

PAPER – 3 : 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) Define the following:
 - (a) Imputed cost
 - (b) Capitalised cost
- (ii) Calculate efficiency and activity ratio from the following data:

Capacity ratio	=	75%
Budgeted output	=	6,000 units
Actual output	=	5,000 units
Standard Time per unit	=	4 hours
- (iii) List the Financial expenses which are not included in cost.
- (iv) Mention the main advantage of cost plus contracts.
- (v) A Company sells two products, J and K. The sales mix is 4 units of J and 3 units of K. The contribution margins per unit are Rs.40 for J and Rs.20 for K. Fixed costs are Rs.6,16,000 per month. Compute the break-even point.
- (vi) When is the reconciliation statement of Cost and Financial accounts not required?

(5×2=10 Marks)

Answer

- (i) (a) Imputed Cost: These costs are notional costs which do not involve any cash outlay. Interest on capital, the payment for which is not actually made, is an example of Imputed Cost. These costs are similar to opportunity costs.
- (b) Capitalised Cost: These are costs which are initially recorded as assets and subsequently treated as expenses.

(ii) Capacity Ratio = $\frac{\text{Actual Hours}}{\text{Budgeted Hours}} \times 100$

75% = $\frac{\text{AH}}{6000 \text{ Units} \times 4 \text{ hour per unit}}$

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$$\begin{aligned} .75 &= \frac{AH}{24000 \text{ Hours}} \\ AH &= 18000 \text{ Hours} \\ \text{Efficiency Ratio} &= \frac{\text{Actual Output in term of S standard Hours}}{\text{Actual Working Hours}} \times 100 \\ &= \frac{5000 \text{ units} \times 4 \text{ hours per unit}}{18000 \text{ Hours}} \times 100 \\ &= \frac{20000 \text{ Hours}}{18000 \text{ Hours}} \times 100 = 111.11\% \\ \text{Activity Ratio} &= \frac{\text{Actual Output in term of S standard Hours}}{\text{Budgeted Output in term of S standard Hours}} \times 100 \\ &= \frac{20000 \text{ Units}}{6000 \text{ Units} \times 4 \text{ hour per unit}} \times 100 \\ &= \frac{20000 \text{ Units}}{24000 \text{ Units}} \times 100 = 83.33\% \end{aligned}$$

(iii) Financial expenses which are not included in cost accounting are as follows:

- Interest on debentures and deposit
- Gratuity
- Pension
- Bonus of Employee,
- Income Tax,
- Preliminary Expenses
- Discount on issue of Share
- Underwriting Commissions.

(iv) Main advantages of cost plus contracts are:

- Contractor is protected from risk of fluctuation in market price of material, labour and services.
- Contractee can insure a fair price of the market.
- It is useful specially when the work to be done is not definitely fixed at the time of making the estimate.
- Contractee can ensure himself about the cost of the contract', as he is empowered to examine the books and documents of the contractor to ascertain the veracity of the cost of the contract.

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(v) Let $4x$ = No. of units of J

Then $3x$ = No. of units of K

$$\text{BEP in } x \text{ units} = \left(\frac{\text{Fixed Cost}}{\text{Contribution}} \right) = \frac{\text{Rs.616000}}{4(40) + 3(20)}$$

$$\text{Or} \quad \frac{616000}{220} = 2800 \text{ units}$$

Break even point of Product J = $4 \times 2800 = 11200$ units

Break even point of Product K = $3 \times 2800 = 8400$ units

(vi) Circumstances where reconciliation statement can be avoided

When the Cost and Financial Accounts are integrated - there is no need to have a separate reconciliation statement between the two sets of accounts. Integration means that the same set of accounts fulfill the requirement of both i.e., Cost and Financial Accounts.

Question 2

Mega Company has just completed its first year of operations. The unit costs on a normal costing basis are as under:

		Rs.
Direct material 4 kg @ Rs.4	=	16.00
Direct labour 3 hrs @ Rs.18	=	54.00
Variable overhead 3 hrs @ Rs.4	=	12.00
Fixed overhead 3 hrs @ Rs.6	=	<u>18.00</u>
		100.00

Selling and administrative costs:

Variable	Rs.20 per unit
Fixed	Rs.7,60,000

During the year the company has the following activity:

Units produced	=	24,000
Units sold	=	21,500
Unit selling price	=	Rs.168
Direct labour hours worked	=	72,000

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Actual fixed overhead was Rs.48,000 less than the budgeted fixed overhead. Budgeted variable overhead was Rs.20,000 less than the actual variable overhead. The company used an expected actual activity level of 72,000 direct labour hours to compute the predetermine overhead rates.

Required :

- (i) Compute the unit cost and total income under:
 - (a) Absorption costing
 - (b) Marginal costing
- (ii) Under or over absorption of overhead.
- (iii) Reconcile the difference between the total income under absorption and marginal costing. (15 Marks)

Answer

(i) Computation of Unit Cost & Total Income

Unit Cost	Absorption Costing (Rs.)	Marginal Costing (Rs.)
Direct Material	16.00	16.00
Direct Labour	54.00	54.00
Variable Overhead	12.00	12.00
Fixed Overhead	<u>18.00</u>	-
Unit Cost	<u>100.00</u>	<u>82.00</u>

Income Statements

Absorption Costing	
Sales	36,12,000
(21500 × Rs.168)	
Less: Cost of goods sold (21500 × 100)	21,50,000
Less: Over Absorption	<u>28,000</u>
	<u>21,22,000</u>
	14,90,000
Less: Selling & Distribution Expenses	<u>11,90,000</u>
Profit	<u>3,00,000</u>

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Marginal Costing	
Sales	36,12,000
Less: Cost of goods sold (21500×82)	17,63,000
Add: Under Absorption	<u>20,000</u>
	18,29,000
Less: Selling & Distribution Expenses	<u>4,30,000</u>
Contribution	13,99,000
Less: Fixed Factory and Selling & Distribution Overhead (38,400 + 7,60,000)	<u>11,44,000</u>
Profit	<u>2,55,000</u>

(ii) Under or over absorption of overhead:

Budgeted Fixed Overhead	Rs.
72,000 Hrs. × Rs.6	4,32,000
Less: Actual Overhead was less than Budgeted Fixed Overhead	<u>48,000</u>
Actual Fixed Overhead	<u>3,84,000</u>
Budgeted Variable Overhead	
72,000 Hrs. × Rs.4	2,88,000
Add: Actual Overhead was higher than Budgeted	<u>20,000</u>
Budgeted	<u>3,08,000</u>
Both Fixed & Variable Overhead applied	
72,000 Hrs × Rs,10	7,20,000
Actual Overhead (3,84,000 + 3,08,000)	<u>6,92,000</u>
Over Absorption	<u>28,000</u>

(iii) Reconciliation of Profit

Difference in Profit: Rs.3,00,000 – 2,55,000 = Rs.45,000

Due to Fixed Factory Overhead being included in Closing Stock in Absorption Costing not in Marginal Costing.

Therefore,

Difference in Profit = Fixed Overhead Rate (Production – Sale)

18 (24,000 – 21,500) = Rs.45,000

Question 3

(a) XP Ltd. furnishes you the following information relating to process II.

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- (i) Opening work-in-progress – NIL
- (ii) Units introduced 42,000 units @ Rs.12
- (iii) Expenses debited to the process:

		Rs.
Direct material	=	61,530
Labour	=	88,820
Overhead	=	1,76,400

- (iv) Normal loss in the process = 2 % of input.
- (v) Closing work-in-progress – 1200 units
 - Degree of completion - Materials 100%
 - Labour 50%
 - Overhead 40%

- (vi) Finished output – 39,500 units
- (vii) Degree of completion of abnormal loss:
 - Material 100%
 - Labour 80%
 - Overhead 60%

- (viii) Units scrapped as normal loss were sold at Rs.4.50 per unit.
- (ix) All the units of abnormal loss were sold at Rs.9 per unit.

Prepare:

- (i) Statement of equivalent production:
- (ii) Statement showing the cost of finished goods, abnormal loss and closing work-in-progress.
- (iii) Process II account and abnormal loss account. (8 Marks)

- (b) The following information is available from the cost records of Vatika & Co. For the month of August, 2009:

Material purchased 24,000 kg Rs.1,05,600

Material consumed 22,800 kg

Actual wages paid for 5,940 hours Rs.29,700

Unit produced 2160 units.

Standard rates and prices are:

Direct material rate is Rs.4.00 per unit.

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Direct labour rate is Rs.4.00 per hour

Standard input is 10 kg. for one unit

Standard requirement is 2.5 hours per unit.

Calculate all material and labour variances for the month of August, 2009. (8 Marks)

Answer

(a) Statement of Equivalent Production

Particulars	Output	Material		Labour		Overhead	
		Units	%	Units	%	Units	%
Finished Output	39,500	39,500	100%	39,500	100%	39,500	100%
Normal Loss 2% of 42,000 units	840	-	-	-	-	-	-
Abnormal Loss (42,000 – 39,500 – 840 – 1200)	460	460	100%	368	80%	276	60%
Closing W.I.P.	<u>1,200</u>	<u>1,200</u>	100%	<u>600</u>	50%	<u>480</u>	40%
	42,000	41,160		40,468		40,256	

Statement of Cost

	Rs.
Units Introduced 42,000@ 12	5,04,000
Add: Material	<u>61,530</u>
	5,65,530
Less: Value of Normal Loss	<u>3,780</u>
	<u>5,61,750</u>
Cost per Unit	
Material	$\frac{5,61,750}{41,160} =$ Rs.13.648
Labour	$\frac{88,820}{40,468} =$ Rs.2.195
Overhead	$\frac{1,76,400}{40,256} =$ <u>Rs.4.382</u>
	<u>20.225</u>
Abnormal Loss:	
Material	460 × 13.648 = 6,278.08
Labour	368 × 2.195 = 807.76

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	Overheads	276 × 4.382	<u>1,209.42</u>
			<u>8,295.26</u>
Closing W.I.P.	Material	1,200 × 13.648	16,377.60
	Labour	600 × 2.195	1,317.00
	Overheads	480 × 4.382	<u>2,103.36</u>
			<u>19,797.96</u>
Finished Goods		39,500 × 20.225	Rs.7,98,887.50

Process II Account

	Particulars	Units	Amount Rs.		Particulars	Units	Amount Rs.
To	Opening WIP	-	Nil	By	Normal Loss	840	3,780
"	Input	42,000	5,04,000	"	Abnormal Loss	460	8,295
"	Direct Material	-	61,530	"	Finished Goods	39,500	7,98,877
"	Labour	-	88,820				
"	Overhead	-	<u>1,76,400</u>	"	Closing WIP	<u>1,200</u>	<u>19,798</u>
		<u>42,000</u>	<u>8,30,750</u>			<u>42,000</u>	<u>8,30,750</u>

Abnormal Loss Account

	Particulars	Units	Amount Rs.		Particulars	Units	Amount Rs.
To	Process II	460	8,295	By	Cash (Sold@ Rs.9)	460	4,140
		-	-	"	Costing P & L	-	<u>4,155</u>
		<u>460</u>	<u>8,295</u>			<u>460</u>	<u>8,295</u>

(b) Material Variances:

(i) Material Cost Variance

$$\begin{aligned}
 &= (SQ \times SP) - (AQ \times AP) \\
 &= (2,160 \times 4 \times 10) - (22,800 \times 4.40) \\
 &= \text{Rs.}86,400 - \text{Rs.}1,00,320 \qquad \qquad \qquad = 13,920 \text{ (A)}
 \end{aligned}$$

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(ii) Material Price Variance
= AQ (SP – AP)
= 22,800 Kg (4 – 4.40) = 9,120 (A)

(iii) Material Usage Variance
= SP (SQ – AQ)
= 4 (21,600 – 22,800) = 4,800 (A)

Note : unit basis for direct material has been taken as kg. hence, direct material rate is Rs. 4 per kg.

Verification:-

MCV = MPV + MUV
13,920 (A) = 9,120 (A) + 4,800 (A)

Labour Variances:

(i) Labour Cost Variance
= (SH × SR) – (AH × AR)
= (2,160 × 2.50 × 4) – (29,700)
= 21,600 – 29,700 = 8,100 (A)

(ii) Labour Rate Variance
= AH (SR – AR)
= 5,940 (4 – 5) = 5,940 (A)

(iii) Labour Efficiency Variance
= SR (SH – AH)
= 4 (5,400 – 5,940) = 2,160 (A)

Verification:-

LCV = LRV + LEV
8,100 (A) = 5,940 (A) + 2,160 (A)
SH = 2,160 Units × 2.50 Hours = 5,400 Hrs.

Question 4

Answer any three of the following:

- (i) Standard Time for a job is 90 hours. The hourly rate of Guaranteed wages is Rs.50. Because of the saving in time a worker a gets an effective hourly rate of wages of Rs.60 under Rowan premium bonus system. For the same saving in time, calculate the hourly rate of wages a worker B will get under Halsey premium bonus system assuring 40% to worker.

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(ii) Explain briefly, what do you understand by Operating Costing. How are composite units computed?

(iii) The following information relating to a type of Raw material is available:

Annual demand	2000 units
Unit price	Rs.20.00
Ordering cost per order	Rs.20.00
Storage cost	2% p.a.
Interest rate	8% p.a.
Lead time	Half-month

Calculate economic order quantity and total annual inventory cost of the raw material.

(iv) List the eight functional budgets prepared by a business. (3×3=9 Marks)

Answer

(i) Increase in Hourly Rate of Wages (Rowan Plan) is (Rs.60 – Rs.50) = Rs.10

This is Equal to

$$\frac{\text{Time Saved}}{\text{Standard Time}} \times \text{Hourly rate}$$

$$\text{Or } 10 = \frac{\text{Time Saved}}{\text{Standard Time}} \times 50$$

$$\text{Or } \frac{\text{Time Saved}}{90} \times 50 = 10$$

$$\text{Time Saved} = \frac{900}{50} = 18 \text{ Hours}$$

$$\text{Time Taken} = (90 - 18) = 72 \text{ Hours}$$

Effective Hourly Rate under Halsey System

$$\text{Time Saved} = 18 \text{ Hours}$$

$$\text{Bonus @ 40\%} = 18 \times 40\% \times 50 = \text{Rs.360}$$

$$\text{Total Wages} = (50 \times 72 + 360) = 3,960$$

Effective Hourly Rate

$$= 3,960 \div 72 \text{ Hours}$$

$$= \text{Rs.55}$$

(ii) Operating Costing: It is method of ascertaining costs of providing or operating a service. This method of costing is applied by those undertakings which provide services rather

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than production of commodities. This method of costing is used by transport companies, gas and water works departments, electricity supply companies, canteens, hospitals, theatres, schools etc.

Composite units may be computed in two ways:

- (a) Absolute (weighted average) tones kms, quintal kms etc.
- (b) Commercial (simple average) tones kms, quintal kms etc.

Absolute tonnes-kms are the sum total of tonnes kms arrived at by multiplying various distances by respective load quantities carried.

Commercial tonnes-kms, are arrived at by multiplying total distance kms, by average load quantity.

$$\begin{aligned} \text{(iii) EOQ} &= \sqrt{\frac{2 \times \text{Annual Consumption} \times \text{Buying Cost per Order}}{\text{Storage Cost per unit}}} \\ &= \sqrt{\frac{2 \times 2,000 \times 20}{\text{Rs.}20 \times \left(\frac{2+8}{100}\right)}} = \sqrt{\frac{80,000}{2}} = 200 \text{ Units} \end{aligned}$$

Total Annual Inventory Cost	
Cost of 2,000 Units @ Rs.20 (2,000 × 20)	= Rs.40,000
No. of Order $\frac{2000}{200}$	= Rs.10
Ordering Cost 10 × 20	= Rs.200
Carrying cost of Average Inventory $\frac{200}{2} \times 20 \times \frac{10}{100}$	= Rs.200
	= Rs.40,400

(iv) The various commonly used Functional budgets are:

- Sales Budget
- Production Budget
- Plant Utilisation Budget
- Direct Material Usage Budget
- Direct Material Purchase Budget
- Direct Labour (Personnel) Budget
- Factory Overhead Budget
- Production Cost Budget

Note: In addition to above, there are many more functional budgets which the student can write alternatively.

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Question 5

Answer any **five** of the following:

- (i) Explain briefly the limitations of Financial ratios.
- (ii) What do you understand by Business Risk and Financial Risk?
- (iii) Differentiate between Factoring and Bills discounting.
- (iv) Differentiate between Financial Management and Financial Accounting.
- (v) Y Ltd. retains Rs. 7,50,000 out of its current earnings. The expected rate of return to the shareholders, if they had invested the funds elsewhere is 10%. The brokerage is 3% and the shareholders come in 30% tax bracket. Calculate the cost of retained earnings.
- (vi) From the information given below calculate the amount of Fixed assets and Proprietor's fund.

Ratio of fixed assets to proprietors fund	= 0.75	
Net Working Capital	= Rs. 6,00,000	(5 × 2 =10 Marks)

Answer

(i) Limitations of Financial Ratios

The limitations of financial ratios are listed below:

- (a) Diversified product lines: Many businesses operate a large number of divisions in quite different industries. In such cases, ratios calculated on the basis of aggregate data cannot be used for inter-firm comparisons.
- (b) Financial data are badly distorted by inflation: Historical cost values may be substantially different from true values. Such distortions of financial data are also carried in the financial ratios.
- (c) Seasonal factors may also influence financial data.
- (d) To give a good shape to the popularly used financial ratios (like current ratio, debt-equity ratios, etc.): The business may make some year-end adjustments. Such window dressing can change the character of financial ratios which would be different had there been no such change.
- (e) Differences in accounting policies and accounting period: It can make the accounting data of two firms non-comparable as also the accounting ratios.
- (f) There is no standard set of ratios against which a firm's ratios can be compared: Sometimes a firm's ratios are compared with the industry average. But if a firm desires to be above the average, then industry average becomes a low standard.

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On the other hand, for a below average firm, industry averages become too high a standard to achieve.

- (g) It is very difficult to generalise whether a particular ratio is good or bad: For example, a low current ratio may be said 'bad' from the point of view of low liquidity, but a high current ratio may not be 'good' as this may result from inefficient working capital management.
- (h) Financial ratios are inter-related, not independent: Viewed in isolation one ratio may highlight efficiency. But when considered as a set of ratios they may speak differently. Such interdependence among the ratios can be taken care of through multivariate analysis.

(Note : Students to write any four limitations)

(ii) Business Risk and Financial Risk

Business Risk: It is an unavoidable risk because of the environment in which the firm has to operate and the business risk is represented by the variability of earnings before interest and tax (EBIT). The variability in turn is influenced by revenues and expenses. Revenues and expenses are affected by demand of firm's products, variations in prices and proportion of fixed cost in total cost.

Financial Risk: It is the risk borne by a shareholder when a firm uses debt in addition to equity financing in its capital structure. Generally, a firm should neither be exposed to high degree of business risk and low degree of financial risk or vice-versa, so that shareholders do not bear a higher risk.

(iii) Differentiation between Factoring and Bills Discounting

The differences between Factoring and Bills discounting are:

- (a) Factoring is called as "Invoice Factoring" whereas Bills discounting is known as "Invoice discounting."
- (b) In Factoring, the parties are known as the client, factor and debtor whereas in Bills discounting, they are known as drawer, drawee and payee.
- (c) Factoring is a sort of management of book debts whereas bills discounting is a sort of borrowing from commercial banks.
- (d) For factoring there is no specific Act, whereas in the case of bills discounting, the Negotiable Instruments Act is applicable.

(iv) Differentiation between Financial Management and Financial Accounting

Though financial management and financial accounting are closely related, still they differ in the treatment of funds and also with regards to decision - making.

Treatment of Funds: In accounting, the measurement of funds is based on the accrual principle. The accrual based accounting data do not reflect fully the financial conditions of the

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organisation. An organisation which has earned profit (sales less expenses) may said to be profitable in the accounting sense but it may not be able to meet its current obligations due to shortage of liquidity as a result of say, uncollectible receivables. Whereas, the treatment of funds, in financial management is based on cash flows. The revenues are recognised only when cash is actually received (i.e. cash inflow) and expenses are recognised on actual payment (i.e. cash outflow). Thus, cash flow based returns help financial managers to avoid insolvency and achieve desired financial goals.

Decision-making: The chief focus of an accountant is to collect data and present the data while the financial manager's primary responsibility relates to financial planning, controlling and decision-making. Thus, in a way it can be stated that financial management begins where financial accounting ends.

(v) Computation of Cost of Retained Earnings (K_r)

$$\begin{aligned}K_r &= k (1-T_p) (1-B) \\K_r &= 0.10 (1- 0.30) (1- 0.03) \\&= 0.10 (0.70) \times (0.97) \\&= 0.0679 \text{ or } 6.79\%\end{aligned}$$

Cost of Retained Earnings = 6.79%

(vi) Calculation of Fixed Assets and Proprietor's Fund

$$\begin{aligned}\text{Since Ratio of Fixed Assets to Proprietor's Fund} &= 0.75 \\ \text{Therefore, Fixed Assets} &= 0.75 \text{ Proprietor's Fund} \\ \text{Net Working Capital} &= 0.25 \text{ Proprietor's Fund} \\ 6,00,000 &= 0.25 \text{ Proprietor's Fund} \\ \text{Therefore, Proprietor's Fund} &= \frac{\text{Rs. } 6,00,000}{0.25} \\ &= \text{Rs. } 24,00,000\end{aligned}$$

Proprietor's Fund = Rs. 24,00,000

$$\begin{aligned}\text{Since, Fixed Assets} &= 0.75 \text{ Proprietor's Fund} \\ \text{Therefore, Fixed Assets} &= 0.75 \times 24,00,000 \\ &= \text{Rs. } 18,00,000\end{aligned}$$

Fixed Assets = Rs. 18,00,000

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Question 6

The Balance Sheets of a Company as on 31st March, 2008 and 2009 are given below:

Liabilities	31.3.08 Rs.	31.3.09 Rs.	Assets	31.3.08 Rs.	31.3.09 Rs.
Equity share capital	14,40,000	19,20,000	Fixed assets	38,40,000	45,60,000
Capital reserve	-	48,000	Less: depreciation	<u>11,04,000</u>	<u>13,92,000</u>
General reserve	8,16,000	9,60,000		27,36,000	31,68,000
Profit & Loss A/c	2,88,000	3,60,000	Investment	4,80,000	3,84,000
9% debentures	9,60,000	6,72,000	Sundry debtors	12,00,000	14,00,000
Sundry creditors	5,50,000	5,90,000	Stock	1,40,000	1,84,000
Bills payables	26,000	34,000	Cash in hand	4,000	-
Proposed dividend	1,44,000	1,72,800	Preliminary Expenses	96,000	48,000
Provision for tax	4,32,000	4,08,000			
Unpaid dividend	-	19,200			
	<u>46,56,000</u>	<u>51,84,000</u>		<u>46,56,000</u>	<u>51,84,000</u>

Additional information:

During the year ended 31st March, 2009 the company:

- (i) Sold a machine for Rs.1,20,000; the cost of machine was Rs. 2,40,000 and depreciation provided on it was Rs. 84,000.
- (ii) Provided Rs. 4,20,000 as depreciation on fixed assets.
- (iii) Sold some investment and profit credited to capital reserve.
- (iv) Redeemed 30% of the debentures @ 105.
- (v) Decided to write off fixed assets costing Rs. 60,000 on which depreciation amounting to Rs. 48,000 has been provided.

You are required to prepare Cash Flow Statement as per AS 3.

(15 Marks)

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Answer

Cash Flow Statement for the year ending 31st March, 2009

		Rs.
(A)	Cash Flows from Operating Activities	
	Profit and Loss A/c (3,60,000 – 2,88,000)	72,000
	Adjustments:	
	Increase in General Reserve	1,44,000
	Depreciation	4,20,000
	Provision for Tax	4,08,000
	Loss on Sale of Machine	36,000
	Premium on Redemption of Debentures	14,400
	Proposed Dividend	1,72,800
	Preliminary Expenses written off	48,000
	Fixed Assets written off	12,000
	Interest on Debentures*	<u>60,480</u>
	Funds from Operations	<u>13,15,680</u>
	Increase in Sundry Creditors	40,000
	Increase in Bills Payable	<u>8,000</u>
		48,000
	Increase in Sundry Debtors	(2,00,000)
	Increase in Stock	<u>(44,000)</u>
	Cash before Tax	11,91,680
	Less: Tax paid	<u>4,32,000</u>
	Cash flows from Operating Activities	7,59,680
(B)	Cash Flows from Investing Activities	
	Purchase of Fixed Assets	(10,20,000)
	Sale of Investment	1,44,000
	Sale of Fixed Assets	<u>1,20,000</u>
		(7,56,000)

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(C) Cash Flows from Financing Activities

Issue of Share Capital	4,80,000	
Redemption of Debentures	(3,02,400)	
Dividend Paid (1,44,000 – 19,200)	(1,24,800)	
Interest on Debentures	(60,480)	<u>(7,680)</u>
Net increase in Cash and Cash Equivalents		(4,000)
Cash and Cash Equivalents at the beginning of the year		<u>4,000</u>
Cash and Cash Equivalents at the end of the year		<u>NIL</u>

* It is assumed that the 30 percent debentures have been redeemed at the beginning of the year.

Fixed Assets Account

Particulars	Rs.	Particulars	Rs.
To Balance b/d	27,36,000	By Cash	1,20,000
To Purchases (Balance)	10,20,000	By Loss on Sales	36,000
		By Depreciation	4,20,000
		By Assets written off	12,000
		By Balance c/d	<u>31,68,000</u>
	<u>37,56,000</u>		<u>37,56,000</u>

Question 7

(a) From the following financial data of Company A and Company B: Prepare their Income Statements.

	Company A	Company B
	Rs.	Rs.
Variable Cost	56,000	60% of sales
Fixed Cost	20,000	-
Interest Expenses	12,000	9,000
Financial Leverage	5 : 1	-
Operating Leverage	-	4 : 1
Income Tax Rate	30%	30%
Sales	-	1,05,000

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- (b) A hospital is considering to purchase a diagnostic machine costing Rs. 80,000. The projected life of the machine is 8 years and has an expected salvage value of Rs. 6,000 at the end of 8 years. The annual operating cost of the machine is Rs. 7,500. It is expected to generate revenues of Rs. 40,000 per year for eight years. Presently, the hospital is outsourcing the diagnostic work and is earning commission income of Rs.12,000 per annum; net of taxes.

Required:

Whether it would be profitable for the hospital to purchase the machine? Give your recommendation under:

- (i) Net Present Value method
- (ii) Profitability Index method.

PV factors at 10% are given below:

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8
0.909	0.826	0.751	0.683	0.621	0.564	0.513	0.467

(8 + 8 = 16 Marks)

Answer

(a) Income Statements of Company A and Company B

	Company A	Company B
	Rs.	Rs.
Sales	91,000	1,05,000
Less: Variable cost	<u>56,000</u>	<u>63,000</u>
Contribution	35,000	42,000
Less: Fixed Cost	<u>20,000</u>	<u>31,500</u>
Earnings before interest and tax (EBIT)	15,000	10,500
Less: Interest	<u>12,000</u>	<u>9,000</u>
Earnings before tax (EBT)	3,000	1,500
Less: Tax @ 30%	<u>900</u>	<u>450</u>
Earnings after tax (EAT)	<u>2,100</u>	<u>1,050</u>

Working Notes:

Company A

(i) Financial Leverage = $\frac{\text{EBIT}}{\text{EBIT} - \text{Interest}}$

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$$5 = \frac{\text{EBIT}}{\text{EBIT} - 12,000}$$

$$5 (\text{EBIT} - 12,000) = \text{EBIT}$$

$$4 \text{ EBIT} = 60,000$$

$$\text{EBIT} = \text{Rs. } 15,000$$

(ii) Contribution = EBIT + Fixed Cost
= 15,000 + 20,000
= Rs. 35,000

(iii) Sales = Contribution + Variable cost
= 35,000 + 56,000
= Rs. 91,000

Company B

(i) Contribution = 40% of Sales (as Variable Cost is 60% of Sales)
= 40% of 1,05,000
= Rs. 42,000

(ii) Financial Leverage = $\frac{\text{Contribution}}{\text{EBIT}}$

$$4 = \frac{42,000}{\text{EBIT}}$$

$$\text{EBIT} = \frac{42,000}{4} = \text{Rs. } 10,500$$

(iii) Fixed Cost = Contribution – EBIT
= 42,000 – 10,500 = Rs. 31,500

(b) Advise to the Hospital Management

Determination of Cash inflows

Sales Revenue	40,000
Less: Operating Cost	<u>7,500</u>
	32,500
Less: Depreciation (80,000 – 6,000)/8	<u>9,250</u>
Net Income	23,250
Tax @ 30%	<u>6,975</u>
Earnings after Tax (EAT)	16,275
Add: Depreciation	<u>9,250</u>

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Cash inflow after tax per annum	25,525
Less: Loss of Commission Income	<u>12,000</u>
Net Cash inflow after tax per annum	13,525
In 8 th Year :	
New Cash inflow after tax	13,525
Add: Salvage Value of Machine	<u>6,000</u>
Net Cash inflow in year 8	<u>19,525</u>

Calculation of Net Present Value (NPV)

Year	CFAT	PV Factor @ 10%	Present Value of Cash inflows
1 to 7	13,525	4.867	65,826.18
8	19,525	0.467	<u>9,118.18</u>
			74,944.36
Less: Cash Outflows			<u>80,000.00</u>
			<u>(5,055.64)</u>

$$\begin{aligned} \text{Profitability Index} &= \frac{\text{Sum of discounted cash inflows}}{\text{Present value of cash outflows}} \\ &= \frac{74,944.36}{80,000} = 0.937 \end{aligned}$$

Advise: Since the net present value is negative and profitability index is also less than 1, therefore, the hospital should not purchase the diagnostic machine.

Note: Since the tax rate is not mentioned in the question, therefore, it is assumed to be 30 percent in the given solution.

Question 8

Answer any **three** of the following:

- (i) Explain the two basic functions of Financial Management.
- (ii) Explain the following terms:
 - (a) Ploughing back of profits
 - (b) Desirability factor.
- (iii) What do you understand by Weighted Average Cost of Capital?
- (iv) There are two firms P and Q which are identical except P does not use any debt in its capital structure while Q has Rs. 8,00,000, 9% debentures in its capital structure. Both the firms have earning before interest and tax of Rs. 2,60,000 p.a. and the capitalization rate is 10%.

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Assuming the corporate tax of 30%, calculate the value of these firms according to MM Hypothesis. (3 x3 = 9 Marks)

Answer

(i) Two Basic Functions of Financial Management

Procurement of Funds: Funds can be obtained from different sources having different characteristics in terms of risk, cost and control. The funds raised from the issue of equity shares are the best from the risk point of view since repayment is required only at the time of liquidation. However, it is also the most costly source of finance due to dividend expectations of shareholders. On the other hand, debentures are cheaper than equity shares due to their tax advantage. However, they are usually riskier than equity shares. There are thus risk, cost and control considerations which a finance manager must consider while procuring funds. The cost of funds should be at the minimum level for that a proper balancing of risk and control factors must be carried out.

Effective Utilization of Funds: The Finance Manager has to ensure that funds are not kept idle or there is no improper use of funds. The funds are to be invested in a manner such that they generate returns higher than the cost of capital to the firm. Besides this, decisions to invest in fixed assets are to be taken only after sound analysis using capital budgeting techniques. Similarly, adequate working capital should be maintained so as to avoid the risk of insolvency.

(ii) (a) **Ploughing Back of Profits:** Long term funds may also be provided by accumulating the profits of the company and by ploughing them back into business. Such funds belong to the ordinary shareholders and increase the net worth of the company. A public limited company must plough back a reasonable amount of its profits each year keeping in view the legal requirements in this regard and its own expansion plans. Such funds also entail almost no risk. Further, control of present owners is also not diluted by retaining profits.

(b) **Desirability Factor:** In certain cases we have to compare a number of proposals each involving different amount of cash inflows. One of the methods of comparing such proposals is to work out, what is known as the 'Desirability Factor' or 'Profitability Index'. In general terms, a project is acceptable if the Profitability Index is greater than 1.

Mathematically,

$$\text{Desirability Factor} = \frac{\text{Sum of Discounted Cash inflows}}{\text{Initial Cash Outlay or Total Discounted Cash outflows}}$$

(iii) Weighted Average Cost of Capital

The composite or overall cost of capital of a firm is the weighted average of the costs of various sources of funds. Weights are taken in proportion of each source of funds in capital structure while making financial decisions. The weighted average cost of capital is

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calculated by calculating the cost of specific source of fund and multiplying the cost of each source by its proportion in capital structure. Thus, weighted average cost of capital is the weighted average after tax costs of the individual components of firm's capital structure. That is, the after tax cost of each debt and equity is calculated separately and added together to a single overall cost of capital.

(iv) Calculation of Value of Firms P and Q according to MM Hypothesis

Market Value of Firm P (Unlevered)

$$\begin{aligned}V_u &= \frac{\text{EBIT} (1 - t)}{K_e} \\&= \frac{2,60,000 (1 - 0.30)}{10\%} \\&= \frac{\text{Rs. } 1,82,000}{10\%} = \text{Rs. } 18,20,000\end{aligned}$$

Market Value of Firm Q (Levered)

$$\begin{aligned}V_E &= V_u + DT \\&= \text{Rs. } 18,20,000 + (8,00,000 \times 0.30) \\&= \text{Rs. } 18,20,000 + 2,40,000 = \text{Rs. } 20,60,000\end{aligned}$$