

PAPER – 4 : COST ACCOUNTING AND FINANCIAL MANAGEMENT

Question No. 1 and 6 are compulsory.

Answer any three questions from the rest.

Working notes should form part of the answer wherever appropriate,
suitable assumptions should be made.

Question 1

- (a) ABC Ltd. Manufactures two types of machinery equipments Y and Z and applies/absorbs overheads on the basis of direct-labour hours. The budgeted overheads and direct-labour hours for the month of December, 2006 are Rs. 12,42,500 and 20,000 hours respectively. The information about Company's products is as follows:

	Equipment Y	Equipment Z
Budgeted Production volume	2,500 units	3,125 units
Direct material cost	Rs. 300 per unit	Rs. 450 per unit
Direct labour cost		
Y : 3 hours @ Rs. 150 per hour		
X : 4 hours @ Rs. 150 per hour	Rs. 450	Rs. 600

ABC Ltd.'s overheads of Rs. 12,42,500 can be identified with three major activities:

Order Processing (Rs. 2,10,000), machine processing (Rs. 8,75,000), and product inspection (Rs. 1,57,500). These activities are driven by number of orders processed, machine hours worked, and inspection hours, respectively. The data relevant to these activities is as follows:

	Orders processed	Machine hours worked	Inspection hours
Y	350	23,000	4,000
Z	250	27,000	11,000
Total	600	50,000	15,000

Required:

- Assuming use of direct-labour hours to absorb/apply overheads to production, compute the unit manufacturing cost of the equipments Y and Z, if the budgeted manufacturing volume is attained.
- Assuming use of activity-based costing, compute the unit manufacturing costs of the equipments Y and Z, if the budgeted manufacturing volume is achieved.
- ABC Ltd.'s selling prices are based heavily on cost. By using direct-labour hours as an application base, calculate the amount of cost distortion (under-costed or over-costed) for each equipment.

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- (iv) Discuss, how an activity-based costing might benefit ABC Ltd.
- (b) Discuss the use of perpetual inventory records and continuous stock verification, and its advantages.
- (c) Discuss the various reports provided by Cost Accounting Department.
- (10 + 4 + 4 = 18 Marks)

Answer

- (a) (i) Overheads application base: Direct labour hours

	Equipment Y	Equipment Z
	Rs.	Rs.
Direct material cost	300	450
Direct labour cost	450	600
Overheads*	<u>186.38</u>	<u>248.50</u>
	<u>936.38</u>	<u>1,298.50</u>

$$\begin{aligned} \text{*Pre-determined rate} &= \frac{\text{Budgeted overheads}}{\text{Budgeted direct labour hours}} \\ &= \frac{\text{Rs. 12, 42, 500}}{20,000 \text{ hours}} = \text{Rs. 62.125} \end{aligned}$$

- (ii) Estimation of Cost-Driver rate

Activity	Overhead cost Rs.	Cost-driver level	Cost driver rate Rs.
Order processing	2,10,000	600 Orders processed	350
Machine processing	8,75,000	50,000 Machine hours	17.50
Inspection	1,57,500	15,000 Inspection hours	10.50

	Equipment Y	Equipment Z
	Rs.	Rs.
Direct material cost	300	450
Direct labour cost	<u>450</u>	<u>600</u>
Prime cost	<u>750</u>	<u>1,050</u>

Overhead cost		
Order processing 350 : 250	1,22,500	87,500
Machine processing 23,000 : 27,000	4,02,500	4,72,500
Inspection 4,000 : 11,000	<u>42,000</u>	<u>1,15,500</u>
Total overhead cost	<u>5,67,000</u>	<u>6,75,500</u>
Per unit cost		
= 5,67,000/2,500	226.80	Rs. 216.16
= 6,75,500/3,125		
Unit manufacturing cost	Rs. 976.80	Rs. 1,266.16
(iii)		
	Equipment	Equipment
	Y	Z
	Rs.	Rs.
Unit manufacturing cost—using direct labour hours as an application base	936.38	Rs. 1,298.50
Unit manufacturing cost—using activity based costing	<u>976.80</u>	<u>Rs. 1,266.16</u>
Cost distortion	<u>(-)40.42</u>	<u>(+)32.34</u>

Low volume product Y is under-costed and high volume product Z is over-costed using direct labour hours as a basis for overheads absorption. It is due to the limitation of traditional costing system.

- (iv) Activity-based costing system is suitable in case of ABC Ltd because it is a multi-product company and overheads costs are substantial portion of total cost. The use of activity based costing will avoid cost distortion as ABC Ltd has a large proportion of non-unit-level activities such as orders processed and inspection hours.
- (b) Use of perpetual inventory records and continuous stock verification: Perpetual inventory represents a system of records maintained by the stores department. These are Bin cards and Stores ledger.

Bin Card is a quantitative record of receipt, issue and closing balance of each item of stores. Separate bin cards are maintained for each item. Each card is filled up with physical movement of goods i.e. on receipt and issue.

Stores Ledger is quantitative and value record of receipt, issue and closing balance of each item of stores. It is filled with the help of goods received note and material issue requisitions.

A perpetual inventory is usually checked by a programme of continuous stock taking. Continuous stock taking means physical checking of those records with actual stock.

Advantages of perpetual inventory

- (1) Physical stocks can be counted and book balances adjusted as and when desired without waiting for entire stock taking to be done.
 - (2) Quick compilation of Profit and Loss Account due to prompt availability of stock figures.
 - (3) Discrepancies are easily located and thus corrective action can be promptly taken.
 - (4) A systematic review of the perpetual inventory reveals the existence of surplus, dormant, obsolete and slow moving materials, so that remedial measures may be taken in time.
 - (5) Fixation of various stock levels and checking of actual balance in hand.
- (c) Various reports provided by Cost Accounting Department
- (i) Cost sheet setting out the total cost, analysed into various elements.
 - (ii) Consumption of material statements.
 - (iii) Labour utilization statements.
 - (iv) Overheads incurred compared with the budget and overheads actually charged to production.
 - (v) Sales effected compared with budgets.
 - (vi) Reconciliation of actual profits earned with budgeted profits.
 - (vii) The total cost of abnormally spoiled work in factory and abnormal losses.
 - (viii) Labour turnover, cost of recruitment and training new employees.
 - (ix) Expenses incurred on R & D as compared with those budgeted.

Question 2

A Chemical Company carries on production operation in two processes. The material first pass through Process I, where Product 'A' is produced.

Following data are given for the month just ended:

Material input quantity	2,00,000 kgs.
Opening work-in-progress quantity (Material 100% and conversion 50% complete)	40,000 kgs.
Work completed quantity	1,60,000 kgs.
Closing work-in-progress quantity (Material 100% and conversion two-third complete)	30,000 kgs.
Material input cost	Rs. 75,000
Processing cost	Rs. 1,02,000

Opening work-in-progress cost

Material cost	Rs. 20,000
Processing cost	Rs. 12,000

Normal process loss in quantity may be assumed to be 20% of material input. It has no realisable value.

Any quantity of Product 'A' can be sold for Rs. 1.60 per kg.

Alternatively, it can be transferred to Process II for further processing and then sold as Product 'AX' for Rs. 2 per kg. Further materials are added in Process II, which yield two kgs. of product 'AX' for every kg. of Product 'A' of Process I.

Of the 1,60,000 kgs. per month of work completed in Process I, 40,000 kgs are sold as Product 'A' and 1,20,000 kgs. are passed through Process II for sale as Product 'AX'. Process II has facilities to handle upto 1,60,000 kgs. of Product 'A' per month, if required.

The monthly costs incurred in Process II (other than the cost of Product 'A') are:

	1,20,000 kgs. of Product 'A' input	1,60,000 kgs. of Product 'A' input
	Rs.	Rs.
Materials Cost	1,32,000	1,76,000
Processing Costs	1,20,000	1,40,000

Required:

- Determine, using the weighted average cost method, the cost per kg. of Product 'A' in Process I and value of both work completed and closing work-in-progress for the month just ended.
- Is it worthwhile processing 1,20,000 kgs. of Product 'A' further?
- Calculate the minimum acceptable selling price per kg., if a potential buyer could be found for additional output of Product 'AX' that could be produced with the remaining Product 'A' quantity. (6 + 4 + 4 = 14 Marks)

Answer

(i)

Process I Statement of equivalent production							
Inputs		Output		Equivalent output			
Particulars	Units Kg.	Particulars	Units Kg.	Material %	Unit kg.	Conversion %	Units kg.
Opening W.I.P.	40,000	Normal loss	40,000	—	—	—	—
New material introduced	2,00,000	Units introduced & completed	1,60,000	100%	1,60,000	100%	1,60,000
		Abnormal loss	10,000	100%	10,000	100%	10,000
		Closing WIP	30,000	100%	30,000	2/3 rd	20,000
	<u>2,40,000</u>		<u>2,40,000</u>		<u>2,00,000</u>		<u>1,90,000</u>

Process I
Statement of cost for each element

Elements of cost	Costs of opening WIP	Costs in process	Total cost	Equivalent units	Cost/Unit (Kg.)
	Rs.	Rs.	Rs.	Kg.	Rs.
Material	20,000	75,000	95,000	2,00,000	0.475
Conversion cost	<u>12,000</u>	<u>1,02,000</u>	<u>1,14,000</u>	1,90,000	<u>0.600</u>
	<u>32,000</u>	<u>1,77,000</u>	<u>2,09,000</u>		<u>1.075</u>

Statement of apportionment of cost

Units completed	Elements	Equivalent units	Cost/unit	Cost	Total cost
			Rs.	Rs.	Rs.
Work completed	Material	1,60,000	.475	76,000	
	Conversion	1,60,000	.600	<u>96,000</u>	1,72,000
Closing WIP	Material	30,000	.475	14,250	
	Conversion	20,000	.600	<u>12,000</u>	26,250

- (ii) Statement showing comparative data to decide whether 1,20,000 kg. of product 'A' should be processed further into 'AX'.

Alternative I – To sell product 'A' after Process – I	Rs.
Sales $1,20,000 \times 1.60$	1,92,000
Less: Cost from Process I $1,20,000 \times 1.075$	<u>1,29,000</u>
Gain	<u>63,000</u>

Alternative II – Process further into 'AX'

Sales $2,40,000 \times 2.00$	4,80,000
Less: Cost from Process I $1,20,000 \times 1.075 =$	Rs. 1,29,000
Material in Process II	= Rs. 1,32,000
Processing cost in Process II	= Rs. <u>1,20,000</u>
Gain	<u>3,81,000</u>
	<u>99,000</u>

Hence company should process further

It will increase profit by $99,000 - 63,000 =$ Rs. 36,000

(iii) Calculation of minimum selling price/kg:

Cost of processing remaining 40,000 kg. further	Rs.
Material 1,76,000 – 1,32,000	44,000
Processing cost 1,40,000 – 1,20,000	20,000
Cost from process I relating to 40,000 kg. 'A' (40,000 × 1.075)	43,000
Benefit foregone if 40,000 kg. 'A' are further processed	
40,000 (1.60 – 1.075)	<u>21,000</u>
Total cost	<u>1,28,000</u>
Additional quantity of product 'AX' (40,000 × 2)	80,000
∴ Minimum selling price $\left(\frac{1,28,000}{80,000} \right) =$	Rs. 1.60

Question 3

(a) A Manufacturing Company has an installed capacity of 1,50,000 units per annum. Its cost structure is given below:

	Rs.
(i) Variable cost per unit	
Materials	10
Labour (subject to a minimum of Rs. 1,00,000 per month)	10
Overheads	4
(ii) Fixed overheads per annum	1,92,300
(iii) Semi-variable overheads per annum at 75% capacity (It will increase by Rs. 4,000 per annum for increase of every 5% of the capacity utilisation or any part thereof)	60,000

The capacity utilisation for the next year is budgeted at 75% for first three months, 80% for the next six months and 90% for the remaining three months.

Required:

If the company is planning to have a profit of 20% on the selling price, calculate the selling price per unit for the next year.

(b) Discuss briefly the principles to be followed while taking credit for profits on incomplete contracts. (10 + 4 = 14 Marks)

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Answer

(a) Working Notes:

(i) Installed capacity per month $\frac{150,000}{12} = 12,500$ units

(ii) Capacity utilisation	75%	80%	90%
Production per month (units)	9,375	10,000	11,250
Total production (units)	$3 \times 9,375 = 28,125$	$10,000 \times 6 = 60,000$	$11,250 \times 3 = 33,750$
Total	1,21,875 units		

(iii) Calculation of labour cost:

Capacity	75%	80%	90%
Production per month (units)	9,375	10,000	11,250
Labour @ 10 (subject to minimum 1,00,000)	93,750 i.e. minimum 1,00,000	1,00,000	1,12,500
Total labour cost	$3 \times 1,00,000 = 3,00,000$	$6 \times 1,00,000 = 6,00,000$	$3 \times 1,12,500 = 3,37,500$
Total	Rs 12,37,500		

(iv) Calculation of semi variable overheads:

	75%	80%	90%
Semi variable Overhead per month	$\frac{60,000}{12} = 5,000$	$\frac{60,000 + 4,000}{12} = 5333.66$	$\frac{60,000 + 12,000}{12} = 6,000$
Total Semi-variable Overhead	$3 \times 5,000 = 15,000$	$6 \times 5333.66 = 32,000$	$3 \times 6,000 = 18,000$

Total Rs. 65,000

Calculation of selling price per unit:

	Rs.
Material costs 1,21,875 @ 10	12,18,750
Labour cost	12,37,500
Overheads 1,21,875 @ 4	4,87,500

Semi-variable Overheads	65,000
Fixed Overheads	<u>1,92,300</u>
Total cost	32,01,050
Profit 20% on selling price i.e., 25% on cost	<u>8,00,262.50</u>
Sales	40,01,312.50
Selling price/unit = $\frac{40,01,312.50}{1,21,875}$	Rs. 32.83

(b) The following are the principles to be followed in taking credit for profit on incomplete contracts:

- (i) If the contract is less than one-fourth complete, no profit to be taken to Profit and Loss Account of the year. The notional profit, if any, arising in the contract will be treated as Reserve.
- (ii) If the contract is more than one-fourth complete but not more than half complete, the profit to be carried to the Profit and Loss Account of the year is computed as under:

$$\frac{1}{3} \times \text{Notional profit} \times \frac{\text{Cash received}}{\text{Work certified}}$$

The balance to be carried to Reserve.

- (iii) If the contract is more than half complete but not almost complete, the profit to be carried to the Profit and Loss Account of the year is computed as under:

$$\frac{2}{3} \times \text{Notional profit} \times \frac{\text{Cash received}}{\text{Work certified}}$$

The balance to be treated as Reserve.

- (iv) If the contract is almost complete, say 90% and above, the profit on completion is estimated as under:

Cost of work certified	XXX
Cost of work not certified	XXX
Estimated costs to complete the contract	XXX
Total	A
Contract Price	B
Estimated profit on completion =	A – B

The profit to be taken to Profit and Loss Account is

$$\text{Estimated profit on completion} \times \frac{\text{Work certified}}{\text{Contract price}} \times \frac{\text{Cash received}}{\text{Work certified}}$$

- (v) If there is a loss in any year, it is to be written off to Profit and Loss Account of the year.

Question 4

- (a) Distinguish between any two of the following:
- (i) Cost control and Cost reduction.
 - (ii) Controllable costs and Uncontrollable costs.
 - (iii) Absolute ton-kms and Commercial ton-kms.
- (b) PQR Ltd., manufactures a special product, which requires 'ZED'. The following particulars were collected for the year 2005-06:
- | | | | |
|--------|--------------------------|---|--------------------|
| (i) | Monthly demand of Zed | : | 7,500 units |
| (ii) | Cost of placing an order | : | Rs. 500 |
| (iii) | Re-order period | : | 5 to 8 weeks |
| (iv) | Cost per unit | : | Rs. 60 |
| (v) | Carrying cost % p.a. | : | 10% |
| (vi) | Normal usage | : | 500 units per week |
| (vii) | Minimum usage | : | 250 units per week |
| (viii) | Maximum usage | : | 750 units per week |

Required:

- (i) Re-order quantity.
- (ii) Re-order level.
- (iii) Minimum stock level.
- (iv) Maximum stock level.
- (v) Average stock level. (4 + 10 = 14 Marks)

Answer

- (a) (i) Cost control involves pre-determination of targeted costs, measuring the actual costs, investigating into the causes of variations between the two and instituting the corrective action, whereas cost reduction is achievement of real and permanent reduction in the unit cost of goods manufactured or services rendered without impairing their suitability or diminution in the quality of product. Cost reduction involves saving in unit cost; such saving is of permanent nature and the utility and quality of the goods and services remain un-affected.
- (ii) Controllable costs are the costs which can be influenced by the action of a specified member of an undertaking. Controllable costs incurred in a particular Responsibility centre can be influenced by the action of the executive heading that Responsibility centre.

Uncontrollable costs are those costs which cannot be influenced by the action of a specified member of an undertaking. The distinction between controllable and uncontrollable costs is not very sharp and is sometimes left to individual judgement. In fact, no cost is controllable; it is only in relation to a particular individual that we may specify a particular cost to be either controllable or non-controllable.

- (iii) Absolute tones-kms are the sum total of tones-kms arrived at by multiplying various distances by respective load quantities carried.

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

$$\begin{aligned}
 \text{(b) (i) Re - order quantity} &= \sqrt{\frac{2AO}{C \times i}} \\
 &= \sqrt{\frac{2 \times 7,500 \times 12 \times 500}{60 \times 10}} \\
 &= 3,873 \text{ units}
 \end{aligned}$$

- (ii) Re-order level

= Maximum re-order period × Maximum usage

= 8 weeks × 750 units per week

= 6,000 units

- (iii) Minimum stock level

= Re-order level – {Normal usage × Average reorder period}

= 6,000 – (500 × 6.5)

= 2,750 units

- (iv) Maximum stock level

= Re-order level + Re-order quantity – (Minimum usage × Minimum re-order period)

= 6,000 + 3,873 – (5 × 250)

= 8,623 units

- (v) Average stock level

= $\frac{1}{2}$ (Minimum stock level + Maximum stock level)

= $\frac{1}{2}$ (2,750 + 8,623)

= 5,687 units

Question 5

- (a) RST Ltd. has two production departments: Machining and Finishing. There are three service departments: Human Resource (HR), Maintenance and Design. The budgeted

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costs in these service departments are as follows:

	HR	Maintenance	Design
	Rs.	Rs.	Rs.
Variable	1,00,000	1,60,000	1,00,000
Fixed	<u>4,00,000</u>	<u>3,00,000</u>	<u>6,00,000</u>
	<u>5,00,000</u>	<u>4,60,000</u>	<u>7,00,000</u>

The usage of these Service Departments' output during the year just completed is as follows:

Provision of Service Output (in hours of service)

Users of Service	Providers of Service		
	HR	Maintenance	Design
HR	—	—	—
Maintenance	500	—	—
Design	500	500	—
Machining	4,000	3,500	4,500
Finishing	<u>5,000</u>	<u>4,000</u>	<u>1,500</u>
Total	<u>10,000</u>	<u>8,000</u>	<u>6,000</u>

Required:

- Use the direct method to re-apportion RST Ltd.'s service department cost to its production departments.
 - Determine the proper sequence to use in re-apportioning the firm's service department cost by step-down method.
 - Use the step-down method to reapportion the firm's service department cost.
- (b) What are the essential pre-requisites of integrated accounting system? Discuss.
- (c) What are the advantages of inter-firm comparison system? Discuss.

(7 + 3 + 4 = 14 Marks)

Answer

- (a) (i) Apportionment of Service Department Overheads amongst production departments using Direct Method:

	Production Deptts.		Service Deptts.		
	Machining	Finishing	HR	Maintenance	Design
	Rs.	Rs.	Rs.	Rs.	Rs.
Overhead as per primary distribution			5,00,000	4,60,000	7,00,000

Apportionment design 4,500 : 1,500	5,25,000	1,75,000
Maintenance 3,500 : 4,000	2,14,667	2,45,333
HR 4,000 : 5,000	<u>2,22,222</u>	<u>2,77,778</u>
	<u>9,61,889</u>	<u>6,98,111</u>

- (ii) The proper sequence for apportionment of service department overheads is

First	HR
Second	Maintenance
Third	Design

The sequence has been laid down based on service provided.

- (iii) Apportionment of Service Department overheads amongst production departments using step-down method.

	Production Department		Service Department		
	Machining	Finishing	HR	Maintenance	Design
	Rs.	Rs.	Rs.	Rs.	Rs.
Overhead as per primary distribution	—	—	5,00,000	4,60,000	7,00,000
Apportionment HRD 4 : 5 : — : 0.5 : 0.5	2,00,000	2,50,000	(-)5,00,000	25,000	25,000
Maintenance 7 : 8 : — : 1	2,12,188	2,42,500	—	(-)4,85,000	30,312
Design 3 : 1	<u>5,66,484</u>	<u>1,88,828</u>	—	—	(-)7,55,312
	<u>9,78,672</u>	<u>6,81,328</u>			

- (b) Estimated Pre-requisites for integrated accounts:

- The management's decision about the extent of integration of the two sets of books.
- A suitable coding system must be made available so as to serve the accounting purposes of financial and cost accounts.
- An agreed routine, with regard to the treatment of provision for accruals, pre-paid expenses, other adjustments necessary for preparation of interim accounts.
- Perfect coordination should exist between the staff responsible for the financial and cost aspects of the accounts and an efficient processing of accounting documents should be ensured.

- (c) Advantages of inter-firm comparison:

- Such a comparison gives an overall view of the industry as a whole to its members

– the present position of industry, progress made during the past and future of the industry.

- (ii) It helps a concern in knowing its strengths or weaknesses in relation to others so that remedial measures may be taken.
- (iii) It ensures an unbiased specialized reporting on particular problems of the concern.
- (iv) It develops cost consciousness among members of industry.
- (v) It helps Government in effecting price regulation.
- (vi) It helps to improve the quality of products manufactured and to reduce the cost of production. It is thus, advantageous to the industry as well as to the society.

Question 6

- (a) A proforma cost sheet of a Company provides the following particulars:

	Amount per unit (Rs.)
Raw materials cost	100
Direct labour cost	37.50
Overheads cost	75
Total cost	212.50
Profit	37.50
Selling Price	250

The Company keeps raw material in stock, on an average for one month; work-in-progress, on an average for one week; and finished goods in stock, on an average for two weeks.

The credit allowed by suppliers is three weeks and company allows four weeks credit to its debtors. The lag in payment of wages is one week and lag in payment of overhead expenses is two weeks.

The Company sells one-fifth of the output against cash and maintains cash-in-hand and at bank put together at Rs.37,500.

Required:

Prepare a statement showing estimate of Working Capital needed to finance an activity level of 1,30,000 units of production. Assume that production is carried on evenly throughout the year, and wages and overheads accrue similarly. Work-in-progress stock is 80% complete in all respects.

- (b) Discuss the conflicts in Profit versus Wealth maximization principle of the Firm.

(12 + 4 = 16 marks)

Answer

- (a) Activity level: 1,30,000 units

Statement showing Estimate of Working Capital Needs

- A. Investment in Inventory:

Raw material inventory: 1 month 10,00,000

$$\left(1,30,000 \times \frac{4}{52} \times \text{Rs.}100 \right)^*$$

WIP Inventory : 1 week $\left(1,30,000 \times \frac{1}{52} \times 0.80 \times 212.50 \right)$ 4,25,000

Finished goods inventory: 2 weeks 10,62,500

$$\left(1,30,000 \times \frac{2}{52} \times 212.50 \right)$$

- B. Investment in Debtors: 4 weeks at cost

$$\left(1,30,000 \times \frac{4}{5} \times \frac{4}{52} \times 212.50 \right) 17,00,000$$

- C. Cash balance

37,500

- D. Investment in Current Assets (A + B + C)

42,25,000

- E. Current Liabilities:

Creditors : 3 weeks

$$\left(1,30,000 \times \frac{3}{52} \times 100 \right) 7,50,000$$

Deferred wages : 1 week

$$\left(1,30,000 \times \frac{1}{52} \times 37.50 \right) 93,750$$

Deferred overheads : 2 weeks

$$\left(1,30,000 \times \frac{2}{52} \times 75 \right) \underline{3,75,000} \quad \underline{12,18,750}$$

Net Working Capital Needs 30,06,250

* For calculation purposes, 4 weeks has been considered as equivalent to a month.

- (b) The company may pursue profit maximisation goal but that may not result into creation of shareholder value. The profits will be maximized if company grows through diversification and expansion. But all growth may not be profitable. Only that growth is profitable where

ROA > WACC or ROE > K_E or Firms invest in positive NPV profits.

However, profit maximisation 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, as an objective, 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.

Question 7

- (a) A Company had the following Balance Sheet as on March 31, 2006:

Liabilities and Equity	Rs. (in crores)	Assets	Rs. (in crores)
Equity Share Capital		Fixed Assets (Net)	25
(one crore shares of Rs. 10 each)	10	Current Assets	15
Reserves and Surplus	2		
15% Debentures	20		
Current Liabilities	<u>8</u>		
	<u>40</u>		<u>40</u>

The additional information given is as under:

Fixed Costs per annum (excluding interest)	Rs. 8 crores
Variable operating costs ratio	65%
Total Assets turnover ratio	2.5
Income-tax rate	40%

Required:

Calculate the following and comment:

- (i) Earnings per share
- (ii) Operating Leverage
- (iii) Financial Leverage
- (iv) Combined Leverage.

- (b) Discuss the need for social cost benefit analysis. (8 + 4 =12 Marks)

Answer

- (a) Total Assets = Rs. 40 crores
 Total Asset Turnover Ratio = 2.5
 Hence, Total Sales = 40×2.5 = Rs. 100 crores

Computation of Profits after Tax (PAT)

	(Rs. in crores)
Sales	100
Less: Variable operating cost @ 65%	<u>65</u>
Contribution	35
Less: Fixed cost (other than Interest)	<u>8</u>
EBIT	27
Less: Interest on debentures (15% × 20)	<u>3</u>
PBT	24
Less: Tax 40%	<u>9.6</u>
PAT	<u>14.4</u>

(i) Earnings per share

$$\therefore \text{EPS} = \frac{\text{Rs. 14.4 crores}}{1 \text{ crore equity shares}} = \text{Rs. 14.40}$$

(ii) Operating Leverage

$$\text{Operating leverage} = \frac{\text{Contribution}}{\text{EBIT}} = \frac{35}{27} = 1.296$$

It indicates the choice of technology and fixed cost in cost structure. It is level specific. When firm operates beyond operating break-even level, then operating leverage is low. It indicates sensitivity of earnings before interest and tax (EBIT) to change in sales at a particular level.

(iii) Financial Leverage

$$\text{Financial Leverage} = \frac{\text{EBIT}}{\text{PBT}} = \frac{27}{24} = 1.125$$

The financial leverage is very comfortable since the debt service obligation is small vis-à-vis EBIT.

(iv) Combined Leverage

$$\begin{aligned} \text{Combined Leverage} &= \frac{\text{Contribution}}{\text{EBIT}} \times \frac{\text{EBIT}}{\text{PBT}} \\ &= 1.296 \times 1.125 \\ &= 1.458 \end{aligned}$$

The combined leverage studies the choice of fixed cost in cost structure and choice of debt in capital structure. It studies how sensitive the change in EPS is vis-à-vis change in sales.

The leverages – operating, financial and combined are measures of risk.

(b) **Need for Social Cost Benefit Analysis (SCBA)**

Several hundred crores of rupees are committed every year to various public projects. Analysis of such projects has to be done with reference to social costs and benefits, since they cannot be expected to yield an adequate commercial return on the funds employed, at least during the short run.

Social cost benefit analysis is important for the private corporations also who have a moral responsibility to undertake socially desirable projects.

The need for social cost benefit analysis arises due to the following:

- (i) Market prices are used to measure costs and benefits in project analysis; they do not represent social values due to imperfections in the market.
- (ii) Monetary cost benefit analysis fails to consider the external effects of the project. The external effects can be positive like development of infrastructure or negative like pollution and imbalance in environment.
- (iii) Taxes and subsidies are transfer payments and hence ignored in social benefit cost analysis.
- (iv) The SCBA is essential for measuring the redistribution effect of benefits of project, as benefits going to poorer section are more important than going to sections which are economically better off.
- (v) Projects manufacturing tobacco products are not distinguished from those generating power or producing necessities of life. Thus merit wants are important appraisal criterion for SCBA.

Question 8

- (a) Discuss the financial ratios for evaluating company performance on operating efficiency and liquidity position aspects.

- (b) Company UVW has to make a choice between two identical machines, in terms of Capacity, 'A' and 'B'. They have been designed differently, but do exactly the same job.

Machine 'A' costs Rs. 7,50,000 and will last for three years. It costs Rs. 2,00,000 per year to run.

Machine 'B' is an economy model costing only Rs. 5,00,000, but will last for only two years. It costs Rs. 3,00,000 per year to run.

The cash flows of Machine 'A' and 'B' are real cash flows. The costs are forecasted in rupees of constant purchasing power. Ignore taxes. The opportunity cost of capital is 9%.

Required:

Which machine the company UVW should buy?

The present value (PV) factors at 9% are:

Year	t_1	t_2	t_3
PVIF _{0.09,t}	0.9174	0.8417	0.7722

(4 + 8 = 12 Marks)

Answer

- (a) Financial ratios for evaluating performance on operational efficiency and liquidity position aspects are discussed as:

Operating Efficiency: Ratio analysis throws light on the degree of efficiency in the management and utilization of its assets. The various activity ratios (such as turnover ratios) measure this kind of operational efficiency. These ratios are employed to evaluate the efficiency with which the firm manages and utilises its assets. These ratios usually indicate the frequency of sales with respect to its assets. These assets may be capital assets or working capital or average inventory. In fact, the solvency of a firm is, in the ultimate analysis, dependent upon the sales revenues generated by use of its assets – total as well as its components.

Liquidity Position: With the help of ratio analysis, one can draw conclusions regarding liquidity position of a firm. The liquidity position of a firm would be satisfactory, if it is able to meet its current obligations when they become due. Inability to pay-off short-term liabilities affects its credibility as well as its credit rating. Continuous default on the part of the business leads to commercial bankruptcy. Eventually such commercial bankruptcy may lead to its sickness and dissolution. Liquidity ratios are current ratio, liquid ratio and cash to current liability ratio. These ratios are particularly useful in credit analysis by banks and other suppliers of short-term loans.

- (b) Statement Showing the Evaluation of Two Machines

Machines	A	B
(i) Purchase Cost	Rs. 7,50,000	Rs. 5,00,000
(ii) Life of Machine	3 years	2 years
(iii) Running Cost of Machine per year	Rs. 2,00,000	Rs. 3,00,000
(iv) PVIFA 0.09,3	2.5313	
PVIFA 0.09, 2		1.7591
(v) PV of Running Cost of Machine	Rs. 5,06,260	Rs. 5,27,730
(vi) Cash outflows of Machine {(i) + (v)}	Rs. 12,56,260	Rs. 10,27,730
(vii) Equivalent PV of Annual Cash outflow (vi/iv)	Rs. 4,96,290	Rs. 5,84,236

Recommendation: Company UVW should buy Machine 'A' since equivalent annual cash outflow is less than that of Machine B.

Question 9

- (a) Discuss the dividend-price approach, and earnings price approach to estimate cost of equity capital.
- (b) From the information contained in Income Statement and Balance Sheet of 'A' Ltd., prepare Cash Flow Statement:

Income Statement for the year ended March 31, 2006

		Rs.
Net Sales	(A)	<u>2,52,00,000</u>
Less:		
Cash Cost of Sales		1,98,00,000
Depreciation		6,00,000
Salaries and Wages		24,00,000
Operating Expenses		8,00,000
Provision for Taxation		<u>8,80,000</u>
	(B)	<u>2,44,80,000</u>
Net Operating Profit (A – B)		7,20,000
Non-recurring Income – Profits on sale of equipment		<u>1,20,000</u>
		8,40,000
Retained earnings and profits brought forward		<u>15,18,000</u>
		23,58,000
Dividends declared and paid during the year		<u>7,20,000</u>
Profit and Loss Account balance as on March 31, 2006		<u>16,38,000</u>

Balance Sheet as on

Assets	March 31, 2005 (Rs.)	March 31, 2006 (Rs.)
Fixed Assets:		
Land	4,80,000	9,60,000
Buildings and Equipment	36,00,000	57,60,000
Current Assets:		
Cash	6,00,000	7,20,000
Debtors	16,80,000	18,60,000
Stock	26,40,000	9,60,000
Advances	<u>78,000</u>	<u>90,000</u>
	<u>90,78,000</u>	<u>1,03,50,000</u>

Balance Sheet as on

Liabilities and Equity	March 31, 2005 (Rs.)	March 31, 2006 (Rs.)
Share Capital	36,00,000	44,40,000
Surplus in Profit and Loss Account	15,18,000	16,38,000
Sundry Creditors	24,00,000	23,40,000
Outstanding Expenses	2,40,000	4,80,000
Income-tax payable	1,20,000	1,32,000
Accumulated Depreciation		
on Buildings and Equipment	<u>12,00,000</u>	<u>13,20,000</u>
	<u>90,78,000</u>	<u>1,03,50,000</u>

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

(2 + 10 = 12 Marks)

Answer

- (a) In dividend price approach, cost of equity capital is computed by dividing the current dividend by average market price per share. This ratio expresses the cost of equity capital in relation to what yield the company should pay to attract investors. It is computed as:

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

Where,

D_1 = Dividend per share in period 1

P_0 = Market price per share today

Whereas, on the other hand, the advocates of earnings price approach co-relate the earnings of the company with the market price of its share. Accordingly, the cost of ordinary share capital would be based upon the expected rate of earnings of a company. This approach is similar to dividend price approach, only it seeks to nullify the effect of changes in dividend policy.

- (b) Cash Flow Statement of Company A Ltd.
for the year ending March 31, 2006

Cash flows from Operating Activities

	Rs.
Net Profits before Tax and Extra-ordinary Item	16,00,000
Add: Depreciation	<u>6,00,000</u>

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

Cash flows from Investment Activities

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

Cash flows from Financing Activities

		Rs.
Issue of Share Capital	8,40,000	
Dividends Paid	<u>(7,20,000)</u>	
Net Cash from Financing Activities		<u>1,20,000</u>

Net increase in Cash and Cash Equivalents	1,20,000
Cash and Cash Equivalents at the beginning	<u>6,00,000</u>
Cash and Cash Equivalents at the end	<u>7,20,000</u>

Buildings and Equipment Account

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

Accumulated Depreciation on
Buildings and Equipment Account

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

Sale of Asset Account

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