

PAPER 5: COST MANAGEMENT
NOVEMBER 2002

Question No.1 is compulsory Answer any four questions from the rest.

Working notes should form part of the answer.

Makes assumption wherever necessary.

(Log table, antilog table, graph sheet will be provided on request)

Question 1

- (a) Explain, how does value chain approach help an organization to assess its competitive advantage. **(3 Marks)**
- (b) State the requirements for operation of a Materials Requirement Planning (MRP) system **(5 Marks)**
- (c) A construction company has accepted contract AX and work thereon is about to begin. However, the company has received an offer for another contract BX. The company cannot, due to certain constraints, take up both the contracts simultaneously. In case the company is desirous of taking up contract BX, it can get the first contract AX rescinded upon payment of a penalty of Rs.70,000 **(16 Marks)**

The following are the estimates relating to the two contracts

	Contract AX Rs.	Contract BX Rs
Material X-in stock at original cost	54,000	--
Material Y-in stock at original cost	--	62,000
Material X-firm orders placed at original cost	76,000	--
Material X-not yet ordered (at current cost)	1,50,000	--
Material Z-not yet ordered (at current cost)	--	1,78,000
Labour – to be engaged and paid for	2,15,000	2,75,000
Site management costs	85,000	85,000
Travel and other expenses	17,000	14,000
Depreciation of plant	24,000	32,000
Interest on capital at 12%	12,800	16,000
Head office expenses allocated to contracts	31,690	33,100
Total	6,65,490	6,95,100
Contract price	7,20,000	8,80,000
Estimated profit	54,510	1,84,900

The following additional information is available:

- Material X is not in regular use. It can be used as a substitute for other materials, which are currently quoted at 10% less than the original cost of X.
- Material Y is in regular use and its price has doubled since it was purchased. Its net realizable value if sold will be its new price less 15%. It can, however, be kept in store for use in other contracts to be taken up in the next year.
- If contract AX is undertaken, a part of the plant having spare capacity can be hired out for a rental of Rs.15,000 for the period.
- It is the policy of the company to charge notional interest on the estimated working capital at 12% per annum.
- Either of two contracts can be completed by 31st March, 2003, which is the close of the company's financial year.
- Site management cost is fixed.

Required:

- (i) Using the relevancy of cost concept prepare a comparative statement to show the net benefit resulting from each contract.
- (ii) Advise the management of the company as to which of two contracts should be undertaken.

Question 2

- (a) State the benefits of product life – cycle costing. **(4 Marks)**
- (b) What are the common methods of obtaining initial feasible solution in a transportation problem. **(3 Marks)**
- (c) A single product company has prepared the following cost sheet based on 8,000 units of output per month: **(12 Marks)**

	Rs.
Direct Materials 1.5 kg @ Rs.24 per kg	36.00
Direct Labour 3 hours @ Rs.4 per hour	12.00
Factory overheads	<u>12.00</u>
Total	<u>60.00</u>

The flexible budget for factory overheads is as under:

Output (units)	6,000	7,500	9,000	10,500
Factory Overheads(Rs.)	81,600	92,400	1,03,200	1,14,000

The actual results for the month of October, 2002 are given below:

- Direct Materials purchased and consumed were 11,224 kg at Rs.2,66,570.
- Direct Labour hours worked were 22,400 and Direct Wages paid amounted to Rs.96,320.
- Factory overheads incurred amounted to Rs.96,440 out of which the variable overhead is Rs.2.60 per Direct Labour hour worked.
- Actual output is 7,620 units.
- Work-in-process:
 - Opening WIP: 300 units;
 - Materials 100% complete
 - Labour and Overheads 60% complete
 - Closing WIP : 200 units;
 - Materials 50% complete
 - Labour and Overheads 40% complete

Your are required to analyze the variances.

Question 3

- (a) Explain briefly four different categories of activities that drive the expenses at the product level. **(3 Marks)**
- (b) State, how is Zero base Budgeting superior to Traditional Budgeting **(4 Marks)**
- (c) A company has developed a new product. The sales volume of the new product was estimated to be between 15,000 and 20,000 units per month at a price of Rs.20 per unit. Alternatively, if the selling price is reduced to Rs.18 per unit, the sales volume will be between 24,000 and 36,000 units per month. If the production is maintained below 20,000 units per month, the variable manufacturing cost will be Rs.16.50 per unit and the fixed cost Rs.48,500 per month. If the production exceeds 20,00 units per month, the variable manufacturing cost will be reduced to Rs.15.50 per month, but the fixed costs will increase to Rs.64,500 per month. The company paid Rs.40,000 as fee for market survey and in addition incurred a cost of Rs.60,000 in developing the new product. **(12 Marks)**

In the event of taking up this new line of business, it will be necessary to use the building space, which has been let out for a rental of Rs.5,600 per month.

You are required to analyze the Potential profitability of the proposal of the company at different levels of output and make suitable recommendations relating to the price and volume of output to be set.

Question 4

- (a) Enumerate the main objectives of transfer pricing **(3 Marks)**
- (b) Explain the terms Resource smoothing and Resource leveling **(4 Marks)**

- (c) A hospital operates a 40 bed capacity special health care department. The said department levies a charge of Rs.425 per bed day from the patient using its services. The data relating to fees collected and costs for the year 2001 are as under: **(12 Marks)**

	Rs.
Fees collected during the year	34,95,625
Variable costs based on patient days	13,57,125
Departmental fixed costs	6,22,500
Apportioned costs of the hospital administration charges	10,00,000

Besides the above, nursing staff were employed as per the following scale at Rs.48,000 per annum per nurse.

Annual patient days	No. of nurses required
Less than 5000	3
5000 – 7000	4
7000 – 90000	6
Above 9000	8

The projections for the year 2002 are as under :

- The costs other than apportioned overheads will go up by 10%
- The apportioned overheads will increase by Rs.2,50,000 per annum
- The salary of the nursing staff will increase to Rs.54,000 per annum per nurse.

The occupancy of the bed capacity is not likely to increase in 2002 and consequently the management is actively considering a proposal to close down the department. In that event, the departmental fixed costs can be avoided.

Required:

- (i) Present statements to show the profitability of the department for the years 2001 and 2002.
- (ii) Calculate the :
 - Break-even bed capacity for the year 2002
 - Increase in fee per bed day required to justify continuance of the department.

Question 5

- (a) Outline the limitations of simulation. **(4 Marks)**
- (b) A company has 10 direct workers, who work for 25 days a month of 8 hours per day. The estimated down time is 25% of the total available time. The company received an order for a new product. The first unit of the new product requires 40 direct labour hours to manufacture the product. The company expects 80% (index is – 0.322) learning curve for this type of work. The company uses standard absorption costing and the cost data are as under: **(8 Marks)**

Direct Materials	Rs.60 per unit
Direct Labour	Rs.6 per direct labour hour
Variable overheads	Re. 1 per direct labour hour
Fixed overheads	Rs.7,500 per month.

Required:

- (i) Calculate the cost per unit of the first order of 30 units
 - (ii) If the company receives a repeat order for 20 units, what price will be quoted to yield a profit of 25% on selling price?
- (c) A project consists of the following activities with the time estimates noted against each: **(7 Marks)**

Activity	Time Estimate (weeks)	Activity	Time Estimate (Weeks)
1-2	2	3-7	5
1-3	2	4-6	3
1-4	1	5-8	1

2-5	4	6-9	5
3-6	8	7-8	4
		8-9	3

Required :

- (i) Draw a network diagram
- (ii) Determine the critical path and its duration
- (iii) Calculate the total float for each activity.

Question 6

- (a) How does Total Quality Management (TQM) facilitate value addition in an organization? **(4 Marks)**
- (b) A company manufactures three components. These components pass through two of the company's departments P and Q. the machine hour capacity of each department is limited to 6,000 hours in a month. The monthly demand for components and cost data are as under:

Components	A	B	C
Demand (units)	<u>900</u>	<u>900</u>	<u>1350</u>
	Rs.	Rs.	Rs.
Direct Materials / unit	45	56	14
Direct Labour / unit	36	38	24
Variable Overheads / unit	18	20	12
Fixed overheads	P.@ Rs.8 per hour	16	16
	Q @ Rs.10 per hour	<u>30</u>	<u>30</u>
		<u>145</u>	<u>160</u>
	Total	<u>145</u>	<u>160</u>
		<u>72</u>	<u>72</u>

Components A and C can be purchased from market at Rs.129 each and Rs.70 each respectively.

You are required to prepare a statement to show which of the components in what quantities should be purchased to minimize the cost.

- (c) A company manufactures two products namely A and B. The contribution per kg of output is Rs.240 and Rs.140 respectively for products A and B. The total fixed costs amount to Rs.1,200 per week. The production of two products is restricted by limited supplies of three items of raw materials namely P,Q, and R. The quantities of P, Q and R which are necessary to produce single units of the products A and B together with the total stock of materials available each week are given below: **(8 Marks)**

	Product A	Product B	Total Quantity available per week (kg)
Raw material P	16	20	160
Q	10	25	150
R	4	0	32

Using the graphical approach of Linear Programming (LP), calculate the maximum Profit per week.