PAPER – 4 : COST ACCOUNTING AND FINANCIAL MANAGEMENT

All questions are compulsory.

Working notes should form part of the answer.

Question 1

Answer any five of the following:

(i) Two workmen, A and B, produce the same product using the same material. A is paid bonus according to Halsey plan, while B is paid bonus according to Rowan plan. The time allowed to manufacture the product is 100 hours. A has taken 60 hours and B has taken 80 hours to complete the product. The normal hourly rate of wages of workman A is Rs.24 per hour. The total earnings of both the workers are same. Calculate normal hourly rate of wages of workman B.

(ii) Distinguish between product cost and period cost.

(iii) A lorry starts with a load of 24 tonnes of goods from station A. It unloads 10 tonnes at station B and rest of goods at station C. It reaches back directly to station A after getting reloaded with 18 tonnes of goods at station C. The distance between A to B, B to C and then from C to A are 270 kms, 150 kms and 325 kms respectively. Compute 'Absolute tonnes kms' and 'Commercial tones-kms'.

(iv) Following details relating to product X during the month of April, 2009 are available:

Standard cost per unit of X :

Materials : 50 kg @ Rs.40/kg

Actual production : 100 units

Actual material cost : Rs.42/kg

Material price variance : Rs.9,800 (Adverse)

Material usage variance : Rs.4,000 (Favourable)

Calculate the actual quantity of material used during the month April, 2009.

(v) Discuss the components of budgetary control system.

(vi) Following information is available for the first and second quarter of the year 2008-09 of ABC Limited:

	Production (in units)	Semi-variable cost (Rs.)
Quarter I	36,000	2,80,000
Quarter II	42,000	3,10,000

You are required to segregate the semi-variable cost and calculate :

(a) Variable cost per unit; and

(b) Total fixed cost. (5 × 2 = 10 Marks)

Answer

(i)

	A	B
Time Allowed (Hrs.)	100	100
Time Taken (Hrs.)	60	80
Time Saved (Hrs.)	40	20
Let the rate of wages of the worker B is Rs.x per hour		
Normal Wages	1440	80x
(Time taken × Hourly rate of wages)	(60×24)	
Bonus	480	16x
	$\frac{(1/2 \times 40 \times 24)}{1920}$	$\frac{\left(\frac{20}{100}\right) \times (80 \times x)}{96x}$

According to the problem,

Total earnings of A = Total earnings of B

1920 = 96x

$x = \frac{1920}{96}$ = Rs.20

∴ Hourly rate of wages of the worker is Rs.20 per hour.

Alternative Solution:

In case of worker B, in place of x, it can be written as '80x hourly rate'.

Hence final equation will be

96x hourly rate = 1920

Hourly rate of B = $\frac{1920}{96}$ = Rs. 20

(ii) Product Cost vis-à-vis Period cost

Product costs are associated with the purchase and sale of goods. In the production scenario, such costs are associated with the acquisition and conversion of materials and

all other manufacturing inputs into finished product for sale. Hence under absorption cost, total manufacturing costs constitute inventoriable or product cost.

Periods costs are the costs, which are not assigned to the products but are charged as expense against revenue of the period in which they are incurred. General Administration, marketing, sales and distributor overheads are recognized as period costs.

(iii) Absolute tonnes kms

= tonnes (unit of weight) ×Km (Unit of distance)

= 24 tonnes × 270 kms

+ 14 tonnes × 150 kms

+ 18 tonnes × 325 kms

= 6480 + 2100 + 5850

= 14430 tonnes kms

Commercial Tonnes kms

= Average load × total kms travelled

$= \left(\frac{24+14+18}{3}\right)$ tonnes × 745 kms

= 13906.67 Tonnes km

(iv)

Standard cost of materials for actual output		Rs.
[(100 units × 50 kg) × Rs.40 per kg]	=	2,00,000
Material Usage Variance		4,000 (F)
		1,96,000
Material Price Variance		9,800 (A)
Actual cost of materials used		2,05,800

Actual material cost = Rs.42 per kg.

∴ Actual quantity of materials used during the month = $\frac{\text{Rs.2,05,800}}{42}$ = 4,900 kg.

Alternative solution

Material price variance = Rs. 9800 (A)

Actual price per kg. = Rs. 42

Actual quantity of material used = Rs. 9800/(42-40) = 4900 kg

(v) Components of budgetary control system

The policy of a business for a defined period is represented by the master budget the details of which are given in a number of individual budgets called functional budgets. The functional budgets are broadly grouped under the following heads:

(a) Physical Budgets – Sales Qty, Product Qty., Inventory, Manpower budget.

(b) Cost Budgets – Manufacturing Cost, Administration Cost, sales & distribution cost, R & D Cost.

(c) Profit Budget

(vi)

	Production (Units)	Semi Variable Cost (Rs.)
Quarter I	36,000	2,80,000
Quarter II	42,000	3,10,000
Difference	6,000	30,000

$$\text{Variable Cost per Unit} = \frac{\text{Change in Semi Variable Cost}}{\text{Change in Pr oduction}}$$

$$= \frac{\text{Rs.30,000}}{\text{6,000 units}}$$

= Rs.5 per units

Total Fixed Cost = Semi Veriable Cost – (Production x Variable Cost per Unit)

Total fixed cost in Quarter I :

= 2,80,000 – (36,000 × 5)

= 2,80,000 – 1,80,000

= 1,00,000

Total fixed cost in Quarter II :

= 3,10,000 – (42,000 × 5)

= 3,10,000 – 2,10,000

= 1,00,000

Question 2

Following is the sales budget for the first six months of the year 2009 in respect of PQR Ltd. :

Month :	Jan.	Feb.	March	April	May	June
Sales (units) :	10,000	12,000	14,000	15,000	15,000	16,000

Finished goods inventory at the end of each month is expected to be 20% of budgeted sales quantity for the following month. Finished goods inventory was 2,700 units on January 1, 2009. There would be no work-in-progress at the end of any month.

Each unit of finished product requires two types of materials as detailed below:

Material X : 4 kgs @ Rs.10/kg

Material Y : 6 kgs @ Rs.15/kg

Material on hand on January 1, 2009 was 19,000 kgs of material X and 29,000 kgs of material Y. Monthly closing stock of material is budgeted to be equal to half of the requirements of next month's production.

Budgeted direct labour hour per unit of finished product is ¾ hour.

Budgeted direct labour cost for the first quarter of the year 2009 is Rs.10,89,000.

Actual data for the quarter one, ended on March 31, 2009 is as under:

Actual production quantity : 40,000 units

Direct material cost

(Purchase cost based on materials actually issued to production)

Material X : 1,65,000 kgs @ Rs.10.20/kg

Material Y : 2,38,000 kgs @ Rs.15.10/kg

Actual direct labour hours worked : 32,000 hours

Actual direct labour cost : Rs.13,12,000

Required :

(a) Prepare the following budgets:

  (i) Monthly production quantity for the quarter one.

  (ii) Monthly raw material consumption quantity budget from January, 2009 to April, 2009.

  (iii) Materials purchase quantity budget for the quarter one.

(b) Compute the following variances :

  (i) Material cost variance

  (ii) Material price variance

  (iii) Material usage variance

  (iv) Direct labour cost variance

  (v) Direct labour rate variance

  (vi) Direct labour efficiency variance (6 +9 = 15 Marks)

Answer

(a) (i) Production Budget for January to March 2009

(Quantitative)

	Jan	Feb	Mar	April
Budgeted Sales	10,000	12,000	14,000	15,000
Add: Budgeted Closing Stock (20% of sales of next month)	2,400	2,800	3,000	3,000
	12,400	14,800	17,000	18,000
Less: Opening Stock	2,700	2,400	2,800	3,000
Budgeted Output	9,700	12,400	14,200	15,000

Total Budgeted Output for the Quarter ended March 31, 2009

= (9,700 + 12,400 + 14,200)

= 36,300 units.

(ii) Raw Material Consumption Budget (in quantity)

Month	Budgeted Output (Units)	Material 'X' @ 4 kg per unit (Kg)	Material 'Y' @ 6 kg per unit (Kg)
Jan	9,700	38,800	58,200
Feb	12,400	49,600	74,400
Mar	14,200	56,800	85,200
Apr	15,000	60,000	90,000
Total		2,05,200	3,07,800

(iii) Raw Materials Purchase Budget (in quantity)

for the Quarter ended (March 31,2009)

	Material X (kg)	Material Y (kg)
Raw material required for production	1,45,200	2,17,800
Add: Closing Stock of raw material	30,000	45,000
	1,75,200	2,62,800
Less: Opening Stock of raw material	19,000	29,000
Material to be purchased	1,56,200	2,33,800

Alternative Solution

(iii) Raw Materials Purchase Budget (in quantity)

for the Quarter ended (March 31,2009)

Material X

	Jan	Feb	Mar	Total
Raw material required for production(x)	38800	49600	56800	145200
Add: Closing stock of raw material	24800	28400	30000	83200
	63600	78000	86800	228400
Less: Opening stock of raw material X	19000	24800	28400	72200
Materials to be purchased X	44600	53200	58400	156200

Raw Materials Purchase Budget (in quantity)

for the Quarter ended (March 31,2009)

Material Y

	Jan	Feb	Mar	Total
Raw material required for production(Y)	58200	74400	85200	217800
Add: Closing stock of raw material	37200	42600	45000	124800
	95400	117000	130200	342600
Less: Opening stock of raw material Y	29000	37200	42600	108800
Materials to be purchased Y	66400	79800	87600	233800

(b) Calculation of Material Cost Variance

(a)		(b)	
Std Price × Std Mix × Std Qty for actual output		Std. Price × Std. Mix × Actual Qty.	
X – 10 × 4 × 40,000 =	16,00,000	X – 10 × $\frac{4}{10}$ × 4, 03,000 =	16,12,000
Y – 15 × 6 × 40,000 =	36,00,000	Y – 15 × $\frac{6}{10}$ × 4,03,000 =	36,27,000
	52,00,000		52,39,000

(c)		(d)	
Std Price × Actual Mix × Actual Qty		Actual Price × Actual Mix × Actual Qty.	
X – 10 × 1,65,000 =	16,50,000	X – 10.20 × 1,65,000 =	16,83,000
Y – 15 × 2,38,000 =	35,70,000	Y – 15.10 × 2,38,000	35,93,800
	52,20,000		52,76,800

Direct Material Usage Variance = (a – c)

X – 16,00,000 – 16,50,000 = 50,000 (A)

Y – 36,00,000 – 35,70,000 = 30,000 (F)

52,00,000 – 52,20,000 = 20,000 (A)

Direct Material Price Variance = (c – d)

X – 16,50,000 – 16,83,000 = 33,000 (A)

Y – 35,70,000 – 35,93,800 = 23,800 (A)

52,20,000 – 52,76,800 = 56,800 (A)

Direct Material Cost Variance = (a – d)

X – 16,00,000 – 16,83,000 = 83,000 (A)

Y – 36,00,000 – 35,93,800 = 6,200 (F)

52,00,000 – 52,76,800 = 76,800 (A)

Verification:

Direct Material Cost Variance = Direct Material Usage Variance + Direct Material Price Variance

= 20,000 (A) + 56,800 (A)

= 76,800 (A)

Alternative Solution (Total basis)

Direct Material Cost Variance = 52, 00,000 – 52, 76,800 =76,800 (A)

Direct Material Price Variance = 52, 20,000 – 52, 76,800 = 56,800 (A)

Direct Material Usage Variance = 52, 20,000 -52, 00,000 = 20,000 (A)

Calculation of Labour Cost Variances:

Budgeted output for the quarter = 36,300 units

Budgeted direct labour hours = 36,300 × ¾ hrs.

= 27,225 hours

Standard or Budgeted labour rate per hour

$$= \frac{\text{Budgeted direct labour cost}}{\text{Budgeted direct labour hours}}$$

$$= \frac{\text{Rs.10,89,000}}{\text{27,225 hours}} = \text{Rs.40}$$

Standard labour hours for actual output:

= 40,000 units × ¾ hour

= 30,000 hours

Actual labour hour rate = $\frac{\text{Rs.13,12,000}}{\text{32,000 hrs}}$ = Rs.41

Direct Labour Efficiency Variance = Standard Rate × (Std. hrs – Actual hrs.)

= Rs.40 × (30,000 – 32,000)

= Rs.80,000 (A)

Direct Labour Rate Variance = Actual hrs. × (Std. Rate – Actual Rate)

= 32,000 × (40 – 41)

= Rs.32,000 (A)

Direct Labour Cost Variance = (Std. rate × Std. hrs.) – (Actual rate × Actual hrs.)

= (40 × 30,000) – (41 × 32,000)

= 12,00,000 – 13,12,000

= 1,12,000 (A)

Verification:

Direct Labour Cost Variance = Direct Labour Efficiency Variance + Direct Labour Rate Variance

= Rs.80,000 (A) + Rs.32,000 (A)

= 1,12,000 (A)

Question 3

(a) A manufacturing company has disclosed a net loss of Rs.2,13,000 as per their cost accounting records for the year ended March 31, 2009. However, their financial accounting records disclosed a net loss of Rs.2,58,000 for the same period. A scrutiny of data of both the sets of books of accounts revealed the following information:

		Rs.
(i)	Factory overheads underabsorbed	5,000
(ii)	Administration overheads overabsorbed	3,000
(iii)	Depreciation charged in financial accounts	70,000
(iv)	Depreciation charged in cost accounts	80,000
(v)	Interest on investments not included in cost accounts	20,000
(vi)	Income-tax provided in financial accounts	65,000
(vii)	Transfer fees (credit in financial accounts)	2,000
(viii)	Preliminary expenses written off	3,000
(ix)	Over-valuation of closing stock of finished goods in cost accounts	7,000

Prepare a Memorandum Reconciliation Account. (7 Marks)

(b) Describe briefly, how joint costs upto the point of separation may be apportioned amongst the joint products under the following methods:

(i) Average unit cost method

(ii) Contribution margin method

(iii) Market value at the point of separation

(iv) Market value after further processing

(v) Net realizable value method. (9 Marks)

Answer

(a) Memorandum Reconciliation Account

Particulars		Rs.	Particulars		Rs.
To	Net loss as per costing books	2,13,000	By	Administrative overhead over absorbed in costs	3,000
To	Factory overheads under absorbed	5,000	By	Depreciation over charged in cost books (80,000 – 70,000)	10,000
To	Income tax not provided in cost books	65,000	By	Interest on investments not included in cost books	20,000
To	Preliminary expenses written off in financial books	3,000	By	Transfer fees not considered in cost books	2,000

To	Over-valuation of Closing Stock of finished goods in cost books	7,000	By	Net loss as per financial books	2,58,000
		2,93,000			2,93,000

(b) Methods of apportioning joint cost among the joint products:

(i) Average Unit Cost Method: under this method, total process cost (upto the point of separation) is divided by total units of joint products produced. On division average cost per unit of production is obtained. The effect of application of this method is that all joint products will have uniform cost per unit.

(ii) Contribution Margin Method: under this method joint costs are segregated into two parts – variable and fixed. The variable costs are apportioned over the joint products on the basis of units produced (average method) or physical quantities. If the products are further processed, then all variable cost incurred be added to the variable cost determined earlier. Then contribution is calculated by deducting variable cost from their respective sales values. The fixed costs are then apportioned over the joint products on the basis of contribution ratios.

(iii) Market Value at the Time of Separation: This method is used for apportioning joint costs to joint products upto the split off point. It is difficult to apply if the market value of the products at the point of separation are not available. The joint cost may be apportioned in the ratio of sales values of different joint products.

(iv) Market Value after further Processing: Here the basis of apportionment of joint costs is the total sales value of finished products at the further processing. The use of this method is unfair where further processing costs after the point of separation are disproportionate or when all the joint products are not subjected to further processing.

(v) Net Realisable Value Method: Here joint costs is apportioned on the basis of net realisable value of the joint products,

Net Realisable Value = Sale value of joint products (at finished stage)
(-) estimated profit margin
(-) selling & distribution expenses, if any
(-) post split off cost

Question 4

Answer any three of the following:

(i) Discuss accounting treatment of spoilage and defectives in cost accounting.

(ii) Discuss accounting treatment of idle capacity costs in cost accounting.

(iii) A contract is estimated to be 80% complete in its first year of construction as certified. The contractee pays 75% of value of work certified, as and when certified and makes the final payment on the completion of contract. Following information is available for the first year:

	Rs.
Cost of work-in-progress uncertified	8,000
Profit transferred to Profit & Loss A/c at the end of year I on incomplete contract	60,000
Cost of work to date	88,000

Calculate the value of work- in-progress certified and amount of contract price.

(iv) Product Z has a profit-volume ratio of 28%. Fixed operating costs directly attributable to product Z during the quarter II of the financial year2009-10 will be Rs.2,80,000.

Calculate the sales revenue required to achieve a quarterly profit of Rs. 70,000.

(3 x 3 = 9 Marks)

Answer

(i) Accounting of Spoilage and Defectives:

Spoilage is the tem used for materials which are badly damaged in manufacturing operations, and it cannot rectified economically and hence taken out of the process to be disposed of in some manner without further processing.

Normal spoilage costs are included in costs either charging it to production order or by charging it to production overheads so that it is spread over all products. Any value realized from spoilage is credited to production order or production overhead account as the case may be.

Cost of abnormal spoilage is charged to costing P/L A/c.

Defectives: Signifies those units or portions of production which can be rectified and turned cut as good units by application of additional material, labour or other service. Defectives are charged to general overheads or department overheads depending upon their traceability. They are charged to good production, when second have a normal value and defective rectified into 'second' or 'first' are normal.

Costing P/L A/c – in case of abnormal nature .

(ii) Treatment of Idle Capacity Cost

(a) If idle capacity is due to unavoidable reasons such as repairs & maintenance, change over of job etc., a supplementary overhead rate may be used to recover the idle capacity cost. In this case, the costs are charged to production capacity utilized.

(b) If idle capacity cost is due to avoidable reasons such as faulty planning, power failure etc, the cost should be charged to P/L A/c.

(c) If idle capacity is due to seasonal factors, then the cost should be charged to cost of production by inflating overhead rates.

(iii) As the contract is 80% complete, so 2/3rd of the notional profit on cash basis has been transferred to Profit & Loss A/c in the first year of contract.

$\therefore$ Amount transferred to Profit & Loss A/c $= \frac{2}{3} \times$ Notional Profit $\times$ % of cost received

or , 60,000 $= \frac{2}{3} \times$ Notional Profit $\times \frac{75}{100}$

or, Notional Profit $= \frac{60{,}000 \times 3 \times 100}{2 \times 75}$

$=$ Rs.1,20,000

Computation of Value of Work Certified

Cost of work to date	= Rs. 88,000
Add: Notional Profit	= Rs.1,20,000
	Rs.2,08,000
Less: Cost of Work Uncertified	= 8,000
Value of Work Certified	= Rs.2,00,000

Since the Value of Work Certified is 80% of the Contract Price, therefore

Contract Price $= \frac{\text{Value of Work Certified}}{80\%}$

$= \frac{\text{Rs.2,00,000}}{80\%}$

$=$ Rs.2,50,000

(iv) P/V ratio = 28%

Quarterly fixed Cost = Rs.2,80,000

Desired Profit = Rs.70,000

Sales revenue required to achieve desired profit

$$= \frac{\text{Fixed Cost} + \text{Desired Profit}}{\text{P/V ratio}}$$

$$= \frac{2{,}80{,}000 + 70{,}000}{28\%} = \text{Rs.}12{,}50{,}000$$

Question 5

Answer any five of the following:

(i) Write a short note on functions of Treasury department.

(ii) Discuss the concept of American Depository Receipts.

(iii) How is Debt service coverage ratio calculated? What is its significance?

(iv) Discuss conflict in profit versus wealth maximization objective.

(v) Discuss the concept of Debt-Equity or EBIT-EPS indifference point, while determining the capital structure of a company.

(vi) Discuss the benefits to the originator of Debt Securitization. (5 x 2 = 10 Marks)

Answer

(i) Functions of Treasury Department

(a) Cash Management: The efficient collection and payment of cash both inside the organization and to third parties is the function of treasury department. Treasury normally manages surplus funds in an investment portfolio.

(b) Currency Management: The treasury department manages the foreign currency risk exposure of the company. It advises on the currency to be used when invoicing overseas sales. It also manages any net exchange exposures in accordance with the company policy.

(c) Fund Management: Treasury department is responsible for planning and sourcing of company's short, medium, and long - term cash needs. It also participates in the decision on capital structure and forecasts future interest and foreign currency rates.

(d) Banking: Since short-term finance can come in the form of bank loans or through the sale of commercial paper in the money market, therefore, treasury department carries out negotiations with bankers and acts as the initial point of contact with them.

(e) Corporate Finance: Treasury department is involved with both acquisition and divestment activities within the group. In addition, it is often responsible for investor relations.

(ii) Concept of American Depository Receipts

American Depository Receipts (ADRs) are securities offered by non- US companies who want to list on any of the US exchanges. It is a derivative instrument. It represents a certain number of company's shares. These are used by depository bank against a fee income. ADRs allow US investors to buy shares of these companies without the cost of

investing directly in a foreign stock exchange. ADRs are listed on either NYSE or NASDAQ. It facilitates integration of global capital markets. The company can use the ADR route either to get international listing or to raise money in international capital market.

(iii) Calculation of Debt Service Coverage Ratio (DSCR) and its Significance

The debt service coverage ratio can be calculated as under:

$$\text{Debt Service Coverage Ratio} = \frac{\text{Earnings available for debt service}}{\text{Interest} + \text{Installments}}$$

$$\text{Or, Debt Service Coverage Ratio} = \frac{\text{EBITDA}}{\text{Interest} + \frac{\text{Principal Repayment Due}}{1 - Tc}}$$

Debt service coverage ratio indicates the capacity of a firm to service a particular level of debt i.e. repayment of principal and interest. High credit rating firms target DSCR to be greater than 2 in its entire loan life. High DSCR facilitates the firm to borrow at the most competitive rates.

(iv) Conflict in Profit versus Wealth Maximization Objective

Profit maximisation is a short–term objective and cannot be the sole objective of a company. It is at best a limited objective. If profit is given undue importance, a number of problems can arise like the term profit is vague, profit maximisation has to be attempted with a realisation of risks involved, it does not take into account the time pattern of returns and as an objective it is too narrow.

Whereas, on the other hand, wealth maximisation, is a long-term objective and means that the company is using its resources in a good manner. If the share value is to stay high, the company has to reduce its costs and use the resources properly. If the company follows the goal of wealth maximisation, it means that the company will promote only those policies that will lead to an efficient allocation of resources.

(v) Concept of Debt-Equity or EBIT-EPS Indifference Point while Determining the Capital Structure of a Company

The determination of optimum level of debt in the capital structure of a company is a formidable task and is a major policy decision. It ensures that the firm is able to service its debt as well as contain its interest cost. Determination of optimum level of debt involves equalizing between return and risk.

EBIT – EPS analysis is a widely used tool to determine level of debt in a firm. Through this analysis, a comparison can be drawn for various methods of financing by obtaining indifference point. It is a point to the EBIT level at which EPS remains unchanged

irrespective of debt-equity mix. The indifference point for the capital mix (equity share capital and debt) can be determined as follows:

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

(vi) Benefits to the Originator of Debt Securitization

The benefits to the originator of debt securitization are as follows:

(a) The assets are shifted off the balance sheet, thus giving the originator recourse to off balance sheet funding.

(b) It converts illiquid assets to liquid portfolio.

(c) It facilitates better balance sheet management as assets are transferred off balance sheet facilitating satisfaction of capital adequacy norms.

(d) The originator's credit rating enhances.

Question 6

Balance Sheets of RST Limited as on March 31, 2008 and March 31, 2009 are as under:

Liabilities	31.3.2008 Rs.	31.3.2009 Rs.	Assets	31.3.2008 Rs.	31.3.2009 Rs.
Equity Share Capital (Rs. 10 face value per share)	10,00,000	12,00,000	Land & Building	6,00,000	7,00,000
General Reserve	3,50,000	2,00,000	Plant & Machinery	9,00,000	11,00,000
9% Preference Share Capital	3,00,000	5,00,000	Investments (Long-term)	2,50,000	2,50,000
Share Premium A/c	25,000	4,000	Stock	3,60,000	3,50,000
Profit & Loss A/c	2,00,000	3,00,000	Debtors	3,00,000	3,90,000
8% Debentures	3,00,000	1,00,000	Cash & Bank	1,00,000	95,000

Creditors	2,05,000	3,00,000	Prepaid Expenses	15,000	20,000
Bills Payable	45,000	81,000	Advance Tax Payment	80,000	1,05,000
Provision for Tax	70,000	1,00,000	Preliminary Expenses	40,000	35,000
Proposed Dividend	1,50,000	2,60,000			
	26,45,000	30,45,000		26,45,000	30,45,000

Additional information:

(i) Depreciation charged on building and plant and machinery during the year 2008-09 were Rs. 50,000 and Rs. 1,20,000 respectively.

(ii) During the year an old machine costing Rs. 1,50,000 was sold for Rs. 32,000. Its written down value was Rs. 40,000 on date of sale.

(iii) During the year, income tax for the year 2007-08 was assessed at Rs. 76,000. A cheque of Rs. 4,000 was received along with the assessment order towards refund of income tax paid in excess, by way of advance tax in earlier years.

(iv) Proposed dividend for 2007-08 was paid during the year 2008-09.

(v) 9% Preference shares of Rs. 3,00,000, which were due for redemption, were redeemed during the year 2008-09 at a premium of 5%, out of the proceeds of fresh issue of 9% Preference shares.

(vi) Bonus shares were issued to the existing equity shareholders at the rate of one share for every five shares held on 31.3.2008 out of general reserves.

(vii) Debentures were redeemed at the beginning of the year at a premium of 3%.

(viii) Interim dividend paid during the year 2008-09 was Rs. 50,000.

Required:

(a) Schedule of Changes in Working Capital; and

(b) Fund Flow Statement for the year ended March 31, 2009. (5 + 10 = 15 Marks)

Answer

(a) Schedule of Changes in Working Capital

Particulars	31.3.08	31.3.09	Effect on Working Capital	
			Increase	Decrease
	Rs.	Rs.	Rs.	Rs.
Current Assets:				
Stock	3,60,000	3,50,000	-	10,000
Debtors	3,00,000	3,90,000	90,000	-
Cash and Bank	1,00,000	95,000	-	5,000
Prepaid Expenses	15,000	20,000	5,000	-
Total (A)	7,75,000	8,55,000		
Current Liabilities:				
Creditors	2,05,000	3,00,000	-	95,000
Bills Payable	45,000	81,000	-	36,000
Total (B)	2,50,000	3,81,000		
Net Working Capital (A-B)	5,25,000	4,74,000	-	
Net Decrease in Working Capital	-	51,000	51,000	-
	5,25,000	5,25,000	1,46,000	1,46,000

(b) Funds Flow Statement for the year ended 31st March, 2009

Sources of Fund	Rs.
Funds from Operation	7,49,000
Issue of 9% Preference Shares	5,00,000
Sales of Plant & Machinery	32,000
Refund of Income Tax	4,000
Financial Resources Provided (A)	12,85,000
Applications of Fund	Rs.
Purchase of Land and Building	1,50,000
Purchase of Plant and Machinery	3,60,000

Redemption of Debentures	2,06,000
Redemption of Preference Shares	3,15,000
Payment of Tax	1,05,000
Payment of Interim Dividend	50,000
Payment of Dividend (2007-08)	1,50,000
Financial Resources Applied (B)	13,36,000
Net Decrease in Working Capital (A - B)	51,000

Working Notes:

Estimation of Funds from Operation		Rs.
Profit and Loss A/c Balance on 31.3.2009		3,00,000
Add: Depreciation on Land and Building	50,000	
Depreciation on Plant and Machinery	1,20,000	
Loss on Sale of Plant and Machinery (40,000 – 32,000)	8,000	
Preliminary Expenses written off (40,000 – 35,000)	5,000	
Transfer to General Reserve	50,000	
Proposed Dividend	2,60,000	
Provision for Taxation	1,06,000	
Interim Dividend paid	50,000	
		6,49,000
		9,49,000
Less: Profit and Loss A/c balance on 31.3.08		2,00,000
Funds from Operation		7,49,000

Plant & Machinery A/c

	Rs.		Rs.
To Balance b/d	9,00,000	By Depreciation	1,20,000
To Bank (Purchase (Bal. Fig.)	3,60,000	By Bank (Sale)	32,000
		By P/L A/c (Loss on Sale)	8,000
		By Balance c/d	11,00,000
	12,60,000		12,60,000

Provision for Taxation A/c

	Rs.		Rs.
To Advance tax payment A/c	76,000	By Balance b/d	70,000
To Balance c/d	1,00,000	By P/L A/c (additional provision for 2007-08)	6,000
		By P/L A/c (Provision for 08-09)	1,00,000
	1,76,000		1,76,000

Advance Tax Payment A/c

	Rs.		Rs.
To Balance b/d	80,000	By Provision for taxation A/c	76,000
To Bank (paid for 08-09)	1,05,000	By Bank (Refund of tax)	4,000
		By Balance c/d	1,05,000
	1,85000		1,85,000

8% Debentures A/c

	Rs.		Rs.
To Bank (2,00,000 x 103%) (redemption)	2,06,000	By Balance b/d	3,00,000
To Balance c/d	1,00,000	By Premium on redemption of Debentures A/c	6,000
	3,06,000		3,06,000

9% Preference Share Capital A/c

	Rs.		Rs.
To Bank A/c (3,00,000 x 105%) (redemption)	3,15,000	By Balance b/d	3,00,000
To Balance c/d	5,00,000	By Premium on redemption of Preference shares A/c	15,000
		By Bank (Issue)	5,00,000
	8,15,000		8,15,000

Securities Premium A/c

	Rs.		Rs.
To Premium on redemption of debentures A/c	6,000	By Balance b/d	25,000
To Premium on redemption of preference shares A/c	15,000		
To Balance c/d	4,000		
	25,000		25,000

General Reserve A/c

	Rs.		Rs.
To Bonus to Shareholders A/c	2,00,000	By Balance b/d	3,50,000
To Balance c/d	2,00,000	By P/L A/c (transfer) b/f	50,000
	4,00,000		4,00,000

Land and Building A/c

	Rs.		Rs.
To Balance b/d	6,00,000	By Depreciation	50,000
To Bank (Purchase) (Bal. Fig.)	1,50,000	By Balance c/d	7,00,000
	7,50,000		7,50,000

Question 7

(a) The capital structure of MNP Ltd. is as under:

9% Debenture	Rs. 2,75,000
11% Preference shares	Rs. 2,25,000
Equity shares (face value : Rs. 10 per share)	Rs. 5,00,000
	Rs. 10,00,000

Additional information:

(i) Rs. 100 per debenture redeemable at par has 2% floatation cost and 10 years of maturity. The market price per debenture is Rs. 105.

(ii) Rs. 100 per preference share redeemable at par has 3% floatation cost and 10 years of maturity. The market price per preference share is Rs. 106.

(iii) Equity share has Rs. 4 floatation cost and market price per share of Rs. 24. The next year expected dividend is Rs. 2 per share with annual growth of 5%. The firm has a practice of paying all earnings in the form of dividends.

(iv) Corporate Income-tax rate is 35%.

Required :

Calculate Weighted Average Cost of Capital (WACC) using market value weights.

(b) A company is required 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 Rs. 6,00,000 and will last for 3 years. It costs Rs. 1,20,000 per year to run.

Machine B is an 'economy' model costing Rs. 4,00,000 but will last only for two years, and costs Rs. 1,80,000 per year to run. These are real cash flows. The costs are forecasted in rupees of constant purchasing power. Opportunity cost of capital is 10%. Which machine company should buy? Ignore tax.

$PVIF_{0.10, 1}$ = 0.9091, $PVIF_{0.10, 2}$ = 0.8264, $PVIF_{0.10, 3}$ = 0.7513. (9 + 7 = 16 Marks)

Answer

(a) Computation of Weighted Average Cost of Capital using Market Value Weights

Cost of Equity (k_e)

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

$$= \frac{Rs.2}{Rs.24 - Rs.4} + 5\%$$

$$= 15\%$$

Cost of Debt (k_d)

$$K_d = \frac{I(1-T) + (RV - NP)/N}{(RV + NP)/2}$$

$$= \frac{9(1-0.35) + (100-98)/10}{(100+98)/2}$$

$$= \frac{5.85 + 0.20}{99} = 6.11\%$$

Cost of Preference Shares (k_p)

$$K_p = \frac{PD + (RV - NP)/N}{(RV + NP)/2}$$

$$= \frac{11 + (100 - 97)/10}{(100 + 97)/2}$$

$$= \frac{11.30}{98.5} = 11.47\%$$

Calculation of WACC using Market Value Weights

Source of Capital	Market Value (Rs.)	Weights to Total Capital	Specific Cost	Total Cost
Debentures (Rs. 105 per debenture)	2,88,750	0.1672	0.0611	0.0102
Preference Shares (Rs. 106 per preference share)	2,38,500	0.1381	0.1147	0.0158
Equity Shares (Rs. 24 per share)	12,00,000	0.6947	0.1500	0.1042
	17,27,250	1.00		0.1302

WACC using market value weights = 13.02%

(b) Advise to the Management Regarding Buying of Machines

Statement Showing Evaluation of Two Machines

Machines	A	B
Purchase cost (Rs.): (i)	6,00,000	4,00,000
Life of machines (years)	3	2
Running cost of machine per year (Rs.): (ii)	1,20,000	1,80,000
Cumulative present value factor for 1-3 years @ 10%: (iii)	2.4868	-
Cumulative present value factor for 1-2 years @ 10%: (iv)	-	1.7355
Present value of running cost of machines (Rs.): (v)	2,98,416	3,12,390
	[(ii) × (iii)]	[(ii) × (iv)]
Cash outflow of machines (Rs.): (vi)=(i) +(v)	8,98,416	7,12,390
Equivalent present value of annual cash outflow	3,61,273.93	4,10,481.13
	[(vi)÷(iii)]	[(vi) ÷(iv)]

Recommendation: The Company should buy Machine A since its equivalent cash outflow is less than Machine B.

Question 8

Answer any three of the following:

(i) A firm maintains a separate account for cash disbursement. Total disbursements are Rs. 2,62,500 per month. Administrative and transaction cost of transferring cash to disbursement account is Rs. 25 per transfer. Marketable securities yield is 7.5% per annum.

Determine the optimum cash balance according to William J Baumol model.

(ii) A firm has a total sales of Rs. 12,00,000 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 firm in administering receivable collection efforts are Rs. 50,000. A factor is prepared to buy the firm's receivables by charging 2% commission. The factor will pay advance on receivables to the firm at an interest rate of 16% p.a. after withholding 10% as reserve. Calculate effective cost of factoring to the firm. Assume 360 days in a year.

(iii) Explain the concept of discounted payback period.

(iv) Discuss the composition of Return on Equity (ROE) using the DuPont model.

(3 x 3 = 9 Marks)

Answer

(i) Determination of Optimal Cash Balance according to William J. Baumol Model

The formula for determining optimum cash balance is:

$$C = \sqrt{\frac{2U \times P}{S}}$$

$$C = \sqrt{\frac{2 \times 2,62,500 \times 12 \times 25}{0.075}}$$

$$= \sqrt{\frac{15,75,00,000}{0.075}}$$

$$= \sqrt{2,10,00,00,000}$$

Optimum Cash Balance, C, = Rs. 45,826

(ii) Computation of Effective Cost of Factoring

Average level of Receivables = 12,00,000 × 90/360	3,00,000
Factoring Commission = 3,00,000 × 2/100	6,000
Factoring Reserve = 3,00,000 × 10/100	30,000
Amount Available for Advance = Rs. 3,00,000-(6,000+30,000)	2,64,000

Factor will deduct his interest @ 16% :-

$$\text{Interest} = \frac{\text{Rs. } 2,64,000 \times 16 \times 90}{360 \times 100} = \text{Rs. } 10,560$$

Advance to be paid = Rs. 2,64,000 – Rs. 10,560 = Rs. 2,53,440

Annual Cost of Factoring to the Firm:	Rs.
Factoring Commission (Rs. 6,000 × 360/90)	24,000
Interest Charges (Rs. 10,560 × 360/90)	42,240
Total	66,240

Firm's Savings on taking Factoring Service:	Rs.
Cost of Administration Saved	50,000
Cost of Bad Debts (Rs. 12,00,000 x 1.5/100) avoided	18,000
Total	68,000

Net Benefit to the Firm (Rs. 68,000 – Rs. 66,240)	1,760

$$\text{Effective Cost of Factoring} = \frac{\text{Rs. } 66,240 \times 100}{2,53,440} = 26.136\%$$

Effective Cost of Factoring = 26.136%

(iii) Concept of Discounted Payback Period

Payback period is time taken to recover the original investment from project cash flows. It is also termed as break even period. The focus of the analysis is on liquidity aspect and it suffers from the limitation of ignoring time value of money and profitability. Discounted payback period considers present value of cash flows, discounted at company's cost of

capital to estimate breakeven period i.e. it is that period in which future discounted cashflows equal the initial outflow. The shorter the period, better it is. It also ignores post discounted payback period cash flows.

(iv) Composition of Return on Equity using the DuPont Model

There are three components in the calculation of return on equity using the traditional DuPont model- the net profit margin, asset turnover, and the equity multiplier. By examining each input individually, the sources of a company's return on equity can be discovered and compared to its competitors.

(a) Net Profit Margin: The net profit margin is simply the after-tax profit a company generates for each rupee of revenue.

Net profit margin = Net Income ÷ Revenue

Net profit margin is a safety cushion; the lower the margin, lesser the room for error.

(b) Asset Turnover: The asset turnover ratio is a measure of how effectively a company converts its assets into sales. It is calculated as follows:

Asset Turnover = Revenue ÷ Assets

The asset turnover ratio tends to be inversely related to the net profit margin; i.e., the higher the net profit margin, the lower the asset turnover.

(c) Equity Multiplier: It is possible for a company with terrible sales and margins to take on excessive debt and artificially increase its return on equity. The equity multiplier, a measure of financial leverage, allows the investor to see what portion of the return on equity is the result of debt. The equity multiplier is calculated as follows:

Equity Multiplier = Assets ÷ Shareholders' Equity.

Calculation of Return on Equity

To calculate the return on equity using the DuPont model, simply multiply the three components (net profit margin, asset turnover, and equity multiplier.)

Return on Equity = Net profit margin× Asset turnover × Equity multiplier