

**PAPER 5 : COST MANAGEMENT
NOVEMBER 2004**

Question No.1 is compulsory
Answer any four questions from the rest.
Working notes should form part of the answer.
Wherever appropriate , suitable assumptions should be made.
(Z Table will be provided)

Question 1

- (a) What do you mean by “Back Flushing” in JIT system? Explain briefly the problems with back flushing that must be corrected before it will work properly. **(4 Marks)**
- (b) Explain Skimming pricing strategy. **(4 Marks)**
- (c) Panchwati Cement Ltd., produces “43 grade” cement for which the company has an assured market. The output for 2004 has been budgeted at 1,80,000 units at 90% capacity utilization. The cost sheet based on output (per unit) is as follows: **(16 Marks)**

	Rs.
Selling price	130
Direct material	30
Component “EH”	9.40
Direct wages @ Rs.7 per hour	28
Factory overhead (50% fixed)	24
Selling and distribution overheads (75% variable)	16
Administrative overhead (fixed)	5

The factory overheads are applied on the basis of direct labour hours.

To utilize the idle capacity and to improve the profitability of the company, the following proposals were put up before the Board of Directors for consideration:

- (i) An order has been received from abroad for 500 units of product “53 grade” cement per month at Rs.175 per unit. The cost data are:
Direct material Rs.56 per unit, direct labour 10 hours per unit, selling and distribution overhead applicable to this product order is Rs.14 per unit and variable factory overhead are chargeable on the basis of direct labour hours.
- (ii) The company at present manufacture component “EH” one unit of which is required for each unit of product “43 grade”. The cost details for 15,000 units of component “EH” are as follows:

	Rs.
Direct materials	30,000
Direct labour	52,500
Variable overheads	25,500
Fixed overheads	33,000
Total	1,41,000

- (iii) The component “EH” however is available for purchase at the market at Rs.7.90 per unit. In the event of company deciding to purchase the component “EH” from market, the company has two alternatives for the use of the capacity so released, which are as under:
- a. Rent out the released capacity at Re.1 per hour.

- b. Manufacture component "GYP" which be sold at Rs.8 per unit. The cost data of this component for 15,000 units are:

	Rs.
Direct materials	42,000
Direct labour	31,500
Factory variable overheads	13,500
Other variable overheads	<u>25,500</u>
Total	<u>1,12,500</u>

Required :

- (i) Prepare a statement showing profitability of the company envisaged in the budget.
- (ii) Evaluate the export order and state whether it is acceptable or not.
- (iii) Make an appraisal of proposal to manufacture component "EH" and state whether the component "EH" should be manufactured in the factory or purchased form the market. Assume that no alternative use of spare capacity is available.
- (iv) Evaluate the alternative use of the spare capacity and state whether to manufacture or buy the component "EH" and if your decision is to buy the component "EH", which of the two alternatives for the use of spare capacity will you prefer?

Question 2

- (a) What are the advantages and limitations of Zero base Budgeting? **(4 Marks)**
- (b) What are the benchmarking code of conduct? **(3 Marks)**
- (c) Explain briefly the main features of ERP. **(4 Marks)**
- (d) A company manufacturers two products A and B by making use of two types of materials viz., X and Y. Product A requires 10 units of X and 3 units of Y. Product B requires 5 units of X and 2 units of Y. The price of X is Rs.2 per unit and that of Y is Rs.3 per unit. Standard hours allowed per product are 4 and 3, respectively. Budgeted wages rate is Rs.8 per hour. Overtime premium is 50% and is payable, if a worker works for more than 40 hours a week. There are 150 workers.
The Sales Manager has estimated the sales of Product A to be 5,000 units and Product B 10,000 units. The target productivity ratio (or efficiency ratio) for the productive hours worked by the direct worker in actually manufacturing the product is 80%, in addition, the non-productive downtime is budgeted at 20% of the productive hours worked. There are twelve 5 days weeks in the budget period and it is anticipated that sales and production will occur evenly throughout the whole period.
It is anticipated that stock at the beginning of the period will be:
Product A 800 units; product B 1,680 units. The targeted closing stock expressed in terms of anticipated activity during the budget period are Product A
12 days sales : Product B 18 days sales. The opening and closing stock of raw material X and Y will be maintained according to requirement of stock position for Product A and B.
You are required to prepare the following for the next period:
 - (i) Material usage and Material purchase budget in terms of quantities and values.
 - (ii) Production budget.
 - (iii) Wages budget for the direct workers.

Question 3

- (a) XYZ Ltd., manufactures four products, namely A,B,C and D using the same plant and process. The following information relates to a production period: **(11 Marks)**

Product	A	B	C	D
Output in units	720	600	480	504

Cost per unit:	Rs.	Rs.	Rs.	Rs.
Direct material	42	45	40	48
Direct labour	10	9	7	8
Machine hours per unit	4 hr.	3 hr.	2 hr.	1 hr.

During the period the following cost drivers are to be used for the overhead cost :

Cost	Cost driver
Setup cost	No. of production runs
Store receiving	Requisition raised
Inspection	No. of production runs
Material handling and dispatch	Orders executed

It is also determined that:

- Machine operation and maintenance lost should be apportioned between setup cost, store receiving and inspection activity in 4:3:2.
- Number of requisition raised on store is 50 for each product and the no. of order executed is 192, each order being for a batch of 12 of a product.

Required:

- (a) Calculate the total cost of each product, if all overhead costs are absorbed on machine hour rate basis.
 - (b) Calculate the total cost of each product using activity base costing
 - (c) Comment briefly the differences disclosed between overhead traced by present system and those traced by activity base costing.
- (b) A manufacturing company produces two types of product the SUPER and REGULAR. Resource requirements for production are given below in the table. There are 1,600 hours of assembly worker hours available per week. 700 hours of paint time and 300 hours of inspection time. Regular customers bill demand at least 150 units of the REGULAR type and 90 units of the SUPER type. **(8 Marks)**

Type				
Product	Profit / contribution Rs.	Assembly time HRS.	Paint time Hrs.	Inspection time Hrs.
REGULAR	50	1.2	0.8	0.2
SUPER	75	1.6	0.9	0.2

Formulate and solve the given Linear programming problem to determine product mix on a weekly basis.

Question 4

- (a) “Relevant cost analysis help in drawing attention of managers to those elements of costs, which are relevant for the decision “. Comment. **(5 Marks)**
- (b) A company manufactures two products X and Y. Product X requires 8 hours to produce while Y requires 12 hours. In April, 2004, of 22 effective working days of 8 hours a day, 1,200 units of X and 800 units of Y were produced. The company employs 100 workers in production department to produce X and Y. The budgeted hours are 1,86,000 for the year.
Calculate Capacity, Activity and Efficiency ratio and establish their relationship. **(6 Marks)**
- (c) A manufacturing company runs its boiler on furnace oil obtained from X oil company and Y oil company whose depots are situated at a distance of 24 kms and 16 kms from the factory site.
Transportation of furnace oil is made by company’s own tank lorries (two) of 8 ton capacity each. Onward trips are made only with full load and the lorries return empty. The filling time take an average of 40 minutes for X oil company and 30 minutes for Y oil company. The empty time in the factory is only 40 minutes for each. The average speed of lorries work out is 24 km per hour. The varying operating charges average 80 paise per km covered and fixed charges gives an incidence of Rs.7.50 per hour of operation.
Calculate the transportation cost per ton-km for each source of furnace oil. **(8 Marks)**

Question 5

- (a) Tycon Ltd., has two manufacturing departments organized into separate profit centres known as Textile unit and Process House. The Textile unit has a production capacity of 5 lacs metres cloth per month, but at present its sales is limited to 50% to outside market and 30% to process house.

The transfer price for the year 2004 was agreed at Rs.6 per metre. This price has been fixed in line with the external wholesale trade price on 1st January, 2004. However, the price of yarn declined, which was the raw material of textile unit, effect that wholesale trade price reduced to Rs.5.60 per metre with effect from 1st June, 2004. This price however not made applicable to the sale made to the processing house of the company. The textile unit turned down the processing house request for revision of price.

The process house refines the cloth and packs the output known as brand Rayon in bundles of 100 metres each. The selling price of the Rayon is Rs.825 per bundle. The process house has a potential of selling a further quantity of 1,000 bundles of Rayon provided the overall price is reduced to Rs.725 per bundle. In that event it can buy the additional 1,00,000 metres of cloth from textile unit, whose capacity can be fully utilized. The outside market has no further scope.

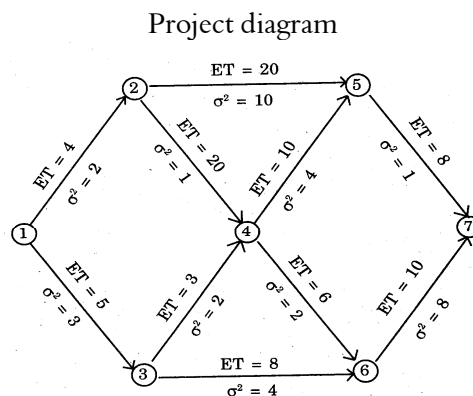
The cost data relevant to the operations are :

	Textile units Rs.	Process house Rs.
Raw material (per metre) on 1 st June, 2004	3.00	Transfer price
Variable cost	1.20 (per metre)	80 (per bundle)
Fixed cost (per month)	4,12,000	1,00,000

You are required to :

(11 Marks)

- (i) Prepare statement showing the estimated profitability for June, 2004 for Textile unit and Process house and company as a whole on the following basis:
- At 80% and 100% capacity utilization of the Textile unit at the market price and the transfer price to the processing house of Rs.6 per metre.
 - At 80% capacity utilization of the Textile unit at the market price of Rs.5.60 per metre and the transfer price to the processing house of Rs.6 per metre.
 - At 100% capacity utilization of the Textile unit at the market price of Rs.5.60 per metre and the transfer price to the processing house of Rs.5.60 per metre.
- (ii) Comment on the effect of the company's transfer pricing policy on the profitability of Processing Scheme.
- (b) Given the following project network, determine:
- Earliest expected completion time for each event
 - Latest allowable completion time for each event
 - Slack time for each event
 - The critical path
 - The probability that the project will be completed on schedule, if the scheduled completion time is 38.



Question 6

- (a) What is Product life – cycle costing ? describe its characteristics and benefits. **(5 Marks)**
- (b) A Marketing Manager has 5 subordinates and 4 tasks. The subordinates differ in efficiency. The tasks also differ in their intrinsic difficulty. His estimates of the time each subordinate would take to perform each task is given in the matrix below. How should the task be allocated one to one man so that the total man-hours are minimized?

	I	II	III	IV
1	16	52	34	22
2	26	56	8	52
3	76	38	36	30
4	38	52	48	20

- (c) A company trading in motor vehicle spares wishes to determine the level of stock it should carry for the item in its range. Demand is not certain and replenishment of stock takes 3 days. For one item X, the following information is obtained: **(7 Marks)**

Demand (unit per day)	Probability
1	.1
2	.2
3	.3
4	.3
5	.1

Each time an order is placed, the company incurs an ordering cost of Rs.20 per order. The company also incurs carrying cost of Rs.2.50 per unit per day. The inventory carrying cost is calculated on the basis of average stock.

The manager of the company wishes to compare two options for his inventory decision.

- A. Order 12 units when the inventory at the beginning of the day plus order outstanding is less than 12 units.
- B. Order 10 units when the inventory at the beginning of the day plus order outstanding is less than 10 units.

Currently (on first day) the company has a stock of 17 units. The sequence of random number to be used is 08,91,25,18,40,27,85,75,32,52 using first number for day one.

You are required to carry out a simulation run over a period of 10 days, recommend which option the manager should choose.