate instead of departmental overhead rates?

(b) Assume that material and labour costs per unit of product A were Rs. 10 and that the selling price was established by adding 40 per cent to cover profit and selling and administrative expenses. What difference in selling price would result from the use of departmental overhead rate against plant wise overhead rates?

(ii) Give the difference between the allocation and apportionment.

Non – Integrated Accounting

6. ABC Ltd. operates an integrated accounting system. It is a chemical processing company, which converts three raw materials – W, X and Y – into a final product Z which is used as a fertilizer in the farming industry.

On 30 September, 2008, an extract of the trial balance taken from its ledges was as follows:

	Rs.	Rs.
Raw material control account	15,400	
Work-in-progress control account	21,520	
Production overhead control account		2,360
Abnormal loss account	1,685	
Abnormal gain account		930
Finished goods control account	27,130	

The following notes are also relevant:

1. ABC Ltd. prepares its financial accounts to 31 October each year:
2. The raw material control account balance comprises:

Direct materials:	Rs.
Material X: 4,200 kg @ Rs. 2 per kg.	8,400
Material Y: 1,050 kg @ Rs. 4 per kg.	4,200
Indirect materials	2,800
	15,400

3. The work in progress control account balance companies:

			Rs.
Process 2	8,400 kg	Process 1	8,720
		Materials	2,000
		Labour	3,600
		Overhead	7,200
			21,520

During October, 2008, the following transactions occurred:

(i) Indirect materials purchased on credit amounted to Rs. 1,300.

(ii) Direct materials were purchased on credit as follows:

	Rs.
Material W: 10,500 kg costing	4,960
Material X: 10,000 kg costing	21,000
Material Y: 5,000 kg costing	19,000

(iii) Direct wages were incurred as follows:

	Rs.
Process 1	17,160
Process 2	8,600

(iv) Indirect wages were incurred amounting to Rs. 2,980.

(v) Production overhead costs incurred (excluding materials and labour costs) amounted to Rs. 31,765.

(vi) Indirect materials consumed in the month amounted to Rs. 1,450.

(vii) Direct materials were issued to production as follows:

	Rs.
Process 1	
10,500 kg of W costing	4,960
7,200 kg of X costing	14,700
Process 2	
4,050 kg of Y costing	15,600

There was no opening or closing stock of material W.

(viii) The cost of finished goods sold during the month amounted to Rs. 1,25,740. The completed output from the two processes for October, 2008 amounted to:

Process 1	13,100 kg
Process 2	20,545 kg

Closing work in progress, which is 100% complete as to materials but only 50% completed as to conversion cost, amounted to:

Process 1	2,000 kg
Process 2	1,500 kg

Normal losses, caused by evaporation and occurring at the end of processing are expected in each of the processes as follows:

Process 1	15% of throughput
Process 2	10% of throughput

Note: Throughput equals opening work in progress plus materials introduced less closing work in progress.

Production overhead is absorbed using the following absorption rates:

Process 1	150% of direct labour cost
Process 2	200% of direct labour cost

Requirements:

(a) Prepare the accounts for each of the two processes for the month of October, 2008.

(b) Prepare the Six ledger accounts for which opening balances have been given, commencing with those balances, entering the transactions for the month of October, 2008 and making entries in those accounts for 31 October, 2008 as appropriate.

Contract Costing

7. ABC Ltd is a construction company, which has undertaken three contracts. Information for the previous year along with other details is provided to you below;

	Contract A	Contract B	Contract C
	(Rs.000).	(Rs.000).	(Rs.000)
Contract price	1,760	1,485	2,420
Balances brought forward at the beginning of the year:			
Material on site		20	30
Written down value of plant and machinery		77	374
Wages accrued		5	10

Transactions during previous year:			
Profit previously transferred to profit and loss a/c			35
Cost of work certified (cost of sales)		418	814
Transactions during current year:			
Material delivered to site	88	220	396
Wages paid	45	100	220
Salaries and other cost	15	40	50
Written down value of plant issued to site	190	35	
Head office expenses apportioned during the year	10	20	50
Balances c/fwd at the end of the year:			
Material on site	20		
Written down value of plant and machinery	150	20	230
Wages accrued	5	10	15
Value of work certified at the end of the year	200	860	2100
Cost of work not certified at the end of the year			55

The agreed retention rate is 10% of the value of work certified by the contractee's architect. Contract C is scheduled to be handed over to the contractee in the near future. It is estimated that Rs 3,05,000 shall be needed to be spent in addition to what has been tabulated above to complete this particular contract. This amount includes an allowance for plant depreciation, construction services and for contingencies.

You are required to prepare contract accounts for each of the three contracts and recommend how much profit or loss should be taken up for the year.

Process Costing

8. The following data are available in respect of Process for the month of June, 2009:

Opening work-in-progress	2,250 Units at Rs. 11,250
Degree of Completion:	
Materials	100%
Labour	60%
Overheads	60%
Input of materials	22,750 Units at Rs. 88,500

Direct wages	Rs. 20,500
Production overheads	Rs. 41,000
Units scrapped	3,000 Units
Degree of Completion:	
Material	100%
Labour	70%
Production overheads	70%
Closing work-in-progress:	2,500 Units
Degree of Completion:	
Material	100%
Labour	80%
Production overheads	80%
Units transferred to the next process:	19,500 Units

Normal process loss is 10% of total input (opening stock plus units put in). Scrap value is Rs. 3.00 per unit. The company follows FIFO method of inventory valuation;

You are required to:

(a) Prepare statement of equivalent production

(b) Prepare statement of cost per equivalent unit for each element and cost of abnormal loss, closing work-in-progress and units transferred to next process; and

(c) Prepare process I account.

Operating Costing

9. A transport service company is running five buses between two towns which are 50 kms apart. Seating capacity of each bus is 50 passengers. The following particulars were obtained from their books for April 2009:

	Rs.
Wages of drivers, conductors and cleaners	24,000
Salaries of office staff	10,000
Diesel oil and other oil	35,000
Repairs & maintenance	8,000
Taxation, insurance etc.	16,000
Depreciation	26,000
Interest and other expenses	20,000
	1,39,000

Actually passengers carried were 75% of seating capacity. All buses ran all 30 days of the month. Each bus made one round trip per day.

Find out the cost per passenger kilometer.

Marginal Costing

10. A company has three factories situated in north, east and south with its Head Office in Mumbai. The management has received the following summary report on the operations of each factory for a period :

(Rs. in '000)

	Sales		Profit	
	Actual	Over/(Under) Budget	Actual	Over/(Under) Budget
North	1,100	(400)	135	(180)
East	1,450	150	210	90
South	1,200	(200)	330	(110)

Calculate for each factory and for the company as a whole for the period :

(i) the fixed costs. (ii) break-even sales.

Standard Costing

11. J.K. Ltd. manufactures NXE by mixing three raw materials. For every batch of 100 kgs. of NXE, 125 kgs. of raw materials are used. In April, 2009, 60 batches were prepared to produce an output of 5,600 kgs. of NXE. The standard and actual particulars for April, 2009, are as follows :

	Standard		Actual		Quantity of Raw Materials Purchased
Raw Materials	Mix %	Price per kg. Rs.	Mix %	Price per Kg. Rs.	Kg.
A	50	20	60	21	5,000
B	30	10	20	8	2,000
C	20	5	20	6	1,200

Calculate all variances.

Budgetary Control

12. Action Plan Manufacturers normally produce 8,000 units of their product in a month, in their Machine Shop. For the month of January, they had planned for a production of 10,000 units. Owing to a sudden cancellation of a contract in the middle of January, they could only produce 6,000 units in January.

Indirect manufacturing costs are carefully planned and monitored in the Machine Shop and the Foreman of the shop is paid a 10% of the savings as bonus when in any month the indirect manufacturing cost incurred is less than the budgeted provision.

The Foreman has put in a claim that he should be paid a bonus of Rs. 88.50 for the month of January. The Works Manager wonders how any one can claim a bonus when the Company has lost a sizeable contract. The relevant figures are as under :

Indirect manufacturing normal month	Expenses for a January	Planned for January	Actuals in costs
	Rs.	Rs.	Rs.
Salary of foreman	1,0001,000	1,000	
Indirect labour	720 900	600	
Indirect material	800	1,000	700
Repairs and maintenance	600	650	600
Power	800	875	740
Tools consumed	320	400	300
Rates and taxes	150	150	150
Depreciation	800	800	800
Insurance	100	100	100
	5,290	5,875	4,990

Do you agree with the Works Manager ? Is the Foreman entitled to any bonus for the performance in January ? Substantiate your answer with facts and figures.

13. (i) What is 'Defective Work'? How it is accounted for in cost accounts?

(ii) Distinguish between 'Committed Fixed Costs' and 'Discretionary Fixed Costs'.

(iii) How will you treat the research and development costs in connection with

(a) job undertaken on behalf of a customer; and

(b) improvement in existing products ?

SUGGESTED ANSWERS/HINTS

1. (i) (1) $EOQ = \sqrt{\frac{2 \times 10,000 \times Rs.250}{Rs.5}}$

= 1,000 chips

(2) Number of deliveries $= \frac{10,000}{1,000}$

= 10

(ii) Average number of workers on payroll:

Labour turnover rate (Replacement method)= $\frac{\text{Number or workers replaced}}{\text{Average number on pay roll}} \times 100$

or, $\frac{5}{100} = \frac{30}{\text{Average number on pay roll}}$

or, Average number of workers on payroll = $\frac{30 \times 100}{5} = 600.$

(iii) P/V Ratio = (C/S) x 100

= [(15 – 12)/15] x 100

= (3/15) x 100

= 20%

Marginal of Safety = (Profit)/ (P/V Ratio)

= 50,000/20%

= Rs. 2,50,000

(iv) Total Sales = $2,40,000 \times \frac{100}{40}$ = Rs.6,00,000

Contribution = 6,00,000 × 30% = Rs.1,80,000

Profit = M/S × P/V ratio = 2,40,000 × 30% = Rs.72,000

Fixed cost = Contribution – Profit

= 1,80,000 – 72,000 = Rs.1,08,000

(1) Break-even Sales = $\frac{F}{\text{P/V ratio}} = \frac{1,08,000}{30\%}$ = Rs.3,60,000

(2) Profit = (Sales × P/V ratio) – Fixed cost

= (9,00,000 × 30%) – 1,08,000 = Rs.1,62,000

(v) Material Usage variance = Std. price (Std. qty – Actual qty.)

= Re.1 (50 units – 45 units) = Rs.5 (F)

Introduction to Cost Accounting

2. (i) Uniform costing manual includes essential informations and instructions to implement accounting procedures.

(a) Introduction: It includes objects and scope of the planning.

(b) Accounting procedure and planning includes rules, and general principle to be followed.

(c) Cost accounting planning includes methods of costing, relation between cost and financial accounts and methods of integration.

(ii) The Main objectives of Cost Accounting are

1. Ascertainment of cost.

2. Determination of selling price.
3. Cost control and cost reduction.
4. Ascertaining the project of each activity.
5. Assisting management in decision-making.
6. Determination of break even point.

Material

3. (i) (a)

Order size (tons)	400	500	1,000	2,000	3,000
No. of order $\left(\frac{\text{annual requirement}}{\text{order size}}\right)$ [see Note	13	10	5	3	2
Average stock $\left(\frac{\text{order size}}{2}\right)$	200	250	500	1,000	1,500
Price per ton	1,200	1,180	1,160	1,140	1,120
Average stock value (average stock × price per ton)	2,40,000	2,95,000	5,80,000	11,40,000	16,80,000
	Rs.	Rs.	Rs.	Rs.	Rs.
Cost of material (5,000 × price per ton)	60,00,000	59,00,000	58,00,000	57,00,000	56,00,000
Ordering cost (No. of orders × Rs. 1,200)	15,600	12,000	6,000	3,600	2,400
Stock carrying cost (20% of average stock value)	48,000	59,000	1,16,000	2,28,000	3,36,000
Total cost	60,63,600	59,71,000	59,22,000	59,31,600	59,38,400

The above table shows that the lowest total cost is Rs. 59,22,000, i.e., when the quantity ordered is 1,000 tons. This is, therefore, the most economical purchase level.

Note: When calculating the number of orders if a fraction comes, the next whole number has to be considered.

(b) EOQ = $\sqrt{\frac{2C_oO}{C_c}}$

where Co = consumption per annum in units

O = ordering cost per order

Cc = carrying cost of one unit of stock for one year

= $\sqrt{\frac{2\times 5{,}000\times \text{Rs.}1{,}200}{20\%\text{ of Rs.}1{,}500}} = 200$ tons.

(ii) Waste can be differentiated as normal and abnormal. Normal waste is absorbed in the cost of net output, whereas abnormal waste is transferred to the Costing Profit and Loss Account.

For effective control of waste, normal allowances for yield and waste should be made from past experience, technical factors and special features of the material process and product. Actual yield and waste should be compared with anticipated figures and appropriate actions should be taken where necessary. Responsibility should be fixed on purchasing, storage, maintenance, production and inspection staff to maintain quality of the materials and other standards. A systematic procedure for feedback of Achievements against standards laid should be established.

Scrap may be treated in Cost Accounts in the following ways :

(i) Where the value of scrap is negotiable, it may be excluded from costs. In other words, the cost of scrap is borne by good units and income from scrap is treated as other income.

(ii) If the scrap value is considerable, the net sale proceeds of scrap (Gross sales proceeds of scrap—the cost of selling scrap) is deducted from the material cost or factory overhead. Under this method the material cost or factory overhead recovery rate are reduced on account of sale proceeds of scrap. However, no distinction is made between various processes or jobs.

(iii) Where the various jobs or processes give rise in varying amount of scrap, the scrap from each job or process is recorded separately and the sale proceeds from the same credited to the particular job or process. This method is useful where scrap is of considerable value and does not arise uniformly. However, this would necessitate the scrap being identified with various jobs or processes. For this purpose detailed records for scrap will be required.

Control of scrap really arises at the maximum effective utilization of the raw material. Scrap control does not, therefore, start in the production department; it starts from the stage of product designing. Thus the most suitable type of materials, the appropriate size, the right type of equipment and personnel would help getting maximum quantity of finished product from a given raw material.

The procedure for control of scrap should start with establishing a standard of scrap with each department, job or process, taking into consideration the nature of material, the nature of the manufacturing operation, the use of proper equipment, the size of the material, the employment of proper personnel and defining areas of responsibility. It is also necessary to establish a scheme of scrap reporting. The actual scrap should be compared with the predetermined standard, and the reasons for the difference, if any, should be investigated, corrective action taken, whenever the actual scrap is found to be more than what is normally allowed. Also, it is to be ensured that proper supervision is exercised at the scrap generation stage.

Labour

4. Earnings under Straight Piece Rate System:

Normal time rate per hour — Rs. 5.40

Standard output per hour@ 1 unit per minute — 1 unit $\times$ 60 = 60 units

Piece rate per unit — $\frac{\text{Rs.5.40}}{\text{60 units}} = \text{Rs.0.09}$

Earnings of
- A 390 units @ Re. 0.09 = Rs. 35.10
- B 450 units @ Re. 0.09 = Rs. 40.50
- C 600 units @ Re. 0.09 = Rs. 54.00

Earnings under Merrick's Multiple Piece Rate System:

Standard output per day of 8 hours

60 unit $\times$ 8 = 480 units. Percentage efficiency of individual worker

$\left(\frac{\text{Actual output}}{\text{Standard output}} \times 100\right)$

A $\frac{390}{480} \times 100 = 81.25\%$

B $\frac{450}{480} \times 100 = 93.75\%$

C $\frac{600}{480} \times 100 = 125.00\%$

Piece rate applicable to individual worker:

A Re. 0.09 (normal rate up to $83\frac{1}{3}$ % efficiency)

B Re. 0.099 (110% of normal rate between $83\frac{1}{3}$ % and 100% efficiency)

C Re. 0.117 (130% of normal rate above 100% efficiency)

Earnings of
- A 390 units @ Re. 0.09 = Rs. 35.10
- B 450 units @ Re. 0.099 = Rs. 44.55
- C 600 units @ Re. 0.117 = Rs. 70.20

Overheads

5. (i) (a) Departmental Overhead Rate = $\frac{\text{Budgeted Overheads of the Department}}{\text{Budgeted hours of the Department}}$

Overhead Rate for Department 1= $\frac{\text{Rs } 2,40,000}{1,00,000 \text{ hrs}}$ = Rs. 2.40 per hour

Overhead Rate for Department 2 = $\frac{\text{Rs } 1,00,000}{1,00,000 \text{ hrs}}$ = Rs. 1.00 per hour

Element of Overhead in Closing Stocks
(1). Under plant wise rate of Rs. 1.70 per hour

		Rs
1.	Closing stock of product A : 2,000 units Overheads included: 2,000 unit @ 5 hours per unit @ Rs. 1.70 per hour (i.e. 2,000 x 5 x Rs. 1.70)	17,000
	Closing stock of product B : 6,000 units Overheads included: 6,000 unit @ 5 hours per unit @ Rs. 1.70 per hour (i.e. 6,000 x 5 x Rs. 1.70)	51,000
		68,000

Element of Overhead in Closing Stocks
(2).Overheads under departmental rates

	Rs
Product A: 2,000 (4 x Rs. 2.40 + 1 x Re. 1)	21,200
Product B: 6,000 (1 x Rs. 2.40 + 4 ×Re. 1)	38,400
	59,600

Effect on Company's Income (1) - (2) = (Rs.68,000 – Rs.59,600) = Rs.8,400

(b) Calculation of Unit Selling Price of Product A

		Plant wise Overhead Rates Charged	Departmental Overhead Rates Charged
		Rs.	Rs.
Material and labour		10	10
Factory Overheads: Applying Plant wise Rate		8.50 (5 hrs.@ Rs. 1.70)	
Factory Overheads: Applying Departmental Rates			
Dept. A: 4 hrs. @ Rs. 2.40	Rs.9.60		

Dep't 1 hr. @ Re. 1	Rs.1.00	____	10.60
		18.50	20.60
Add: 40% Mark up		7.40	8.24
		25.90	28.84

Increase in Selling price = Rs. 28.84 - Rs. 25.90 = Rs. 2.94

(ii) The main difference between the two methods is given below.

(1) Allocation deals with the whole items of cost, which are identifiable with any one department. For example, indirect wages of three departments are separately obtained and hence each department will be charged by the respective amount of wages individually.

On the other hand apportionment deals with the proportions of an item of cost for example; the cost of the benefit of a service department will be divided between those departments which has availed those benefits.

(2) Allocation is a direct process of charging expenses to different cost centres whereas apportionment is an indirect process because there is a need for the identification of the appropriate portion of an expense to be born by the different departments benefited.

(3) The allocation or apportionment of an expense is not dependent on its nature, but the relationship between the expense and the cost centre decides that whether it is to be allocated or apportioned.

(4) Allocation is a much wider term than apportionment

Non-Integrated Accounting

6. (a) Process I

	Kg.	Rs.		Kg.	Rs.
Wages control		17,160	Process 2	13,100	55,961
Raw materials control	17,700	19,660	Normal loss	245	1,047
Production overhead control	_____	25,740	Closing work in progress	2,000	5,552
	17,700	62,560		17,700	62,560

Equivalent units:

	Material	Labour/Overhead
Process 2	13,100	13,100
Closing work in progress	2,000	1,000
Abnormal loss	245	245
	15,345	14,345

	Rs.	Rs.
Costs	19,660	42,900
Cost/equivalent unit (rounded)	1.28	2.99

Valuation	Materials Rs.	Labour/Overhead Rs.	Total Rs.
Process 2	16,784	39,177	55,961
Closing work in progress	2,562	2,990	5,552
Abnormal loss	314	733	1,047
	19,660	42,900	62,560

Process 2

	Kg.	Rs.		Kg.	Rs.
Opening WIP	8,400	21,520	Finished goods	20,545	1,06,615
Process 1	13,100	55,961	Abnormal loss	1,100	5,707
Wages control		8,600	Normal loss	2,405	–
Raw materials control	4,050	15,600	Closing work in progress	1,500	6,559
Production overhead control		17,200			
	25,550	1,18,881		25,550	1,18,881

Equivalent units:

	Process 1 materials	Labour/Overhead
Finished goods	20,545	20,545
Closing work in progress	1,500	750
Abnormal loss	1,100	1,100
	23,145	22,395
	Rs.	Rs.
Costs:		
Opening work in progress	10,720	10,800
Input	71,561	25,800
	82,281	36,600

Cost per equivalent unit (rounded)	3.56	1.63	
			Total
Valuation:	Rs.	Rs.	Rs.
Finished goods	73,039	33,576	1,06,615
Closing work in progress	5,333	1,226	6,559
Abnormal loss	3,910	1,797	5,707

(b)

Raw material control account

	Rs.		Rs.
Balances b/f	15,400	Production overhead control	1,450
Creditors control	46,260	Work in progress control	35,260
		Balance c/f	24,950
	61,660		61,660

Work in progress control account

	Rs.		Rs.
Balances b/f	21,520	Finished goods control	1,06,615
Raw material control	35,260	Abnormal loss	6,754
Production overhead control	42,940	Balance c/f	12,111
Wages control	25,760		
	1,25,480		1,25,480

Production overhead control account

	Rs.		Rs.
Stores control	1,450	Balance b/f	2,360
Wages control	2,980	Work in progress control	42,940
Cost ledger control	31,765		
Profit and loss	9,105		
	45,300		45,300

Abnormal loss account

	Rs.		Rs.
Balance b/f	1,685	Profit and loss	8,439
Work in progress control	6,754		
	8,439		8,439

Abnormal loss account

	Rs.		Rs.
Profit and loss	930	Balance b/f	930

Finished goods control account

	Rs.		Rs.
Balance b/f	27,130	Cost of sales	1,25,740
Work in progress control	1,06,615	Balance c/f	8,005
	1,33,745		1,33,745

Contract Costing

7. Contract Accounts

(in Rs 000)

	A	B	C		A	B	C
Material on site b/fwd		20	30	Wages accrued b/fwd		5	10
Plant on site b/fwd		77	374	Material on site c/fwd	20		
Material control a/c	88	220	396	Plant on site c/fwd	150	20	230
Wages control a/c	45	100	220	Cost of work not certified c/fwd			55
Salaries	15	40	50	Cost of sales – current period (balance) c/fwd	183	497	840
Plant control a/c	190	35					
Apportionment of HO expenses	10	20	50				
Wages accrued c/fwd	5	10	15				
	353	522	1,135		353	522	1,135
Cost of sales b/fwd	183	497	840	Attributable sales revenue (current period)*	183	442	1,122
Profit taken this period			282	Loss taken		55	
	183	497	1,122		183	497	1,122
Cost of work not certified b/fwd			55	Wages accrued b/fwd	5	10	15
Material on site b/fwd	20						
Plant on site b/fwd	150	20	230				

* Profit taken plus cost of sales for the current period or cost of sales less loss to date

Note

- Profit/loss on the three contracts are calculated by deducting the cost of sales (both previous years and current year) from the value of work certified

		(Rs 000)
Contract A	17	(Rs 200 – Rs 183)
Contract B	(55)	(Rs 860 – Rs 915)
Contract C	446	(Rs 2,100 – Rs 1,654)

Recommendation

- Computation of profit taken for Contract C is as follows

	(Rs000)
Cost of work certified(cost of sales to date = 814 + 840)	1,654
Cost of work not certified	55
Estimated costs to complete	305
Estimated cost of contract	2,014
Contract price	2,420
Anticipated profit	406

Profit taken = $\frac{(0.90 \times Rs2{,}100)}{Rs2{,}420} \times Rs406$ less profit previously transferred

= Rs 3,17,000 – Rs 35,000 = Rs 2,82,000

- No profit has been taken for Contract A as it is in very early stages of completion
- Prudence concept has been utilized for Contract B. All loss has been taken.

Process Costing

8. (a) Statement of Equivalent Production

(FIFO Method)

Input				Material		Labour		Overheads	
				%	Units	%	Units	%	Units
Opening W.I.P.	2,250 units	Completed	2,250 units	–	–	40	900	40	900
Introduced	22,750 units	Completed	17,250 units	100	17,250	100	17,250	100	17,250
		Normal loss	2,500 units						
		Abnormal loss	500 units	100	500	70	350	70	350
		Closing W.I.P.	2,500 units	100	2,500	80	2,000	80	2,000
	25,000 units				20,250		20,500		20,500

(b) Statement of cost

Item of Cost		Amount (Rs.)	Equivalent production (Unit)	Cost per unit (Rs.)
Material	88,500			
Less: Revenue from sale of normal loss (2,500 units × Rs. 3)	7,500	81,000	20,250	4
Direct wages		20,500	20,500	1
Production overheads		41,000	20,500	2
Cost of completing one unit				7

Statement of Evaluation

			Amount (Rs.)	Amount (Rs.)
Abnormal loss (500 units)				
Material	500 units × Rs. 4		2,000	
Labour	350 units × Re. 1		350	
Production overheads	350 units × Rs. 2		700	3,050
Cost of units transferred Opening WIP (2,250 units)			11,250	
Add: Cost incurred				
Labour	900 units × Re. 1	900		
Production overheads	900 units × Rs. 2	1,800	2,700	13,950
Units introduced & completed (17,250 units × Rs.7)				1,20,750
Total cost of 19,500 units transferred to next process				1,34,700
Closing WIP (2,500 units)				
Material	2,500 units × Rs.4		10,000	
Labour	2,000 units × Re.1		2,000	
Production overheads	2,000 units × Rs. 2		4,000	16,000

(c) Process I Account

Particulars	Units	Rs.	Particulars	Units	Rs.
To Opening WIP	2,250	11,250	By Normal Loss	2,500	7,500
To Material	22,750	88,500	By Unit completed and		
To Wages		20,500	transferred to Process II	19,500	1,34,700
To Production overheads		41,000	By Abnormal loss	500	3,050
			By Closing WIP	2,500	16,000
	25,000	1,61,250		25,000	1,61,250

Operating Costing

9. Calculation of passenger kilometer

No. of Buses ×Distance×"To" and "Fro"×Seating capacity×Percentage of seating capacity ×No. of days in a month

$= 5 \times 50 \times 2 \times 50 \times \frac{75}{100} \times 30 = 5{,}62{,}500$ kms

Operating cost sheet

	Rs	Rs
Standing charges:-		
Wages of drives, conductors and cleaners	24,000	
Salaries of office staff	10,000	
Taxation, Insurance	16,000	
Interest & other expenses	20,000	
		70,000
Running & Maintenance cost:-		
Repairs and maintenance	8,000	
Diesel and other oil	35,000	
Depreciation	26,000	69,000
		1,39,000

Cost per passenger km = $\frac{1{,}39{,}000}{5{,}62{,}500} = 0.2471.$

Marginal Costing

10. Calculation of P/V Ratio — Rs.'000

	Sales	Profit
North : Actual	1,100	135
Add : Under budgeted	400	180
Budgeted	1,500	315

P/V ratio = $\frac{\text{Diferenece in Profit}}{\text{Difference in Sales}} = \frac{315 - 135}{1{,}500 - 1{,}100} = \times 100 = \frac{180}{400} \times 100 = 45\%$

Rs.'000

	Sales	Profit
East : Actual	1,450	210
Less : Over budgeted	150	90
Budgeted	1,300	120

P/V ratio = $\frac{90}{150} \times 100 = 60\%$

Rs. '000

	Sales	Profit
South : Actual	1,200	330
Add : Under budgeted	200	110
Budgeted	1,400	440

P/V ratio = $\frac{110}{200} \times 100 = 55\%$

Calculation of fixed cost

Fixed Cost = (Actual sales × P/V ratio) – Profit

North = (1,100 × 45%) – 135= 360

East = (1,450 × 60%) – 210= 660

South = (1,200 × 55%) – 330= 330

Total Fixed Cost 1,350

Calculation of break-even sales (in Rs.'000)

B.E. Sales = $\frac{\text{Fixed Cost}}{\text{P/V ratio}}$

North= $\frac{360}{45\%} = 800$

East= $\frac{660}{60\%} = 1,100$

South= $\frac{330}{55\%} =$ 600

Total 2,500

Standard Costing

11. Actual material used = 125 kg × 60 = 7,500 kg.

Actual cost of actual material used (AQ × AR) (Rs.)

A	60%	4,500 kg × Rs.21 =	94,500
B	20%	1,500 kg × Rs. 8 =	12,000
C	20%	1,500 kg × Rs. 6 =	9,000
		7,500	1,15,500

Standard cost of actual material used (AQ × SR) (Rs.)

A	4,500 kg × Rs.20 =	90,000
B	1,500 kg × Rs.10 =	15,000
C	1,500 kg × Rs. 5 =	7,500
	7,500	1,12,500

Standard cost of material, if it had been used in standard proportion (Standard Proportion × Standard Rate) (Rs.)

A	50%	3,750 kg × Rs.20 =	75,000
B	30%	2,250 kg × Rs.10 =	22,500
C	20%	1,500 kg × Rs. 5 =	7,500
		7,500	1,05,000

Standard cost of production (SQ for actual production × SR)

Standard cost of output for 100 kg: (Rs.)

A	62.50 kg × Rs.20 =	1,250
B	37.50 kg × Rs.10 =	375
C	25.00 kg × Rs. 5 =	125
	125.00	1,750

Standard cost for output of 5,600 kg.

$$= \frac{1,750}{100} \text{kg} \times 5,600 \text{ kg.} = \text{Rs. } 98,000$$

Material Price Variance = Actual cost of actual material used – Standard cost of actual material used = Rs.1,15,500 – Rs.1,12,500 = Rs. 3,000 (A)

Material Usage Variance = Standard cost of actual material used – Standard cost of production = Rs.1,12,500 – Rs. 98,000 = Rs.14,500 (A)

Note:

Material Price Variance can be calculated at the time of purchase as well. In that case, material variance will be as follows:

Actual cost of material used

A	5,000 kg × Rs.21	= Rs.	1,05,000
B	2,000 kg × Rs. 8	= Rs.	16,000
C	1,200 kg × Rs. 6	= Rs.	7,200
			1,28,200

Standard cost of material used

A	5,000 kg × Rs.20	= Rs.	1,00,000
B	2,000 kg × Rs.10	= Rs.	20,000
C	1,200 kg × Rs. 5	= Rs.	6,000
			1,26,000

Material Price variance (if calculated at the time of purchase)

= Actual cost of actual material used – Standard cost of actual material used

= Rs.1,28,200 – Rs.1,26,000 = Rs. 2,200 (A)

Budgetary Control

12. Flexible Budget of "Action Plan Manufacturers"
(for the month of January)

Indirect manufacturing cost	*Nature of cost*	*Expenses for a normal month*	*Planned expenses for January*	*Expenses as per flexible budget for January*	*Actual expenses for the month of January*	*Difference Increased (decreased) January*
			Rs.	*Rs.*	*Rs.*	*Rs.*
	(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6) = (5) – (4)*
Salary of foreman	Fixed	1,000	1,000	1,000	1,000	Nil
Indirect labour (*Refer to Working note* 1)	Variable	720	900	540	600	60
Indirect material (*Refer to Working note* 2)	Variable	800	1,000	600	700	100
Repair and maintenance (*Refer to Working note* 3)	Semi-variable	600	650	550	600	50
Power (*Refer to Working note* 4)	Semi-variable	800	875	725	740	15
Tools consumed (*Refer to Working note* 5)	Variable	320	400	240	300	60
Rates and taxes	Fixed	150	150	150	150	Nil
Depreciation	Fixed	800	800	800	800	Nil
Insurance	Fixed	100	100	100	100	Nil
		5,290	5,875	4,705	4,990	285

Conclusion : The above statement of flexible budget clearly shows that the concern's expenses in the month of January have increased from Rs. 4,705 to Rs. 4,990. Under such circumstances the Foreman of the company is not at all entitled for any performance bonus in January.

Working notes :

1. Indirect labour cost per unit $\frac{\text{Rs } 720}{8{,}000}$ =0.09P.

Indirect labour for 6,000 units = 6,000 × 0.09P = Rs. 540.

2. Indirect material cost per unit $\frac{\text{Rs } 800}{8{,}000}$ = 0.10P

   Indirect material for 6,000 units = 6,000 × 0.10P = Rs. 600

3. According to high and low point method of segregating semi-variable cost into fixed and variable components, following formulae may be used.

   Variable cost of repair and maintenance per unit

   $= \frac{\text{Change in expense level}}{\text{Change in output level}} = \frac{\text{Rs } 650 - \text{Rs } 600}{2{,}000} = 0.025$ P.

   For 8,000 units

   Total Variable cost of repair and maintenance = Rs. 200

   Fixed repair & maintenance cost = Rs. 400

   Hence at 6,000 units output level, total cost of repair and maintenance should be

   = Rs. 400 + Rs. 0.025 × 6,000 units

   = Rs. 400 + Rs. 150 = Rs. 550

4. Variable cost of power per unit = $\frac{\text{Rs } 875 - \text{Rs } 800}{2{,}000 \text{ units}}$ = 0.0375

   For 8,000 units

   Total variable cost of power = Rs. 300

   Fixed cost = Rs. 500

   Hence, at 6,000 units output level, total cost of power should be

   = Rs. 500 + Rs. 0.0375 × 6,000 units

   = Rs. 500 + Rs. 225 + Rs. 725

5. Tools consumed cost for 8,000 units = Rs. 320

   Hence, tools consumed cost for 6,000 units = (Rs. 320/8,000 units) × 6,000 units

   = Rs. 240

13. (i) 'Defective Work' is the work output which does not meet out the prescribed laid down standard specifications. Such a situation may arise due to various causes, such as use of sub-standard materials, bad workmanship, carelessness in planning, laxity in inspection, etc. Defectives can be reworked or reconditioned by the application of additional material, labour and/or processing and may be brought to the point of either standard work/products or sub-standard products. Reworked units of defectives may be sold through regular channels as first or seconds as the case may be.

Cost Accounting treatment: It intact is concerned with the accounting for costs of their rectification and their nature as - normal or abnormal. The possible ways of treatment are as below:

1. When defectives are normal and it is not beneficial to try to identify them job wise, the following methods are generally used:

   (a) Charged to good products: The cost of rectification of normal defectives is charged to good units. This method is used when defectives rectified are normal.

   (b) Charged to general overheads: Where the department responsible for defective cannot be correctly identified, because defectives caused in one department are reflected only on further processing, the rework costs are charged to general overheads.

   (c) Charged to departmental overheads: If the department responsible for defectives can be correctly identified, the rectification costs should be charged to that department.

2. Where normal defectives are easily identifiable with specific jobs, the rework costs are debited to the jobs.

3. When defectives are abnormal and are due to causes within the control of the organisation, the rework cost should be charged to the costing profit and loss account.

(ii) Committed fixed costs, are those fixed costs that arise from the possession of: (i) a plant, building and equipment (e.g. depreciation, rent, taxes, insurance premium etc.) or (ii) a functioning organisation (i.e. salaries of staff). These costs remain unaffected by any short-run actions. These costs are affected primarily by long-run sales forecasts that, in turn indicates the long-run capacity targets. Hence careful long range planning, rather than day-to-day monitoring, is the key to managing committed costs.

Discretionary fixed costs, (sometimes called managed costs or programmed costs). These costs have two important features:

(a) they arise from periodic (usually yearly) decisions regarding the maximum outlay to be incurred, and

(b) they are not tied to a clear cause-and-effect relationship between inputs and outputs. Examples of discretionary fixed costs includes - advertising, public relations, executive training, teaching, research, health care etc. These costs are controllable.

(iii) (a) Cost of R & D project undertaken on behalf of a specific customer should not be treated as manufacturing overhead. It should be regarded as a separate profit centre. All expenses to meet such costs should be debited to "Outside R

& D Project Account". Receipts against such requests are to be credited against this account.

(b) Where research and development of products are undertaken on continuous basis the expenditure is treated as product costs. The cost of incomplete research project should be carried out continuously in order to retain company's place in the industry, the expenditure should be treated as general overhead. Some companies prefer to charge such costs of continuous research, to the Profit & Loss Account.

PART – II : FINANCIAL MANAGEMENT

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

   (a) Determining the appropriate level of working capital for a firm requires

      (i) Evaluating the risks associated with various levels of fixed assets and the types of debt used to finance these assets.

      (ii) Changing the capital structure and dividend policy of the firm.

      (iii) Maintaining short-term debt at the lowest possible level because it is generally more expensive than long-term debt.

      (iv) Offsetting the benefit of current assets and current liabilities against the probability of technical insolvency.

   (b) Mahalaxmi Company has Rs. 50,00,000 of average inventory and sales of Rs. 3,00,00,000. Using a 365 days year, you are required to calculate the company's inventory conversion period.

   (c) If Zeta Company borrows Rs. 5,00,000 at 10% and is required to maintain Rs. 50,000 as a minimum compensating balance at the bank. Calculate the effective interest rate on the loan?

   (d) Which of the following are characteristics of Euro-bonds?

      (i) Are always denominated in Eurodollars.

      (ii) Are always sold in some country other than the one in whose currency the bond is denominated.

      (iii) Are sold outside the country of the borrower but are denominated in the currency of the country in which the issue is sold.

      (iv) Are generally issued as registered bonds.

   (e) Management of Alpha Company is attempting to estimate the company's cost of equity capital. Assuming that Alpha Company has a constant growth rate of 5%, a forecasted dividend of Rs. 2.11 and a share price of Rs. 23.12, you are required to estimate the cost of equity using the dividend-yield-plus-growth approach?

Management of Working Capital

2. (a) Beta Company offers its customers credit terms of 5/10 net 20. One-third of the customers take the cash discount and the remaining customers pay on day 20. On an average 20 units are sold per day, priced at Rs. 10,000 each. The rate of sales is uniform throughout the year. Using 360 days per year, compute the company's sales outstanding in accounts receivable, to the nearest full day.

   (b) Audio Electronics sells 20,000 radios evenly throughout the year. The cost of carrying one unit in inventory for one year is Rs. 8, and the purchase order cost per order is Rs. 32. What is the economic order quantity?

(c) Ganpati Limited has total sales of Rs. 3.2 crores and its average collection period is 90 days. The past experience indicates that bad-debt losses are 1.5% on sales. The expenditure incurred by the company in administering its receivable collection efforts are Rs. 5,00,000. A factor is prepared to buy the company's receivables by charging 2% commission. The factor will pay advance on receivables to Ganpati Limited at an interest rate of 18% p.a. after withholding 10% as reserve. You are required to compute the effective cost of factoring to Ganpati Limited.

Time Value of Money

3. (a) Ramesh borrowed Rs. 1,00,000 from a bank on a one-year 8% term loan, with interest compounded quarterly. Determine the effective annual interest on the loan?

(b) Suppose you have borrowed a 3-year loan of Rs. 10,000 at 9 per cent from your employer to buy a motorcycle. If your employer requires three equal end-of-year repayments, then calculate the annual instalment.

Financing Decisions

4. Shubhlaxmi Forgings is considering a project for the coming year that will cost Rs. 5,00,00,000. It plans to use the following combination of debt and equity to finance the investment:

(i) Issue Rs. 1,50,00,000 of 20-year bonds at a price of 101, with a coupon rate of 8%, and flotation costs of 2% of par.

(ii) Use Rs. 3,50,00,000 of funds generated from earnings.

The equity market is expected to earn 12%. The risk-free rate of return is 5%. The beta coefficient for Shubhlaxmi Forgings is estimated to be 0.60. Shubhlaxmi Forgings is subject to an effective tax rate of 40%.

You are required to compute:

(a) The weighted average cost of capital, if the after-tax cost of debt is 7% and the cost of equity is 12%.

(b) Shubhlaxmi Forgings expected rate of return using the Capital Asset Pricing Model (CAPM).

Financing Decisions

5. Information regarding capital structure is given for Sharda Electronics. You are required to determine the weighted average cost of capital of Sharda Electronics using (i) book-value weights and (ii) market value weights.

Present book value of Sharda Electronics's capital structure is:

	Rs.
Debentures of Rs. 100 each	8,00,000
Preference shares of Rs. 100 each	2,00,000

Equity shares of Rs. 10 each	10,00,000
	20,00,000

All these securities are traded in the capital markets. Recent prices are:

Debentures @ Rs. 110, Preference shares @ Rs. 120 and Equity shares @ Rs. 22.

Anticipated external financing opportunities are as follows:

(i) Rs. 100 per debenture redeemable at par : 20 years maturity 8% coupon rate, 4% floatation costs, sale price Rs. 100.

(ii) Rs. 100 preference share redeemable at par : 15 years maturity, 10% dividend rate, 5% floatation costs, sale price Rs. 100.

(iii) Equity shares : Rs. 2 per share floatation costs, sale price Rs. 22.

In addition, the dividend expected on the equity share at the end of the year is Rs. 2 per share; the anticipated growth rate in dividends is 5% and Sharda Electronics has the practice of paying all its earnings in the form of dividend. The corporate tax rate is 50%.

Investment Decisions

6. Consider the following mutually exclusive projects:

	Cash flows (Rs.)				
Projects	C_0	C_1	C_2	C_3	C_4
A	–10,000	6,000	2,000	2,000	12,000
B	–10,000	2,500	2,500	5,000	7,500
C	–3,500	1,500	2,500	500	5,000
D	–3,000	0	0	3,000	6,000

You are required to:

(a) Calculate the payback period for each project.

(b) If the standard payback period is 2 years, which project will you select? Will your answer differ, if standard payback period is 3 years?

(c) If the cost of capital is 10%, compute the discounted payback period for each project. Which projects will you recommend, if standard discounted payback period is (i) 2 years; (ii) 3 years?

(d) Compute NPV of each project. Which project will you recommend on the NPV criterion? The cost of capital is 10%. What will be the appropriate choice criteria in this case? The PV factors at 10% are:

Year	1	2	3	4
PV factor at 10% (PVF 0.10, t)	0.9091	0.8264	0.7513	0.6830

Financial Analysis and Planning

7.

Housemakers Limited
Consolidated Balance Sheets

Amounts in lakhs, except per share data	February 2, 2009	February 2, 2008
	Rs.	Rs.
Assets		
Current Assets:		
Cash and Cash equivalents	2,188	2,477
Short-term investments, including current maturities of long-term investments	65	69
Receivables, net	1,072	920
Merchandise inventories	8,338	6,725
Other current assets	254	170
Total current assets	11,917	10,361
Property and equipment, at cost:		
Land	5,560	4,972
Buildings	9,197	7,698
Furniture, fixtures and equipment	4,074	3,403
Leasehold improvements	872	750
Construction in progress	724	1,049
Capital leases	306	257
	20,733	18,129
Less: Accumulated depreciation and amortization	3,565	2,754
Net property and equipment	17,168	15,375
Notes receivable	107	83
Cost in excess of the fair value of net assets acquired, net of accumulated amortisation of Rs. 50 at February 2, 2009, and Rs. 49 at February 3, 2008	575	419
Other assets	244	156
Total assets	30,011	26,394

Liabilities and Shareholders' Equity		
Current Liabilities:		
Accounts payable	4,560	3,436
Accrued salaries and related expenses	809	717
Sales taxes payable	307	348
Deferred revenue	998	851
Income taxes payable	227	211
Other accrued expenses	1,134	938
Total current liabilities	8,035	6,501
Long-term debt, excluding current installments	1,321	1,250
Other long-term liabilities	491	372
Deferred income taxes	362	189
Total liabilities	10,209	8,312
Shareholders' Equity		
Equity shares, par value Rs. 0.05; authorized: 10,000 shares, issued and outstanding 2,362 shares at February 3, 2009, and 2,346 shares at February 3, 2008	118	117
Paid-in capital	5,858	5,412
Retained earnings	15,971	12,799
Accumulated other comprehensive loss	(82)	(220)
Unearned compensation	(63)	(26)
Treasury stock, at cost, 69 shares at February 2, 2009	(2,000)	–
Total shareholders' equity	19,802	18,082
Total liabilities and shareholders' equity	30,011	26,394

Housemakers Limited
Consolidated Statements of Earnings

	Year Ended		
	February 2, 2009	February 3, 2008	January 28, 2007
Amounts in lakhs, except per share data			
Net Sales	Rs. 58,247	Rs. 53,553	Rs. 45,738
Cost of merchandise sold	40,139	37,406	32,057

Gross profit	18,108	16,147	13,681
Operating expenses:			
Selling and store operating	11,180	10,163	8,513
Pre-opening	96	117	142
General and administrative	1,002	935	835
Total operating expenses	12,278	11,215	9,490
Operating income	5,830	4,932	4,191
Interest income (expense):			
Interest and investment income	79	53	47
Interest expense	(37)	(28)	(21)
Interest, net	42	25	26
Earnings before provision for income taxes	5,872	4,957	4,217
Provision for income taxes	2,208	1,913	1,636
Net earnings	Rs. 3,664	Rs. 3,044	Rs. 2,581
Weighted-average equity shares	2,336	2,335	2,315
Basic earnings per share	Rs. 1.57	Rs. 1.30	Rs. 1.11
Diluted weighted-average equity shares	2,344	2,353	2,352
Diluted earnings per share	Rs. 1.56	Rs. 1.29	Rs. 1.10

You are required to calculate:

(a) Profitability Ratios

(b) Activity Ratios

(c) Liquidity Ratios

(d) Debt Utilisation Ratios

(e) Market Ratios.

Financing Decisions

8. The following information for Ramanuj Limited is given for your consideration:

	Rs. in lakhs
EBIT	1,120
PBT	320
Fixed cost	700

You are required to calculate the percentage change in earnings per share if sales increased by 5 per cent.

Financial Analysis and Planning

9. The Balance Sheets of Parametric Limited for the year ending March 31, 2008 and March 31, 2009 are given as under:

Balance Sheet as on March, 31

		2008	2009
		Rs.	Rs.
Capital and Liabilities			
Share Capital		6,75,000	7,87,500
General Reserves		2,25,000	2,81,250
Capital Reserve (Profit on Sale of investment)		-	11,250
Profit & Loss Account		1,12,500	2,25,000
15% Debentures		3,37,500	2,25,000
Accrued Expenses		11,250	13,500
Creditors		1,80,000	2,81,250
Provision for Dividends		33,750	38,250
Provision for Taxation		78,750	85,500
	Total	16,53,750	19,48,500
Assets			
Fixed Assets		11,25,000	13,50,000
Less: Accumulated depreciation		2,25,000	2,81,250
Net Fixed Assets		9,00,000	10,68,750
Long-term Investments (at cost)		2,02,500	2,02,500
Stock (at cost)		2,25,000	3,03,750
Debtors (net of provision for doubtful debts of Rs. 45,000 and Rs. 56,250 respectively for 2008 and 2009 respectively)		2,53,125	2,75,625
Bills receivables		45,000	73,125
Prepaid Expenses		11,250	13,500
Miscellaneous Expenditure		16,875	11,250
		16,53,750	19,48,500

Additional Information:

(i) During the year 2008-09, fixed assets with a net book value of Rs. 11,250 (accumulated depreciation, Rs. 33,750) was sold for Rs. 9,000.

(ii) During the year 2008-09, Investments costing Rs. 90,000 were sold, and also Investments costing Rs. 90,000 were purchased.

(iii) Debentures were retired at a Premium of 10%.

(iv) Tax of Rs. 61,875 was paid for 2007-08.

(v) During the year 2008-09, bad debts of Rs. 15,750 were written off against the provision for Doubtful Debt account.

(vi) The proposed dividend for 2007-08 was paid in 2008-09.

You are required to prepare a Funds Flow Statement (Statement of changes in Financial Position on working capital basis) for the year ended March 31, 2009.

Working Capital Management

10. The following annual figures relate to Tastychips Limited:

	Rs.
Sales (at three months credit)	90,00,000
Materials consumed (suppliers extend one and half month's credit)	22,50,000
Wages paid (one month in arrear)	18,00,000
Manufacturing expenses outstanding at the end of the year (cash expenses are paid one month in arrear)	2,00,000
Total Administrative expenses for the year (cash expenses are paid one month in arrear)	6,00,000
Sales Promotion expenses for the year (paid quarterly in advance)	12,00,000

The company sells its products on gross-profit of 25% assuming depreciation as a part of cost of production. It keeps two month's stock of finished goods and one month's stock of raw materials as inventory. It keeps cash balance of Rs. 2,50,000.

Assume a 5% safety margin, work out the working capital requirements of Tastychips Limited on cash cost basis. Ignore work-in-progress.

Investment Decisions

11. Amtek Electronics is considering investing in one of the following two projects. Amtek's marginal tax rate is 25% and its cost of capital is 10%.

Project A	Rs.	Rs.
Initial investment		1,50,000
Operating effects for 5-year useful life:		

Cash basis revenues	2,00,000	
Cash basis expenses	(1,60,000)	
Net cash flow from operations (before taxes)		40,000
Tax depreciation on the investment each year		25,000
Terminal value of investment at the end of 5 years		25,000

Project B

Initial investment		2,10,000
Operating effects for 6-year useful life:		
Cash basis revenues	2,50,000	
Cash basis expenses	(2,00,000)	
Net cash flow from operations (before taxes)		50,000
Tax depreciation on the investment each year		35,000
Terminal value of investment at the end of 6 years		0

Using the net present value (NPV) method, you are required to analyse the feasibility of the projects and make suitable recommendation to the management of Amtek Electronics.

12. Differentiate between the following:
    (a) Investment Decisions and Dividend Decisions
    (b) Compound Interest and Simple Interest
    (c) Funds Flow Analysis and Cash Flow Analysis
    (d) Net Income Approach and Net Operating Income Approach to Capital Structure.
13. Write short notes on the following:
    (a) Evolution of Financial Management
    (b) Time Value of Money
    (c) Seed Capital Assistance
    (d) Capital Budgeting Process.

SUGGESTED ANSWERS/HINTS

1. (a) The requirement is to identify the factor considered in determining the appropriate level of working capital. Answer (iv) is correct because the main reason to retain working capital is to meet the firm's financial obligation. Therefore, the amount is determined by offsetting the benefit of current assets and current liabilities against the probability of technical insolvency. Answer (i) is incorrect because it is a consideration regarding long-term financing. Answer (ii) is incorrect because it is a consideration regarding capital structure. Answer (iii) is incorrect because short-term debt is generally less expensive than long-term debt.

   (b) The requirement is to calculate the conversion period. The inventory conversion period is calculated as:

   Inventory Conversion Period = Average Inventory / sales per day

   = Rs. 50,00,000 / (Rs.30,000,000 / 365) = 60.83 days.

   (c) The requirement is to calculate the effective interest rate on a loan with a compensating balance requirement. The interest rate is calculated with the following formula:

$$\frac{\text{Interest cost}}{\text{Funds available}} = \frac{10\% \times \text{Rs. } 5,00,000}{\text{Rs. } 5,00,000 - 50,000} = 11.1\%$$

   (d) The requirement is to identify the definition of Eurobonds. Answer (ii) is correct because Eurobonds are always sold in some country other than the one in whose currency the bond issue is denominated. The advantage of Eurobonds is that they are less regulated than other bonds and the transaction costs are lower. Answer (i) is incorrect because Eurobonds are not always denominated in Eurodollars, which are US dollars deposited outside the US. Answer (iii) is incorrect because foreign bonds are denominated in the currency of the country in which they are sold. Answer (iv) is incorrect because Eurobonds are usually issued not as registered bonds, but as bearer bonds.

   (e) The requirement is to apply the dividend-yield-plus-growth approach to calculate the cost of equity. The formula for estimated cost of equity is equal to the expected dividend divided by the share price plus the growth rate.

   Cost of equity = [(2.11/23.13) + 5%]

   = 14.1%

2. (a) Calculation of Number of Days' Sales Outstanding

   One-third of the customers take advantage of the 5 percent cash discount and pay on day ten. The remaining two-thirds of the customers pay on day 20. Average days' sales outstanding is calculated as:

   Days' sales outstanding = (1/3) (10 days) + (2/3) (20 days) = 17 days.

(b) Calculation of Economic Order Quantity (EOQ)

$$EOQ = \sqrt{\frac{2 \times \text{Total consumption p.a.} \times \text{Ordering cost per order}}{\text{Carrying cost per unit}}}$$

$$EOQ = \sqrt{\frac{(2)(32)(20,000)}{8}} = \sqrt{1,60,000} = 400 \text{ units}$$

(c) Computation of Effective Cost of Factoring to Ganpati Limited

Average level of Receivables	= 3,20,00,000 × 90/360	80,00,000
Factoring commission	= 80,00,000 × 2/100	1,60,000
Factoring reserve	= 80,00,000 × 10/100	8,00,000
Amount available for advance		70,40,000
	=Rs. 80,00,000-(1,60,000+8,00,000)	

Factor will deduct his interest @ 18% :-

$$\text{Interest} = \frac{Rs.70,40,000 \times 18 \times 90}{100 \times 360} = Rs.\ 3,16,800$$

Advance to be paid = Rs. 70,40,000 – Rs. 3,16,800 = Rs. 67,23,200

Annual Cost of Factoring to Ganpati Limited:	Rs.
Factoring commission (Rs. 1,60,000 × 360/90)	6,40,000
Interest charges (Rs. 3,16,800 × 360/90)	12,67,200
Total	19,07,200

Ganpati Limited's Savings on taking Factoring Service:	Rs.
Cost of credit administration saved	5,00,000
Cost of Bad Debts (Rs. 3,20,00,000 x 1.5/100) avoided	4,80,000
Total	9,80,000
Net Cost to Ganpati Limited (Rs. 19,07,200 – Rs. 9,80,000)	9,27,200

$$\text{Effective rate of interest to Ganpati} = \frac{Rs.9,27,000 \times 100}{67,23,200} = 13.79\%^*$$

Note: The number of days in a year have been assumed to be 360 days.

3. (a) Calculation of Effective Annual Interest Rate

Effective Interest Rate (EAR) is calculated as follows:

$$EAR = \left(1 + \frac{r}{m}\right)^m - 1$$

Where

r = Stated interest rate

m = Compounding frequency

$$EAR = \left(1+\frac{0.08}{4}\right)^{4} - 1$$

$$= 1.0824 - 1 = 0.0824$$

$$= 8.24\%.$$

(b) Calculation of Annual Installment

$10,000 = A \times PVFA_{3,0.09}$

$10,000 = A \times 2.531$

$$A = \frac{10,000}{2.531} = \text{Rs. } 3,951$$

By paying Rs. 3,951 each year for three years, you shall completely pay-off your loan with 9 per cent interest. This can be observed from the loan-amortisation schedule given under:

Loan Amortisation Schedule

End of Year	Payment	Interest	Principal Repayment	Outstanding Balance
0				10,000
1	3,951	900	3,051	6,949
2	3,951	625	3,326	3,623
3	3,951	326	3,625*	0

*Rounding off error.

You pay Rs. 3,951 at the end of each year. At the end of the first year, Rs. 900 of this amount is interest (Rs. 10,000 $\times$ 0.09), and the remaining amount (Rs. 3,051) is applied towards the repayment of principal. The balance of loan at the beginning of the second year is Rs. 6,949 (Rs. 10,000 – Rs. 3,051). As for the first year, calculations for interest and principal repayment can be made for the second and third years. At the end of the third year, the loan is completely paid-off.

4. (a) Computation of Weighted Average Cost of Capital

Cost of Debt (k_d)

= (101 % - 2%) × Rs. 1,50,00,000

= 99% × Rs. 1,50,00,000

= Rs. 1,48,50,000

Cost of Equity Share Capital (k_e)

= Rs. 3,50,00,000 (the amount of retained earnings)

Total Funds = Rs.4,98,50,000

Weighted Average Cost of Capital = (Rs. 1,48,50,000 / Rs. 4,98,50,000) × 7% +
(Rs. 3,50,00,000 / Rs. 4,98,50,000) × 12%

= 0.30 x 7% +0.70x 12% = 2.1% + 8.4%

= 10.50%.

(b) Calculation of Expected Rate of Return using Capital Asset Pricing Model (CAPM)

Cost of Equity = Risk-free interest rate + Beta (Market rate - Risk-free interest rate)

= 5% + 0.60 (12% - 5%)

= 9.2%

Therefore, the expected rate of return = 9.2%.

5. Working Notes:

Determination of Specific Costs:

(i) Cost of Debentures before tax (k_d)

$$k_d = \frac{I + \frac{(P - NP)}{n}}{\frac{(P + NP)}{2}}$$

Where,

I = Annual interest payment

P = Redeemable/payable value of debenture at maturity

NP = Net sale value from issue of debenture/face value – expenses

$$k_d = \frac{8 + \frac{(100 - 96)}{20}}{\frac{(100 + 96)}{2}}$$

$$= \frac{8 + .20}{98} = .0836 \text{ or } 8.36\%$$

Cost of debenture after tax = K_d (1– t)

= 8.36 (1– .50) = 4.18%.

(ii) Cost of Preference Shares (k_p)

$$k_p = \frac{D + \frac{(P - NP)}{n}}{\frac{(P + NP)}{2}}$$

Where,

D = Fixed annual dividend

P = Redeemable value of preference shares

n = Number of years to maturity.

$$K_p = \frac{10 + \frac{(100 - 95)}{15}}{\frac{(100 + 95)}{2}} = \frac{10.33}{97.5} = .1059 \text{ or } 10.59\%$$

(iii) Cost of Equity (k_e)

$$k_e = \frac{D}{NP} + g$$

Where,

D = Expected dividend per share

NP = Net proceeds per share

g = Growth expected in dividend

$$k_e = \frac{2}{22 - 2} + .05 = \frac{2}{20} + .05 = .10 + .05 = .15 \text{ or } 15\%.$$

(i) Computation of Weighted Average Cost of Capital based on Book Value Weights

Source of Capital	Book Value Rs.	Weights to Total Capital	Specific Cost	Total Cost
Debentures (Rs. 100 per debenture)	8,00,000	0.40	0.0418	0.0167
Preference Shares (Rs. 100 per share)	2,00,000	0.10	0.1059	0.0106
Equity Shares (Rs. 10 per share)	10,00,000	0.50	0.1500	0.0750
	20,00,000	1.00		0.1023

Cost of Capital = 10.23%

(ii) Computation of Weighted Average Cost of Capital based on Market Value Weights

Source of Capital	Market Value Rs.	Weights to Total Capital	Specific Cost	Total Cost
Debentures (Rs. 110 per debenture)	8,80,000	0.2651	0.0418	0.01108
Preference Shares (Rs. 120 per share)	2,40,000	0.0723	0.1059	0.00766
Equity Shares (Rs. 22 per share)	22,00,000	0.6626	0.1500	0.09939
	33,20,000	1.00		0.11813

Cost of Capital = 11.81%

6. (a) Payback Period of Projects

	C_0	C_1	C_2	C_3	
A	– 10,000 +	6,000 +	2,000 +	2,000	= 3 years
B	– 10,000 +	2,500 +	2,500 +	5,000	= 3 years
C	– 3,500 +	1,500 +	2,500		= 1 year and 9.6 months
		i.e. $\frac{12}{2,500} \times 2,000$			
D	– 3,000 +	0 +	0 +	3,000	= 3 years.

(b) If standard payback period is 2 years, Project C is the only acceptable project. But if standard payback period is 3 years, all the four projects are acceptable.

(c) Discounted Payback Period (Cash flows discounted at 10%)

A – 10,000 + 5,454.6 + 1,652.8 + 1,502.6 + 8,196

$$3 \text{ years} + \frac{12}{8,196} \times 1,390 = 3 \text{ years and } 2 \text{ months}$$

B – 10,000 + 2,272.75 + 2,066 + 3,756.5 + 5,122.50

$$3 \text{ years} + \frac{12}{5,122.55} \times 1,904.75 = 3 \text{ years and } 4.46 \text{ months}$$

C – 3,500 + 1,363.65 + 2,066 + 375.65 + 3,415

$$2 \text{ years} + \frac{12}{375.65} \times 70.35 = 2 \text{ years and } 2.25 \text{ months}$$

D – 3,000 + 0 + 0 + 2,253.9 + 4,098

$$3 \text{ years} + \frac{12}{4,098} \times 746.10 = 3 \text{ years and } 2.18 \text{ months}$$

If standard discounted payback period is 2 years, no project is acceptable on discounted payback period criterion.

If standard discounted payback period is 3 years, Project 'C' is acceptable on discounted payback period criterion.

(d) Evaluation of Projects on NPV criterion

A = – 10,000 + 5,454.6 + 1,652.8 + 1,502.60 + 8,196

NPV = Rs. 6,806

B = – 10,000 + 2,272.75 + 2,066 + 3,756.5 + 5,122.5

NPV = Rs. 3,217.75

C = – 3,500 + 1,363.65 + 2,066 + 375.65 + 3,415

NPV = Rs. 3,720.3

D = – 3,000 + 0 + 0 + 2,253.9 + 4,098

NPV = Rs. 3,351.9

Ranking of Projects on NPV Criterion

	NPV	Rank
	Rs.	
A	6,806	I
B	3,217.75	IV
C	3,720.3	II
D	3,351.9	III

Analysis: Project A is acceptable under the NPV method. The NPV technique is superior to any other technique of capital budgeting, whether it is PI or IRR. The best project is the one which adds the most, among available alternatives, to the shareholders wealth. The NPV method, by its very definition, will always select such projects. Therefore, the NPV method gives a better mutually exclusive choice than PI method. The NPV method guarantees the choice of the best alternative.

7. (a) Profitability Ratios

Profitability ratios measure how effective a firm is at generating profit from operations. They are some of the most closely watched and widely quoted financial ratios. Management attempts to maximize these ratios to maximize firm value.

(i) Gross margin measures the percentage of each sales in rupees remaining after payment for the goods sold.

$$\text{Gross margin} = \frac{\text{Gross profit}}{\text{Net sales}} = \frac{\text{Rs. } 18{,}108}{\text{Rs. } 58{,}247} = 31.09\%.$$

Remember that gross profit is equal to net sales minus cost of goods sold.

(ii) Profit margin finds the proportion of revenue that finds its way into profits. Profit margin is calculated as net income divided by net sales, as shown below:

$$\text{Profit margin} = \frac{\text{Net income after interest and taxes}}{\text{Net sales}} = \frac{\text{Rs. 3,664}}{\text{Rs. 58,247}} = 6.29\%.$$

(iii) Operating profit margin measures the percentage of each sales in rupees that remains after the payment of all costs and expenses except for interest and taxes. This ratio is followed closely by analysts because it focuses on operating results. Operating profit is often referred to as earnings before interest and taxes or EBIT.

$$\text{Operating profit margin} = \frac{\text{Operating profit}}{\text{Net sales}} = \frac{\text{Rs. 5,830}}{\text{Rs. 58,247}} = 10.01\%.$$

(iv) Return on assets (return on investment) measures the percentage return generated on the assets available (investment). This ratio may be calculated as:

$$\text{Return on assets} = \frac{\text{Net income after interest and taxes}}{\text{Average total assets}} = \frac{\text{Rs. 3,664}}{\text{Rs. 28,203}} = 12.99\%.$$

$$\text{Average total assets} = \frac{(\text{Ending total assets} + \text{Beginning total assets})}{2}$$

$$= \frac{(\text{Rs. 30,011} + \text{Rs.26,394})}{2}$$

= Rs. 28,203.

(v) Return on equity measures the percentage return generated to equity shareholders.

$$\text{Return on equity} = \frac{\text{Net income after interest and taxes}}{\text{Average shareholders' equity}} = \frac{\text{Rs. 3,664}}{\text{Rs.18,942}} = 19.34\%.$$

$$\text{Average shareholders' equity (SE)} = \frac{(\text{Ending SE} + \text{Beginning SE})}{2}$$

$$= \frac{(\text{Rs.19,802} + \text{Rs.18,082})}{2}$$

= Rs. 18,942.

(vi) The dividend payout ratio measures the dividend paid in relation to net earnings. If Housemakers Limited's dividend for the year was Rs. 0.22, the dividend payout is calculated as:

$$\text{Dividend payout ratio} = \frac{\text{Cash dividend per share}}{\text{Earnings per share}}$$

$$= \frac{\text{Rs. } 0.22}{\text{Rs. } 1.57}$$

= 0.14 or 14%.

(b) Asset Utilisation (Activity) Ratios

Asset utilization ratios measure the time it takes to convert various assets to sales or cash. Asset utilisation ratios are used to measure the efficiency with which assets are managed. For this reason, they are often called asset management ratios.

(i) Receivables turnover measures the number of times per year the balance of receivables is collected. This is a very important measure of the efficiency with which management is managing accounts receivables.

$$\text{Receivables turnover} = \frac{\text{Net credit sales}}{\text{Average accounts receivable}}$$

This ratio cannot be computed for Housemakers Limited since the company does not break out the amount of credit sales.

(ii) The average collection period measures the average number of days it takes to collect an account receivable. This ratio is also referred to as the number of days of receivable and the number of day's sales in receivables.

$$\text{Average collection period} = \frac{\text{Average accounts receivable}}{\text{Average sales per day}}$$

Again, this ratio cannot be calculated for Housemakers Limited because the company does not break out the amount of credit sales.

(iii) Inventory turnover measures the efficiency with which a firm utilizes (manages) its inventory.

$$\text{Inventory turnover} = \frac{\text{Cost of goods sold}}{\text{Average inventory}} = \frac{\text{Rs. } 40,139}{\text{Rs. } 7,532} = 5.33 \text{ times}$$

$$\text{Average inventory} = \frac{(\text{Ending inventory} + \text{Beginning inventory})}{2}$$

$$= \frac{(\text{Rs. } 8,338 + \text{Rs. } 6,725)}{2}$$

= Rs. 7,532.

(iv) A related measure is the. number of days' sales in inventory

$$\text{Number of days' sales in inventory} = \frac{\text{Average inventory}}{\text{Cost of goods sold / 365}}$$

$$= \frac{\text{Rs. 7,532}}{\text{Rs. 40,139 / 365}}$$

= 68.49 days.

(v) Fixed asset turnover measures the efficiency with which the firm uses its fixed assets.

$$\text{Fixed asset turnover} = \frac{\text{Sales}}{\text{Average net fixed assets}} = \frac{\text{Rs. 58,247}}{\text{Rs. 16,272}} = 3.58 \text{ times}$$

$$\text{Average fixed assets} = \frac{(\text{Ending fixed assets} + \text{Beginning fixed assets})}{2}$$

$$= \frac{(\text{Rs. 17,168} + \text{Rs. 15,375})}{2}$$

= Rs. 16,272.

(vi) Total asset turnover measures the efficiency with which the firm uses its total assets.

$$\text{Total asset turnover} = \frac{\text{Sales}}{\text{Average total assets}} = \frac{\text{Rs. 58,247}}{\text{Rs. 28,203}} = 2.07 \text{ times}$$

(c) Liquidity Ratios

Liquidity ratios measure the firm's ability to meet its short-term obligations as they come due.

(i) The current ratio is the most common measure of short-term liquidity. It is sometimes referred to as the working capital ratio because net working capital is the difference between current assets and current liabilities.

$$\text{Current ratio} = \frac{\text{Current assets}}{\text{Current liabilities}} = \frac{\text{Rs. 11,917}}{\text{Rs. 8,035}} = 1.48$$

Where,

Current assets include cash and cash equivalents, net accounts receivable, marketable securities classified as current, inventories and prepaid expenses.

Current liabilities include accounts payable, short-term notes payable, current maturities of long-term debt, unearned revenue, and other accrued liabilities.

(ii) The quick (acid) ratio provides a more conservative measure of short-term liquidity. It takes out inventory because in times of financial difficulty inventory

may be saleable only at liquidation value.

$$\text{Quick ratio} = \frac{\text{Current assets} - \text{Inventory}}{\text{Current liabilities}} = \frac{\text{Rs.}11{,}917 - 8{,}338}{\text{Rs.}\,8{,}035} = 0.45$$

(d) Debt Utilisation Ratios

Debt utilisation ratios measure the effectiveness with which management finances the assets of the firm. They are used to evaluate the financial leverage of the firm.

(i) The debt to total assets measures the proportion of total assets financed with debt and, therefore, the extent of financial leverage.

$$\text{Debt to total assets} = \frac{\text{Total liabilities}}{\text{Total assets}} = \frac{\text{Rs.}10{,}209}{\text{Rs.}\,30{,}011} = 34.02\%$$

(ii) The debt to equity ratios also measures the extent of the firm's financial leverage.

$$\text{Debt to equity ratio} = \frac{\text{Total liabilities}}{\text{Total equity}} = \frac{\text{Rs.}10{,}209}{\text{Rs.}19{,}802} = 51.56\%$$

(iii) The times interest earned measures the firm's ability to make contractual interest payments.

$$\text{Times interest earned} = \frac{\text{Earnings before interest and taxes}}{\text{Interest expense}} = \frac{\text{Rs.}\,5{,}830}{\text{Rs.}\,37} = 157.57$$

(e) Market Ratios

Market ratios involve measures that consider the market value of the company's shares.

(i) The price/earnings (PE) ratio is the most commonly quoted market measure. Assuming that Housemakers Limited's share price is Rs. 34.00, the price/earnings ratio would be computed as follows:

$$\text{Price / earnings} = \frac{\text{Market price per share}}{\text{Earnings per share}} = \frac{\text{Rs.}\,34}{\text{Rs.}1.57} = 21.66$$

(ii) The market / book ratio provides another evaluation of how investors view the company's past and future performance. To calculate the ratio, the book value per share must first be calculated.

$$\text{Book value per share} = \frac{\text{Total equity}}{\text{Number of shares outstanding}}$$

$$= \frac{\text{Rs.}19{,}802}{2{,}362} = \text{Rs.}\,8.38 \text{ per share}$$

Again, assuming a Rs. 34 market price per share, the market / book ratio is calculated as follows:

$$\text{Market / Book ratio} = \frac{\text{Market value per share}}{\text{Book value per share}}$$

$$= \frac{\text{Rs. } 34.00}{\text{Rs. } 8.38} = 4.06.$$

8. (a) Degree of Operating Leverage (DOL)

$$DOL = \frac{\text{Contribution}}{EBIT} = \frac{EBIT + \text{Fixed Cost}}{EBIT}$$

$$= \frac{1{,}120 + 700}{1{,}120} = 1.625$$

(b) Degree of Financial Leverage (DFL)

$$DFL = \frac{EBIT}{PBT}$$

$$= \frac{1{,}120}{320} = 3.5$$

(c) Degree of Combined Leverage (DCL)

DCL = DOL $\times$ DFL

= 1.625 $\times$ 3.5

= 5.6875

DCL can also be found out as:

$$DCL = \frac{\%\ \text{Change in EPS}}{\%\ \text{Change in Sales}}$$

$$5.6875 = \frac{\%\ \text{Change in EPS}}{5}$$

% change in EPS = 5 $\times$ 5.6875

= 28.4375%.

% Change in Earnings per share = 28.44%

9. Computation of Funds from Operation

Profit and loss balance on March 31, 2009	Rs. 2,25,000
Add: Depreciation	90,000
Loss on Sale of Asset	2,250

Misc. Expenditure written off	5,625
Transfer to Reserves	56,250
Premium on Redemption of debentures	11,250
Provision for Dividend	38,250
Provision for Taxation	68,625
	4,97,250
Less: P/L balance on March 31, 2008	1,12,500
Funds from operations	3,84,750

Accumulated Depreciation A/c

To Fixed Asset A/c	33,750	By Bal. b/d	2,25,000
		By P/L A/c	90,000
To Bal. c/d	2,81,250	(Pro (Prov. for dep.) (Bal. Fig.)	
	3,15,000		3,15,000

Fixed Assets A/c

To Bal. b/d	11,25,000	By Accumulated Depreciation A/c	33,750
		By Cash	9,000
To Bank (Purchase of Fixed Asset) (Bal. fig.)	2,70,000	By P/L (Loss on sale)	2,250
		By Bal. c/d	13,50,000
	13,95,000		13,95,000

Provision for Tax A/c

To Cash (tax paid)	61,875	By Bal. b/d	78,750
		By P/L A/c (Prov.)	
To Bal. c/d	85,500	(Bal. fig.)	68,625
	1,47,375		1,47,375

Statement of Changes in Working Capital

	March 31, 2008	March 31, 2009	Change in Working Capital	
			+	-
Current Assets				
Stock	2,25,000	3,03,750	78,750	
Debtors	2,53,125	2,75,625	22,500	
Bills Receivables	45,000	73,125	28,125	
Prepaid Expenses	11,250	13,500	2,250	
	5,34,375	6,66,000	1,31,625	-

Less: Current liabilities				
Accrued Expenses	11,250	13,500	-	2,250
Creditors	1,80,000	2,81,250	-	1,01,250
	1,91,250	2,94,750	1,31,625	1,03,500
Working Capital	3,43,125	3,71,250	-	-
Increase in Working Capital				28,125
			1,31,625	1,31,625

Funds Flow Statement for the year ended March 31, 2009

Sources		Rs.
	Working Capital from Operations	3,84,750
	Sale of Fixed Assets	9,000
	Sale of Investments	1,01,250
	Share Capital Issued	1,12,500
	Total Funds Provided (A)	Rs. 6,07,500
Uses		Rs.
	Purchase of Fixed Assets	2,70,000
	Purchase of Investments	90,000
	Payment of Debentures (at a premium of 10%)	1,23,750
	Payment of Dividends	33,750
	Payment of Taxes	61,875
	Total Funds Applied (B)	5,79,375
	Increase in Working Capital (A-B)	Rs. 28,125

10. Calculation of Working Capital Requirements on Cash Cost Basis

Computation of Total Cash Cost

	Rs.	Rs.
Sales		90,00,000
Less: Gross profit (25% x sales revenue)		22,50,000
Total Manufacturing cost (A)		67,50,000
Less: Material consumed cost	22,50,000	
Less: Wages paid	18,00,000	40,50,000
Manufacturing expenses		27,00,000
Less:Cash manufacturing expenses (Rs.2,00,000 × 12)		24,00,000

Depreciation: (B)	3,00,000
Total Manufacturing cost : (C) = (A) – (B)	64,50,000
Add: Administrative expenses	6,00,000
Add: Sales promotion expenses	12,00,000
Total cash cost of manufacturing and sales	82,50,000

Estimation of Current Assets (CA)

	Rs.
Debtors (Total cash cost × 3/12) or (Rs. 82,50,000 × 3/12)	20,62,500
Cash balance	2,50,000
Pre-paid sales promotion expenses	3,00,000
Raw materials stock (Material consumed / 12) or (Rs.22,50,000 / 12)	1,87,500
Finished goods stock (Total cash cost x 2/12) or (Rs.82,50,000 x 2/12)	13,75,000
Total Current Assets	41,75,000

Estimation of Current Liabilities (CL)

Sundry creditors Material cost (Rs.22,50,000 x 1.5 months / 12 months)	2,81,250
Manufacturing expenses outstanding	2,00,000
Wages outstanding (Rs. 18,00,000 × 1/12 months)	1,50,000
Administrative expenses outstanding (Rs.6,00,000 × 1 month / 12 months)	50,000
Total Current Liabilities	6 ,81,250
Working Capital Requirements : (CA – CL) (On Cash Cost basis)	34,93,750

11. Preparation of Cash Flows for the Two Projects

Project A

	Relevant Cash Flows					
	0	1	2	3	4	5
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
Initial investment	(1,50,000)					
Operating cash flow (before taxes)		40,000	40,000	40,000	40,000	40,000
Taxes on operating cash flows (25%)		(10,000)	(10,000)	(10,000)	(10,000)	(10,000)

Tax savings from added depreciation (25% × Rs. 25,000)		6,250	6,250	6,250	6,250	6,250
Terminal price of investment						25,000
Total relevant cash flows	(1,50,000)	36,250	36,250	36,250	36,250	61,250

Project B

	Relevant Cash Flows						
	0	1	2	3	4	5	6
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
Initial investment	(2,10,000)						
Operating cash flow (before taxes)		50,000	50,000	50,000	50,000	50,000	50,000
Taxes on operating cash flows (25%)		(12,500)	(12,500)	(12,500)	(12,500)	(12,500)	(12,500)
Tax savings from added depreciation (25% × Rs. 35,000)		8,750	8,750	8,750	8,750	8,750	8,750
Terminal value of investment							0
Total relevant cash flows	(2,10,000)	46,250	46,250	46,250	46,250	46,250	46,250

Computation of Net Present Value (NPV)

		Project A		Project B	
Year	Present value factor (10%)	Cash Flow	Present value	Cash flow	Present value
		Rs.	Rs.	Rs.	Rs.
0	1.000	(1,50,000)	(1,50,000)	(2,10,000)	(2,10,000)
1	0.909	36,250	32,951	46,250	42,041
2	0.826	36,250	29,943	46,250	38,203
3	0.751	36,250	27,224	46,250	34,734
4	0.683	36,250	24,759	46,250	31,589
5	0.621	61,250	38,036	46,250	28,721
6	0.564			46,250	26,085
			2,913		(8,627)

Advise: The net present value is positive in the case of Project A. Therefore, it is advisable that Amtek Electronics should accept Project A and reject Project B.

12. (a) Investment Decisions and Dividend Decisions

Investment decisions are those decisions that determine how scarce resources in terms of funds available are committed to projects which can range from acquiring a piece of plant to the acquisition of another company. Funds procured from different sources have to be invested in various kinds of assets. Long term funds are used in a project for various fixed assets and also for current assets. The investment of funds in a project has to be made after careful assessment of the various projects through capital budgeting. A part of long term funds is also to be kept for financing the working capital requirements. Asset management policies are to be laid down regarding various items of current assets. The inventory policy would be determined by the production manager and the finance manager keeping in view the requirement of production and the future price estimates of raw materials and the availability of funds.

Whereas, on the other hand, Dividend decisions are those decisions that relate to the determination as to how much and how frequently cash can be paid out of the profits of an organisation as income for its owners/shareholders. The owner of any profit-making organization looks for reward for his investment in two ways, the growth of the capital invested and the cash paid out as income; for a sole trader this income would be termed as drawings and for a limited liability company the term is dividends.

The dividend decisions thus has two elements – the amount to be paid out and the amount to be retained to support the growth of the organisation, the latter being also a financing decision; the level and regular growth of dividends represent a significant factor in determining a profit-making company's market value, i.e. the value placed on its shares by the stock market.

(b) Compound Interest and Simple Interest

Compound interest is the interest that accrues on a deposit or investment that uses compounding which basically means that interest is paid both on previously earned interest and as well as on the principal. In other words, interest due at the end of unit payment period is added to the principal and interest on the next payment period is computed on the new principal. Naturally, the amount calculated on the basis of compound interest rate is higher than when calculated with the simple rate. The time interval between successive additions of interests is known as conversion (or payment) period.

Whereas, on the other hand, Simple interest is defined as "Interest calculated as a simple percentage of the original principal amount". The simple interest 'I' on a principal 'P' borrowed at the rate of 'i' per annum for a period of 't' years is given by:

$$I = Pit$$

It must be noted that i is represented in decimals and is part of one unit. If the rate of interest is in percent, i can be calculated by dividing it by 100.

(c) Funds Flow Analysis and Cash Flow Analysis

(i) Funds flow statement is based on the accrual accounting system. In case of

preparation of cash flow statements all transactions a effecting the cash or cash equivalents only is taken into consideration.

(ii) Funds flow statement analyses the sources and application of funds of long-term nature and the net increase or decrease in long-term funds will be reflected on the working capital of the firm. The cash flow statement will only consider the increase or decrease in current assets and current liabilities in calculating the cash flow of funds from operations.

(iii) Funds Flow analysis is more useful for long range financial planning. Cash flow analysis is more useful for identifying and correcting the current liquidity problems of the firm.

(iv) Funds flow statement tallies the funds generated from various sources with various uses to which they are put. Cash flow statement starts with the opening balance of cash and reaches to the closing balance of cash by proceeding through sources and uses.

(d) Net Income Approach and Net Operating Income Approach to Capital Structure

According to Net Income Approach (NI), capital structure decision is relevant to the value of the firm. An increase in financial leverage will lead to decline in the weighted average cost of capital, while the value of the firm as well as market price of ordinary share will increase. Conversely, a decrease in the leverage will cause an increase in the overall cost of capital and a consequent decline in the value as well as market price of equity shares.

Under, NI approach, the value of the firm will be maximum at a point where weighted average cost of capital is minimum. Thus, the theory suggests total or maximum possible debt financing for minimising the cost of capital. The overall cost of capital under this approach is :

$$\text{Overall cost of capital} = \frac{\text{EBIT}}{\text{Value of the firm}}$$

Thus according to this approach, the firm can increase its total value by decreasing its overall cost of capital through increasing the degree of leverage. The significant conclusion of this approach is that it pleads for the firm to employ as much debt as possible to maximise its value.

Whereas, on the other hand, according to Net Operating Income Approach (NOI), capital structure decisions of the firm are irrelevant. Any change in the leverage will not lead to any change in the total value of the firm and the market price of shares, as the overall cost of capital is independent of the degree of leverage. As a result, the division between debt and equity is irrelevant. An increase in the use of debt which is apparently cheaper is offset by an increase in the equity capitalisation rate. This happens because equity investors seek higher compensation as they are opposed to greater risk due to the existence of fixed return securities in the capital structure.

13. (a) Evolution of Financial Management

Financial Management evolved gradually over the past 50 years. The evolution of financial management is divided into three phases. Financial Management evolved as a separate field of study at the beginning of the century. The three stages of its evolution are:

(i) The Traditional Phase: During this phase, financial management was considered necessary only during occasional events such as takeovers, mergers, expansion, liquidation, etc. Also, when taking financial decisions in the organisation, the needs of outsiders (investment bankers, people who lend money to the business and other such people) to the business was kept in mind.

(ii) The Transitional Phase: During this phase, the day-to-day problems that financial managers faced were given importance. The general problems related to funds analysis, planning and control were given more attention in this phase.

(iii) The Modern Phase: Modern phase is still going on. The scope of financial management has greatly increased now. It is important to carry out financial analysis for a company. This analysis helps in decision-making. During this phase, many theories have been developed regarding efficient markets, capital budgeting, option pricing, valuation models and also in several other important fields in financial management.

(b) Time Value of Money

The time value of money (TVM) is one of the basic concepts of finance. If money is deposited in a bank account, it will receive interest. Because of this, we prefer to receive money today rather than the same amount in the future. Money we receive today is more valuable to us than money received in the future by the amount of interest we can earn with the money. This is referred to as the time value of money.

The term time value of money can be defined as "The value derived from the use of money over time as a result of investment and reinvestment. This term may refer to either present value or future value calculations. The present value is the value today of an amount that would exist in the future with a stated investment rate called the discount rate." For example, with a 10% annual discount rate, the present value today of Rs. 110 one year from now is Rs. 100.

(c) Seed Capital Assistance

The Seed Capital Assistance scheme is designed by IDBI for professionally or technically qualified entrepreneurs and/or persons possessing relevant experience, skills and entrepreneurial traits. All the projects eligible for financial assistance from IDBI, directly or indirectly through refinance are eligible under the scheme. The project cost should not exceed Rs. 2 crores and the maximum assistance under the project will be restricted to 50% of the required promoter's contribution or Rs. 15 lacs whichever is lower.

The Seed Capital Assistance is interest-free but carries a service charge of one per cent per annum for the first five years and at increasing rate thereafter. However,

IDBI will have the option to charge interest at such rate as may be determined by IDBI on the loan if the financial position and profitability of the company so permits during the duration of the loan. The repayment schedule is fixed depending upon the repaying capacity of the unit with an initial moratorium upto five years.

For projects with a project cost exceeding Rs. 200 lacs, seed capital may be obtained from the Risk Capital and Technology Corporation Limited (RCTC). For small projects costing upto Rs. 5 lacs, assistance under the National Equity Fund of the SIDBI may be availed.

(d) Capital Budgeting Process

The extent to which the capital budgeting process needs to be formalised and systematic procedures established depends on the size of the organisation; number of projects to be considered; direct financial benefit of each project considered by itself; the composition of the firm's existing assets and management's desire to change that composition; timing of expenditures associated with the projects that are finally accepted.

(i) Planning: The capital budgeting process begins with the identification of potential investment opportunities. The opportunity then enters the planning phase when the potential effect on the firm's fortunes is assessed and the ability of the management of the firm to exploit the opportunity is determined. Opportunities having little merit are rejected and promising opportunities are advanced in the form of a proposal to enter the evaluation phase.

(ii) Evaluation: This phase involves the determination of proposal and its investments, inflows and outflows. Investment appraisal techniques, ranging from the simple payback method and accounting rate of return to the more sophisticated discounted cash flow techniques, are used to appraise the proposals. The technique selected should be the one that enables the manager to make the best decision in the light of prevailing circumstances.

(iii) Selection: Considering the returns and risks associated with the individual projects as well as the cost of capital to the organisation, the organisation will choose among projects so as to maximise shareholders' wealth.

(iv) Implementation: When the final selection has been made, the firm must acquire the necessary funds, purchase the assets, and begin the implementation of the project.

(v) Control: The progress of the project is monitored with the aid of feedback reports. These reports will include capital expenditure progress reports, performance reports comparing actual performance against plans set and post completion audits.

(vi) Review: When a project terminates, or even before, the organisation should review the entire project to explain its success or failure. This phase may have implication for firms planning and evaluation procedures. Further, the review may produce ideas for new proposals to be undertaken in the future.