

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) The annual carrying cost of material 'X' is Rs. 3.6 per unit and its total carrying cost is Rs. 9,000 per annum. What would be the Economic order quantity for material 'X', if there is no safety stock of material X ?
- (ii) A machinery was purchased from a manufacturer who claimed that his machine could produce 36.5 tonnes in a year consisting of 365 days. Holidays, break-down, etc., were normally allowed in the factory for 65 days. Sales were expected to be 25 tonnes during the year and the plant actually produced 25.2 tonnes during the year. You are required to state the following figures:
 - (a) rated capacity
 - (b) practical capacity
 - (c) normal capacity
 - (d) actual capacity
- (iii) State the unit of cost for the following industries
 - (a) Transport
 - (b) Power
 - (c) Hotel
 - (d) Hospital
- (iv) State the method of costing that would be most suitable for
 - (a) Oil refinery
 - (b) Bicycle manufacturing
 - (c) Interior decoration
 - (d) Airlines company
- (v) Differentiate between "scrap" and "defectives" and how they are treated in cost accounting.
- (vi) Explain briefly the concept of 'flexible budget'. (5 × 2 = 10 Marks)

Answer

(i) Calculation of Economic Order Quantity

$$\text{Average Inventory} = \frac{\text{Total Carrying Cost}}{\text{Carrying Cost per unit}}$$

$$= \frac{\text{Rs. 9,000}}{\text{Rs. 3.60}} = 2,500 \text{ Units}$$

$$\text{Economic Order Quantity} = \text{Average Inventory} \times 2$$

$$= 2,500 \times 2 = 5,000 \text{ units.}$$

Alternative Solution:

$$\text{Total Carrying Cost} = \frac{\text{Carrying cost per unit} \times \text{E.O.Q}}{2}$$

$$\text{or } 9,000 = \frac{3.6 \times \text{E.O.Q}}{2}$$

$$\text{or E.O.Q.} = \frac{9,000 \times 2}{3.6} = 5,000 \text{ unit}$$

(ii) (a) Rated capacity 36.5 tonnes

(Refers to the capacity of a machine
or a plant as indicated by its manufacturer)

(b) Practical capacity 30 tonnes

[Defined as actually utilised capacity of a plant

$$\text{i.e. } \frac{36.5}{365} \times (365 - 65) \text{ tonnes}]$$

(c) Normal capacity 25 tonnes

(It is the capacity of a plant utilized based
on sales expectancy)

(d) Actual capacity 25.2 tonnes

(Refers to the capacity actually achieved)

(iii) Industry Unit of Cost

(a) Transport – Per passenger k.m. or per tonne. k.m.

(b) Power – Per Kilo – watt (kw) hour

(c) Hotel – Per room day / or per meal

(d) Hospital – Per patient – day

- (iv) Industry Method of Costing
- (a) Oil Refinery – Process costing
 - (b) Bicycle manufacturing – Multiple costing
 - (c) Interior decoration – Job costing
 - (d) Airlines – Operating costing
- (v) Scrap: Scrap is incidental residue from certain type of manufacture, usually of small amount and low value, recoverable without further processing.

The cost of scrap is borne by good units and income scrap is treated as other income.

Defectives: Defectives are portion of production which can be rectified by incurring additional cost. Normal defectives can be avoided by quality control. Normal defectives are charged to good products.

Abnormal defectives are charged to Costing Profit and Loss Account.

- (vi) Flexible Budget: A flexible budget is defined as “a budget which, by recognizing the difference between fixed, semi-variable and variable cost is designed to change in relation to the level of activity attained”. A fixed budget, on the other hand is a budget which is designed to remain unchanged irrespective of the level of activity actually attained. In a fixed budgetary control, budgets are prepared for one level of activity whereas in a flexibility budgetary control system, a series of budgets are prepared one for each of a number of alternative production levels or volumes. Flexible budgets represent the amount of expense that is reasonably necessary to achieve each level of output specified. In other words, the allowances given under flexibility budgetary control system serve as standards of what costs should be at each level of output.

Question 2

As of 31st March, 2008, the following balances existed in a firm's cost ledger, which is maintained separately on a double entry basis:

	Debit	Credit
	Rs.	Rs.
Stores Ledger Control A/c	3,00,000	—
Work-in-progress Control A/c	1,50,000	—
Finished Goods Control A/c	2,50,000	—
Manufacturing Overhead Control A/c		15,000
Cost Ledger Control A/c		6,85,000
	7,00,000	7,00,000

During the next quarter, the following items arose:

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	Rs.
Finished Product (at cost)	2,25,000

WIP Control Account

Dr.						Cr.	
			Rs.				Rs.
To	Opening Balance	1,50,000	By	Finished Stock Ledger Control A/c		2,25,000	
To	Wages Control A/c	40,000	By	Balance c/d		1,85,000	
To	Stores Ledger Control A/c	1,35,000					
To	Manufacturing Overhead Control A/c	<u>85,000</u>					
		<u>4,10,000</u>				<u>4,10,000</u>	

Finished Stock Ledger Control Account

Dr.			Cr.		
		Rs.			Rs.
To	Opening Balance	2,50,000	By	Cost of Sales	1,75,000
To	WIP Control A/c	2,25,000	By	Balance c/d	3,09,000
To	Cost of Sales A/c (Sales Return)	<u>9,000</u>			
		<u>4,84,000</u>			<u>4,84,000</u>

Manufacturing Overhead Control Account

Dr.			Cr.		
		Rs.			Rs.
To	Cost Ledger Control A/c	85,000	By	Opening Balance	15,000
To	Wages Control A/c	20,000	By	WIP Control A/c	85,000
		<u> </u>	By	Under recovery c/d	<u>5,000</u>
		<u>1,05,000</u>			<u>1,05,000</u>

Wages Control Account

Dr.		Rs.	Cr.	
				Rs.
To	Transfer to Cost Ledger Control A/c	60,000	By	WIP Control A/c
				40,000
			By	Manufacturing Overhead Control A/c
				<u>20,000</u>
		<u>60,000</u>		<u>60,000</u>

Cost of Sales Account			
Dr.	Rs.		Cr.
To Finished Stock Ledger Control A/c	1,75,000	By Finished Stock Ledger Control A/c (Sales return)	9,000
		By Balance c/d	<u>1,66,000</u>
	<u>1,75,000</u>		<u>1,75,000</u>
Trial Balance			
	Rs.		Rs.
Stores Ledger Control A/c	2,77,000	Cost ledger control A/c	9,42,000
WIP Control A/c	1,85,000		
Finished Stock Ledger Control A/c	3,09,000		
Manufacturing Overhead Control A/c	5,000		
Cost of Sales A/c	<u>1,66,000</u>		
	<u>9,42,000</u>		<u>9,42,000</u>

Question 3

- (a) ABC Ltd. can produce 4,00,000 units of a product per annum at 100% capacity. The variable production costs are Rs. 40 per unit and the variable selling expenses are Rs. 12 per sold unit. The budgeted fixed production expenses were Rs. 24,00,000 per annum and the fixed selling expenses were Rs. 16,00,000. During the year ended 31st March, 2008, the company worked at 80% of its capacity. The operating data for the year are as follows:

Production	3,20,000 units
Sales @ Rs. 80 per unit	3,10,000 units
Opening stock of finished goods	40,000 units

Fixed production expenses are absorbed on the basis of capacity and fixed selling expenses are recovered on the basis of period.

You are required to prepare Statements of Cost and Profit for the year ending 31st March, 2008:

- (i) On the basis of marginal costing
- (ii) On the basis of absorption costing.

(b) Describe briefly, how wages may be calculated under the following systems:

- (i) Gantt task and bonus system
- (ii) Emerson's efficiency system
- (iii) Rowan system
- (iv) Halsey system
- (v) Barth system.

(7 + 9 = 16 Marks)

Answer

- (a) (i) Statement of Cost and Profit under Marginal Costing
for the year ending 31st March, 2008

	Output = 3,20,000 units	
Particulars	Amount (Rs.)	Amount (Rs.)
Sales: 3,10,000 units @ Rs. 80		2,48,00,000
Less: Marginal cost / variable cost:		
Variable cost of production (3,20,000 × Rs. 40)	1,28,00,000	
Add: Opening stock 40,000 units @ Rs. 40	<u>16,00,000</u>	
	1,44,00,000	
Less: Closing Stock		
[(3,20,000 + 40,000 – 3,10,000) @ Rs. 40 = 50,000 units @ Rs. 40]	<u>20,00,000</u>	
Variable cost of production of 3,10,000 units	1,24,00,000	
Add: Variable selling expenses @ Rs. 12 per unit	<u>37,20,000</u>	<u>1,61,20,000</u>
Contribution (sales – variable cost)		86,80,000
Less: Fixed production cost	24,00,000	
Fixed selling expenses	<u>16,00,000</u>	<u>40,00,000</u>
Actual profit under marginal costing		<u>46,80,000</u>

(ii) Statement of Cost and Profit under Absorption Costing
for the year ending 31st March, 2008

		Output = 3,20,000 units	
Particulars	Amount (Rs.)	Amount (Rs.)	
Sales: 3,10,000 units @ Rs. 80		2,48,00,000	
Less: Cost of sales:			
Variable cost of production (3,20,000 @ Rs. 40)	1,28,00,000		
Add: Fixed cost of production absorbed 3,20,000 units @ Rs. 6 ⁽¹⁾	<u>19,20,000</u>		
	1,47,20,000		
Add: Opening Stock: $40,000 \times \frac{1,47,20,000}{3,20,000}$	<u>18,40,000</u>		
	1,65,60,000		
Less: Closing Stock: $50,000 \times \frac{1,47,20,000}{3,20,000}$	<u>23,00,000</u>		
Production cost of 3,10,000 units	1,42,60,000		
Selling expenses:			
Variable: Rs. 12 × 3,10,000 units	37,20,000		
Fixed	<u>16,00,000</u>	<u>1,95,80,000</u>	
Unadjusted profit		52,20,000	
Less: Overheads under absorbed: ⁽²⁾			
Fixed production overheads		<u>4,80,000</u>	
Actual profit under absorption costing		<u>47,40,000</u>	

Workings:

- Absorption rate for fixed cost of production = $\frac{\text{Rs. } 24,00,000}{4,00,000 \text{ units}} = \text{Rs. } 6 \text{ per unit.}$
- Fixed production overhead under absorbed = Rs. (24,00,000 – 19,20,000) = Rs. 4,80,000.

- (b) (i) Gantt task and bonus system: As per this system a higher standard is set and payment is made at time rate to a worker for production below the standard. If the standards are achieved or exceeded, the payment is made at a higher piece rate.

The piece rate fixed also includes an element of bonus to the extent of 20%. Bonus is calculated over the time rate.

- (ii) Emerson's Efficiency System: Under this system wages may be calculated as below:

Performance	Wages
Below 66⅔ % efficiency	– Time rate without any bonus
66⅔ % - 100% efficiency	– Bonus varies between 1% to 20%*
Above 100% efficiency	– Bonus of 20% of basic wages plus 1% for every 1% increase in efficiency.

*At 100% efficiency the bonus percentage will be 20%.

- (iii) Rowan System: As per this system standard time allowance is fixed for the performance of a job and bonus is paid if time is saved.

$$\text{Wages under Rowan System} = (\text{Time taken} \times \text{rate per unit of time}) + \frac{\text{time saved}}{\text{time allowed}} \times \text{time taken} \times \text{rate per unit of time}$$

- (iv) Halsey System: Under this system a standard time is fixed for each job. If there is no saving on this standard time allowance, the worker is paid only his day rate.

$$\text{Wages under Halsey System} = \text{Time taken} \times \text{Time rate} + (50\% \text{ of time saved} \times \text{time rate})$$

- (v) Barth System:

$$\text{Earnings under Barth System} = \text{Hourly rate} \times \sqrt{\text{Standard hours} \times \text{Hours worked}}$$

This is particularly suitable for trainees and beginners and also for unskilled workers.

Question 4

Answer any three of the following:

- (i) A product passes from Process I and Process II. Materials issued to Process I amounted to Rs. 40,000, Labour Rs. 30,000 and manufacturing overheads were Rs. 27,000. Normal loss was 3% of input as estimated. But 500 more units of output of Process I were lost due to the carelessness of workers. Only 4,350 units of output were transferred to Process II. There were no opening stocks. Input raw material issued to Process I were 5,000 units. You are required to show Process I account.

- (ii) PQ Ltd. reports the following cost structure at two capacity levels:

	(100% capacity)	
	<u>2,000 units</u>	<u>1,500 units</u>
Production overhead I	Rs. 3 per unit	Rs. 4 per unit
Production overhead II	Rs. 2 per unit	Rs. 2 per unit

If the selling price, reduced by direct material and labour is Rs. 8 per unit, what would be its break-even point?

- (iii) A contract expected to be completed in year 4, exhibits the following information:

End of Year	Value of work certified (Rs.)	Cost of work to date (Rs.)	Cost of work not yet certified (Rs.)	Cash received (Rs.)
1.	0	50,000	50,000	0
2.	3,00,000	2,30,000	10,000	2,75,000
3.	8,00,000	6,60,000	20,000	7,50,000

The contract price is Rs. 10,00,000 and the estimated profit is 20%.

You are required to calculate, how much profit should have been credited to the Profit and Loss A/c by the end of years 1, 2 and 3.

- (iv) UV Ltd. presents the following information for November, 2008:

Budgeted production of product P = 200 units.

Standard consumption of Raw materials = 2 kg. per unit of P.

Standard price of material A = Rs. 6 per kg.

Actually, 250 units of P were produced and material A was purchased at Rs. 8 per kg and consumed at 1.8 kg per unit of P. Calculate the material cost variances.

(3 × 3 = 9 Marks)

Answer

(i)		Process I Account					
		Units	Rs.			Units	Rs.
To	Material	5,000	40,000	By	Normal loss*	150	—
To	Labour		30,000	By	Abnormal loss**	500	10,000
To	Overhead		<u>27,000</u>	By	Process II	<u>4,350</u>	<u>87,000</u>
		<u>5,000</u>	<u>97,000</u>			<u>5,000</u>	<u>97,000</u>

* 3% of input = 3% × 5,000 = 150

$$^{**} \frac{97,000}{(5,000 - 150)} = \frac{97,000}{4,850} = \text{Rs. 20 per unit.}$$

for 500 units, Rs. $500 \times 20 = \text{Rs. 10,000.}$

(ii) Computation of Break-even point in units:

	2,000 units	1,500 units
Production Overhead I: Fixed Cost (Rs.)	<u>6,000</u> (2,000 unit × Rs. 3 per unit)	<u>6,000</u> (1,500 unit × Rs. 4 per unit)
Selling price – Material and labour (Rs.) (A)	<u>8</u>	<u>8</u>
Production Overhead II (Variable Overhead) (B)	2	2
Contribution per unit (A) – (B)	6	6

$$\text{Break - even point} = \frac{\text{Fixed cost}}{\text{Contribution per unit}} = \frac{6,000}{6} = 1,000 \text{ units}$$

(iii)

End of year	Value of work certified (Rs.)	Cost of work certified* (Rs.)	Notional profit** (Rs.)	Amount that should have been credited to Profit and Loss A/c by the end of year (Rs.)
1	0	0	0	0
2	3,00,000	2,20,000	80,000	$\frac{1}{3} \times 80,000 \times \frac{2,75,000}{3,00,000} = 24,444$
3	8,00,000	6,40,000	1,60,000	$\frac{2}{3} \times 1,60,000 \times \frac{7,50,000}{8,00,000} = 1,00,000$

Workings:

End of year	Completion of Contract	Profit credited to P & L Account
year 1	less than 25 per cent.	No profit credited
Year 2	25 per cent or more than 25 per cent but less than 50 per cent.	Cumulative profit = $\frac{1}{3} \times \text{notional profit} \times \frac{\text{Cash received}}{\text{Value of work certified}}$
Year 3	50 per cent or more than 50 per cent but less than 90 per cent.	Cumulative profit = $\frac{2}{3} \times \text{notional profit} \times \frac{\text{Cash received}}{\text{Value of work certified}}$

* Cost of work certified = Cost of work to date – Cost of work not yet certified

** Notional profit = Value of work certified – (Cost of work to date – Cost of work not yet certified)

(iv) Actual production of P	=	250 units	
Standard quantity of A for actual production = 2×250	=	500 kg.	(SQ)
Actual quantity of A for actual production = 1.8×250	=	450 kg.	(AQ)
Standard price / kg. of A	=	6 Rs.	(SP)
Actual price / kg. of A	=	8 Rs.	(AP)

(1) Total Material Cost Variance = (Standard Price $\times$ Standard Quantity)

– (Actual Price $\times$ Actual Quantity)

= $(6 \times 500) - (8 \times 450)$

= $3,000 - 3,600 = 600$ (A)

(2) Material Price Variance = (Standard price – Actual price) $\times$ Actual quantity

= $(6 - 8) \times 450 = 900$ (A)

(3) Material Usage Variance = (Standard quantity – Actual quantity) $\times$ Standard price

= $(500 - 450) \times 6 = 300$ (F)

Question 5

Answer any five of the following:

- (i) Write a short note on "Deep Discount Bonds".
- (ii) What is meant by "Venture Capital Financing" ?
- (iii) Discuss the concept of "Optimal Capital Structure".
- (iv) Name the various financial instruments dealt with in the international market.
- (v) How is return on capital employed calculated? What is its significance?
- (vi) What is quick ratio? What does it signify? (5 $\times$ 2 = 10 Marks)

Answer

- (i) Deep Discount Bonds: Deep Discount Bonds are a form of zero – interest bonds. These bonds are sold at a discounted value and on maturity face value is paid to the investors. In such bonds, there is no interest payout during lock-in period. The investors can sell the bonds in stock market and realise the difference between face value and market price as capital gain.

IDBI was the first to issue Deep Discount Bonds in India in January, 1992.

- (ii) **Venture Capital Financing:** The venture capital financing refers to financing of new high risky ventures promoted by qualified entrepreneurs who lack experience and funds to give shape to their ideas. In broad sense, under venture capital financing, venture capitalists make investments to purchase equity or debt securities from inexperienced entrepreneurs who undertake highly risky ventures with a potential of success.
- (iii) **Optimum Capital Structure:** The optimum capital structure is that capital structure or combination of debt and equity that leads to the maximisation of the value of the firm. The capital structure decision is important to the firm as the optimum capital structure minimises the firm's overall cost of capital and maximises the value of the firm. The use of debt funds in capital structure increases the earnings per share as the interest on debt is tax deductible, which leads to increase in share price. But higher levels of debt funds in capital structure result in greater financial risk and it leads to higher cost of capital and depresses the market price of company's share. Therefore, the firm should try to achieve and maintain the optimum capital structure keeping in view value maximisation objective of the firm.
- (iv) **Financial Instruments in the International Market:** Some of the various financial instruments dealt with in the international market are:
 - (a) Euro Bonds
 - (b) Foreign Bonds
 - (c) Fully Hedged Bonds
 - (d) Medium Term Notes
 - (e) Floating Rate Notes
 - (f) External Commercial Borrowings
 - (g) Foreign Currency Futures
 - (h) Foreign Currency Option
 - (i) Euro Commercial Papers.
- (v) **Return on Capital Employed (ROCE):** It is the most important ratio of all. It is the percentage of return on funds invested in the business by its owners. In short, it indicates what returns management has made on the resources made available to them before making any distribution of those returns.

$$\text{Return on Capital Employed} = \frac{\text{Return}}{\text{Capital Employed}} \times 100$$

Where,

$$\begin{aligned} \text{Return} &= \text{Net Profit} \\ &\quad \pm \text{Non-trading adjustments (but not accrual adjustments} \\ &\quad \text{for amortization of preliminary expenses, goodwill, etc.)} \\ &\quad + \text{Interest on long term debts} + \text{Provision for tax} \end{aligned}$$

$$\begin{aligned} \text{Capital Employed} = & \text{Interest/Dividend from non-trade investments} \\ & \text{Equity Share Capital} \\ & + \text{Reserve and Surplus} \\ & + \text{Pref. Share Capital} \\ & + \text{Debentures and other long term loan} \\ & - \text{Misc. expenditure and losses} \\ & - \text{Non-trade Investments.} \end{aligned}$$

Intangible assets (assets which have no physical existence like goodwill, patents and trade marks) should be included in the capital employed. But no fictitious asset should be included within capital employed.

- (vi) Quick Ratio: It is a much more exacting measure than the current ratio. It adjusts the current ratio to eliminate all assets that are not already in cash (or near cash form). A ratio less than one indicates low liquidity and hence is a danger sign.

$$\text{Quick Ratio} = \frac{\text{Quick Assets}}{\text{Current Liabilities}}$$

Where,

$$\text{Quick Assets} = \text{Current Assets} - \text{Inventory}$$

Another variation of Quick Ratio is :

$$\text{Quick Ratio} = \frac{\text{Quick Assets}}{\text{Quick Liabilities}}$$

Where,

$$\text{Quick Liabilities} = \text{Current Liabilities} - \text{Bank Overdraft} - \text{Cash Credit}$$

Question 6

Balance Sheets of a company as on 31st March, 2007 and 2008 were as follows:

Liabilities	31.3.07	31.3.08	Assets	31.3.07	31.3.08
	Rs.	Rs.		Rs.	Rs.
Equity Share Capital	10,00,000	10,00,000	Goodwill	1,00,000	80,000
8% P.S. Capital	2,00,000	3,00,000	Land and Building	7,00,000	6,50,000
General Reserve	1,20,000	1,45,000	Plant and Machinery	6,00,000	6,60,000
Securities Premium	—	25,000			

Profit and Loss A/c	2,10,000	3,00,000	Investments		
11% Debentures	5,00,000	3,00,000	(non-trading)	2,40,000	2,20,000
Creditors	1,85,000	2,15,000	Stock	4,00,000	3,85,000
Provision for tax	80,000	1,05,000	Debtors	2,88,000	4,15,000
Proposed Dividend	1,36,000	1,44,000	Cash and Bank	88,000	93,000
			Prepaid Expenses	15,000	11,000
			Premium on Redemption of Debentures	—	20,000
	<u>24,31,000</u>	<u>25,34,000</u>		<u>24,31,000</u>	<u>25,34,000</u>

Additional Information:

- Investments were sold during the year at a profit of Rs. 15,000.
- During the year an old machine costing Rs. 80,000 was sold for Rs. 36,000. Its written down value was Rs. 45,000.
- Depreciation charged on Plants and Machinery @ 20 per cent on the opening balance.
- There was no purchase or sale of Land and Building.
- Provision for tax made during the year was Rs. 96,000.
- Preference shares were issued for consideration of cash during the year.

You are required to prepare:

- Cash flow statement as per AS-3.
- Schedule of Changes in Working Capital. (15 Marks)

Answer Cash Flow Statement
for the year ending 31st March, 2008

	Rs.	Rs.
A. Cash flow from Operating Activities		
Profit and Loss A/c as on 31.3.2008		3,00,000
Less: Profit and Loss A/c as on 31.3.2007		<u>2,10,000</u>
		90,000
Add: Transfer to General Reserve	25,000	
Provision for Tax	96,000	
Proposed Dividend	<u>1,44,000</u>	<u>2,65,000</u>

Profit before Tax	3,55,000
Adjustment for Depreciation:	
Land and Building	50,000
Plant and Machinery	<u>1,20,000</u>
Profit on Sale of Investments	(15,000)
Loss on Sale of Plant and Machinery	9,000
Goodwill written off	20,000
Interest Expenses	<u>33,000</u>
Operating Profit before Working Capital Changes	5,72,000
Adjustment for Working Capital Changes:	
Decrease in Prepaid Expenses	4,000
Decrease in Stock	15,000
Increase in Debtors	(1,27,000)
Increase in Creditors	<u>30,000</u>
Cash generated from Operations	4,94,000
Income tax paid	<u>(71,000)</u>
Net Cash Inflow from Operating Activities (a)	<u>4,23,000</u>
B. Cash flow from Investing Activities	
Sale of Investment	35,000
Sale of Plant and Machinery	36,000
Purchase of Plant and Machinery	<u>(2,25,000)</u>
Net Cash Outflow from Investing Activities (b)	<u>(1,54,000)</u>
C. Cash Flow from Financing Activities	
Issue of Preference Shares	1,00,000
Premium received on Issue of Securities	25,000
Redemption of Debentures at premium	(2,20,000)
Dividend paid	(1,36,000)
Interest paid to Debenture holders	<u>(33,000)</u>
Net Cash Outflow from Financing Activities (c)	<u>(2,64,000)</u>
Net increase in Cash and Cash Equivalents during the year (a + b + c)	5,000
Cash and Cash Equivalents at the beginning of the year	<u>88,000</u>
Cash and Cash Equivalents at the end of the year	<u>93,000</u>

Working Notes:

1. Provision for the Tax Account

	Rs.		Rs.
To Bank (paid)	71,000	By Balance b/d	80,000
To Balance c/d	<u>1,05,000</u>	By Profit and Loss a/c	<u>96,000</u>
	<u>1,76,000</u>		<u>1,76,000</u>

2. Investment Account

	Rs.		Rs.
To Balance b/d	2,40,000	By Bank a/c (b/f)	35,000
To Profit and Loss (profit on sale)	<u>15,000</u>	By Balance c/d	<u>2,20,000</u>
	<u>2,55,000</u>		<u>2,55,000</u>

3. Plant and Machinery Account

	Rs.		Rs.
To Balance b/d	6,00,000	By Bank (sale)	36,000
To Bank a/c (Purchase b/f)	2,25,000	By Profit and Loss a/c (Loss on sale)	9,000
		By Depreciation	1,20,000
		By Balance c/d	<u>6,60,000</u>
	<u>8,25,000</u>		<u>8,25,000</u>

Note : Since the date of redemption of debentures is not mentioned in the question, therefore, it is assumed that the debentures are redeemed at the beginning of the year.

(ii) Schedule of Change in Working Capital

Particulars	31 st March		Change in Working Capital	
	2007	2008	Increase	Decrease
	Rs.	Rs.	Rs.	Rs.
Current Assets				
Stock	4,00,000	3,85,000	—	15,000
Debtors	2,88,000	4,15,000	1,27,000	—
Prepaid Expenses	15,000	11,000	—	4,000
Cash and Bank	<u>88,000</u>	<u>93,000</u>	5,000	—
Total (A)	<u>7,91,000</u>	<u>9,04,000</u>		

Current Liabilities

Creditors	<u>1,85,000</u>	<u>2,15,000</u>	—	30,000
Total (B)	<u>1,85,000</u>	<u>2,15,000</u>		
Working Capital (A – B)	6,06,000	6,89,000		
Increase in Working Capital	<u>83,000</u>	<u>—</u>	<u>—</u>	<u>83,000</u>
	<u>6,89,000</u>	<u>6,89,000</u>	<u>1,32,000</u>	<u>1,32,000</u>

Question 7

- (a) MN Ltd. is commencing a new project for manufacture of electric toys. The following cost information has been ascertained for annual production of 60,000 units at full capacity:

		Amount per unit
		Rs.
Raw materials		20
Direct labour		15
Manufacturing overheads:		
	Rs.	
Variable	15	
Fixed	<u>10</u>	25
Selling and Distribution overheads:		
	Rs.	
Variable	3	
Fixed	<u>1</u>	<u>4</u>
Total cost		64
Profit		<u>16</u>
Selling price		<u>80</u>

In the first year of operations expected production and sales are 40,000 units and 35,000 units respectively. To assess the need of working capital, the following additional information is available:

- Stock of Raw materials.....3 months consumption.
- Credit allowable for debtors.....1½ months.
- Credit allowable by creditors.....4 months.
- Lag in payment of wages.....1 month.
- Lag in payment of overheads.....½ month.
- Cash in hand and Bank is expected to be Rs. 60,000.
- Provision for contingencies is required @ 10% of working capital requirement including that provision.

You are required to prepare a projected statement of working capital requirement for the first year of operations. Debtors are taken at cost. (9 Marks)

- (b) A company wants to invest in a machinery that would cost Rs. 50,000 at the beginning of year 1. It is estimated that the net cash inflows from operations will be Rs. 18,000 per annum for 3 years, if the company opts to service a part of the machine at the end of year 1 at Rs. 10,000. In such a case, the scrap value at the end of year 3 will be Rs. 12,500. However, if the company decides not to service the part, then it will have to be replaced at the end of year 2 at Rs. 15,400. But in this case, the machine will work for the 4th year also and get operational cash inflow of Rs. 18,000 for the 4th year. It will have to be scrapped at the end of year 4 at Rs. 9,000. Assuming cost of capital at 10% and ignoring taxes, will you recommend the purchase of this machine based on the net present value of its cash flows?

If the supplier gives a discount of Rs. 5,000 for purchase, what would be your decision? (The present value factors at the end of years 0, 1, 2, 3, 4, 5 and 6 are respectively 1, 0.9091, 0.8264, 0.7513, 0.6830, 0.6209 and 0.5644). (7 Marks)

Answer

- (a) Statement Showing Cost and Sales for the First Year

Annual Production Capacity	60,000 units
Production	40,000 units
Sales	35,000 units

Particulars	Rs.
Sales Revenue (Rs. 80 × 35,000)	28,00,000
Cost of Production:	
Materials @ Rs. 20 per unit	8,00,000
Direct Labour @ Rs. 15 per unit	6,00,000
Manufacturing Overheads	
Variable @ Rs. 15 per unit	6,00,000
Fixed (based on production capacity 60,000 units × Rs. 10)	<u>6,00,000</u>
Cost of Production	26,00,000
Less: Closing Stock (40,000 – 35,000 = 5,000 units)	
$\left(\text{Rs. } \frac{26,00,000}{40,000} \times 5,000 \text{ units} \right)$	<u>3,25,000</u>
Cost of Goods Sold	22,75,000

Add: Selling & Distribution Overheads

Variable @ Rs. 3 × 35,000 units = 1,05,000

Fixed (Re. 1 × 60,000 units) = 60,000 1,65,000

Cost of Sales 24,40,000

Profit 3,60,000

Statement Showing Working Capital Requirement

A. Current Assets	Rs.
Stock of Raw Materials (Rs. 8,00,000 × 3/12)	2,00,000
Stock of Finished Goods	3,25,000
Debtors at Cost (Rs. 24,40,000 × 3/24)	3,05,000
Cash and Bank	<u>60,000</u>
Total (A)	<u>8,90,000</u>
B. Current Liabilities	
Creditors for Materials (Rs. 10,00,000 × 4/12)	3,33,333
Creditors for Expenses (Rs. 13,65,000 × 1/24)	56,875
Outstanding Wages (Rs. 6,00,000 × 1/12)	<u>50,000</u>
Total (B)	<u>4,40,208</u>
Working Capital Requirement before Contingencies (A – B)	4,49,792
Add: Provision for Contingencies (Rs. 4,49,792 × 1/9)	<u>49,977</u>
Estimated Working Capital Requirement	<u>4,99,769</u>

Workings Notes:

Purchase of Raw Material during the first year	Rs.
Raw Material consumed during the year	8,00,000
Add: Closing Stock of Raw Materials (3 months consumption)	<u>2,00,000</u>
	10,00,000
Less: Opening Stock of Raw Material	<u>Nil</u>
Purchases during the year	<u>10,00,000</u>

(b) Option I : Purchase Machinery and Service Part at the end of Year 1.

Net Present value of cash flow @ 10% per annum discount rate.

$$NPV = -50,000 + \frac{18,000}{(1.1)} + \frac{18,000}{(1.1)^2} + \frac{18,000}{(1.1)^3} - \frac{10,000}{(1.1)} + \frac{12,500}{(1.1)^3}$$

$$= -50,000 + 18,000 (0.9091 + 0.8264 + 0.7513) - (10,000 \times 0.9091) + (12,500 \times 0.7513)$$

$$= -50,000 + (18,000 \times 2.4868) - 9,091 + 9,391$$

$$= -50,000 + 44,762 - 9,091 + 9,391$$

$$\text{NPV} = -4,938$$

Since, Net Present Value is negative; therefore, this option is not to be considered.

If Supplier gives a discount of Rs. 5,000 then,

$$\text{NPV} = +5,000 - 4,938 = +62$$

In this case, Net Present Value is positive but very small, therefore, this option may not be advisable.

Option II : Purchase Machinery and Replace Part at the end of Year 2.

$$\text{NPV} = -50,000 + \frac{18,000}{(1.1)} + \frac{18,000}{(1.1)^2} + \frac{18,000}{(1.1)^3} - \frac{15,400}{(1.1)^2} + \frac{27,000}{(1.1)^4}$$

$$= -50,000 + 18,000 (0.9091 + 0.8264 + 0.7513) - (15,400 \times 0.8264) + (27,000 \times 0.6830)$$

$$= -50,000 + 18,000 (2.4868) - (15,400 \times 0.8264) + (27,000 \times 0.6830)$$

$$= -50,000 + 44,762 - (15,400 \times 0.8264) + (27,000 \times 0.6830)$$

$$= -50,000 + 44,762 - 12,727 + 18,441$$

$$= -62,727 + 63,203$$

$$= +476$$

Net Present Value is positive, but very low as compared to the investment.

If the Supplier gives a discount of Rs. 5,000, then

$$\text{NPV} = 5,000 + 476 = 5,476$$

Decision: Option II is worth investing as the net present value is positive and higher as compared to Option I.

Question 8

Answer any three of the following:

- (i) A company offers a Fixed deposit scheme whereby Rs. 10,000 matures to Rs. 12,625 after 2 years, on a half-yearly compounding basis. If the company wishes to amend the scheme by compounding interest every quarter, what will be the revised maturity value?

- (ii) A company operates at a production level of 1,000 units. The contribution is Rs. 60 per unit, operating leverage is 6, and combined leverage is 24. If tax rate is 30%, what would be its earnings after tax?
- (iii) What do you mean by Stock Turnover ratio and Gearing ratio?
- (iv) Explain the concept of Multiple Internal Rate of Return. (3 × 3 = 9 Marks)

Answer

- (i) Computation of Rate of Interest and Revised Maturity Value

Principal = Rs. 10,000

Amount = Rs. 12,625

$$10,000 = \frac{12,625}{(1+i)^4}$$

$$P_n = A \times (PVF_{n,i})$$

$$10,000 = 12,625 (PVF_{4,i})$$

$$0.7921 = (PVF_{4,i})$$

According to the Table on Present Value Factor ($PVF_{4,i}$) of a lump sum of Re. 1, a PVF of 0.7921 for half year at interest (i) = 6 percent. Therefore, the annual interest rate is $2 \times 0.06 = 12$ percent.

i = 6% for half year

i = 12% for full year.

Therefore, Rate of Interest = 12% per annum

$$\begin{aligned} \text{Revised Maturity Value} &= 10,000 \left(1 + \frac{12}{100} \times \frac{1}{4} \right)^{2 \times 4} \\ &= 10,000 \left(1 + \frac{3}{100} \right)^8 \\ &= 10,000 (1.03)^8 \\ &= 10,000 \times 1.267 \text{ [Considering } (CVF_{8,3}) = 1.267] \end{aligned}$$

Revised Maturity Value = 12,670.

- (ii) Computation of Earnings after tax

Contribution = Rs. 60 × 1,000 = Rs. 60,000

Operating Leverage (OL) × Financial Leverage (FL) = Combined Leverage (CL)

6 × Financial Leverage = 24

$$\therefore \text{Financial Leverage} = 4$$

$$\text{Operating Leverage} = \frac{\text{Contribution}}{\text{EBIT}} = \frac{60,000}{\text{EBIT}} = 6$$

$$\therefore \text{EBIT} = \frac{60,000}{6} = 10,000$$

$$\text{FL} = \frac{\text{EBIT}}{\text{EBT}} = 4$$

$$\therefore \text{EBT} = \frac{\text{EBIT}}{4} = \frac{10,000}{4} = 2,500$$

Since tax rate = 30%

$$\begin{aligned} \text{Earnings after Tax (EAT)} &= \text{EBT} (1 - 0.30) \\ &= 2,500 (0.70) \end{aligned}$$

$$\therefore \text{Earning After Tax (EAT)} = 1,750$$

(iii) Stock Turnover Ratio and Gearing Ratio

Stock Turnover Ratio helps to find out if there is too much inventory build up. An increasing stock turnover figure or one which is much larger than the "average" for an industry may indicate poor stock management. The formula for the Stock Turnover Ratio is as follows :

$$\text{Stock Turnover ratio} = \frac{\text{Cost of Sales}}{\text{Average inventory}} \text{ or } \frac{\text{Turnover}}{\text{Average inventory}}$$

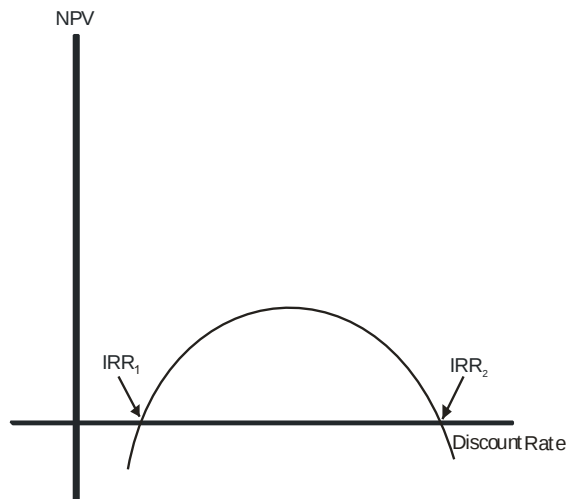
Gearing Ratio indicates how much of the business is funded by borrowing. In theory, the higher the level of borrowing (gearing), the higher are the risks to a business, since the payment of interest and repayment of debts are not "optional" in the same way as dividends. However, gearing can be a financially sound part of a business's capital structure particularly if the business has strong, predictable cash flows. The formula for the Gearing Ratio is as follows :

$$\text{Gearing Ratio} = \frac{\text{Borrowings (all long term debts including normal overdraft)}}{\text{Net Assets or Shareholders' funds}}$$

(iv) Multiple Internal Rate of Return (MIRR)

In cases where project cash flows change signs or reverse during the life of a project for example, an initial cash outflow is followed by cash inflows and subsequently followed by a major cash outflow, there may be more than one internal rate of return (IRR). The

following graph of discount rate versus net present value (NPV) may be used as an illustration:



In such situations if the cost of capital is less than the two IRRs, a decision can be made easily, however, otherwise the IRR decision rule may turn out to be misleading as the project should only be invested if the cost of capital is between IRR_1 and IRR_2 . To understand the concept of multiple IRRs it is necessary to understand the implicit re-investment assumption in both NPV and IRR techniques.