

**PAPER 5: COST MANAGEMENT
NOVEMBER 2005**

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.

Question 1

- (a) Briefly describe the different methods of Transfer Pricing. **(3 Marks)**
 (b) How Pareto analysis is helpful in pricing of product in the case of firm dealing with multi-products? **(3 Marks)**
 (c) Kitchen King company makes a high-end kitchen range hood "Maharaja". The company presents the data for the year 2003 and 2004 :- **(18 Marks)**

	2003	2004
1. Units of Maharaja produced and sold	40,000	42,000
2. Selling price per unit in Rs.	1,000	1,100
3. Total Direct Material (Square feet)	1,20,000	1,23,000
4. Direct material cost per square feet in Rs.	100	110
5. Manufacturing Capacity (in units)	50,000	50,000
6. Total Conversion cost in Rs.	1,00,00,000	1,10,00,000
7. Conversion cost per unit of capacity (6)/(5)	200	220
8. Selling and Customer service capacity	300customers	290customers
9. Total Selling and Customer service cost in Rs.	72,00,000	72,50,000
10. Cost per customer of selling and customer service Capacity (9) / (8)	24,000	25,000

Kitchen King produces 0 defective units, but it reduces direct material used per unit in 2004. Conversion cost in each year depends on production capacity defined in terms of Maharaja units that can be produced. Selling and Customer service cost depends on the number of customers that the selling and service functions are designed to support. Kitchen King has 230 customers in 2003 and 250 customers in 2004.

You are required

1. Describe briefly key elements that would include in Kitchen King's Balance Score Card.
2. Calculate the Growth, Price-recovery and productivity component that explain the change in operating income from 2003 to 2004.

Question 2

- (a) Rainbow Ltd., manufactures paint in batches. The company uses standard costing system and the variances are reported weekly. You have taken the account sheet for study for variance analysis discussion. While working coffee was spilled on these sheets and only following could have been retrieved:

Dr.		Cr.
Beg. Balance	Raw material - 1 0	18,000
	Closing balance	6,000
Beg. Balance	Raw material - 2 18,000	
	Closing balance	41,400
Beg. Balance	Work - in - progress 0	
Raw material - 2	72,000	Closing balance 0
	Sundry creditors	
		1,27,200

Wages outstanding	51,750
Quantity variance - Material -1	
	1,200
Price variance - Material -2	6,600
Efficiency variance - labour	7,200

Other informations are: Standard cost of Material - 2 is Rs.180 per litre and standard quantity is 5 liters. Standard wages rate is Rs.24 per hour and a total 2,300 hours were worked during the week. 1,000 kg of Material -1 and 550 liters of Material - 2 were purchased. Sundry creditors are for material acquisition, and wages outstanding pertain to direct labour.

You are required to compute Material - 1 Rate Variance, Material - 2 Quantity Variance & Labour Spending Variance, Standard hours allowed for production and purchase value of Material -1 for variance analysis discussion.

- (b) Write short note on pricing by service sector. **(4 Marks)**
 (c) Write short note on "Zero Base Budgeting as an approach towards productivity improvement". **(4 Marks)**

Question 3

- (a) X Video Company sells package of blank video tapes to its customer. It purchases video tapes from Y Tape Company @ Rs.140 a packet. Y Tape company pays all freight to X video company. No incoming inspection is necessary because Y tape company has a superb reputation for delivery quality merchandise. Annual demand of X Video Co., is 13,000 packages. X Vide Co. requires 15% annual return on investment. The purchase order lead time is two weeks. The purchase order is passed through Internet and it costs Rs.2 per order. The relevant insurance, material handling etc. Rs.3.10 per package per year. X Vide Co has to decide whether or not to shift JIT purchasing Y tape company agrees to deliver 100 packages of video tapes 130 times per year (5 times every two weeks) instead of existing delivery system 1,000 packages 13 times a year with additional amount of Rs.0.02 per package. X Video Co. incurs no stock out under its current purchasing policy. It is estimated X Video Co. incurs stock out cost on 50 video tape packages under a JIT purchasing policy. In the event of stock out X Video Co., has to rush order tape packages which costs Rs.4 per package. Comment whether X vide company to implement JIT purchasing system.

Z Co. also supply video tapes. It agrees to supply Rs.13.60 per packages under JIT delivery system. If video tape purchased from Z co. relevant carrying cost would be Rs.3 per package against Rs.3.10 in case of purchasing from Y tape co. However Z co. doesn't enjoy so sterling reputation for quality. X vide co. anticipates following negative aspects of purchasing tapes from Z Co.

- to incur additional inspect cost of 5 paisa per packages.
- Average stock out of 360 packages per year would occur, largely resulting from late deliveries. Z co., cannot rush order at short notice. X Video Co. anticipates lost contribution margin per package of Rs.8 from sotckout.
- Customer would likely return 2% of all packages due to poor quality of the tape and to handle this return a additional cost of Rs.25 per package.

Comment wither X Video Co., places order to Z Co.,

- (b) A Pharmaceutical company produces formulations having a shelf life of one year. The company has an opening stock of 30,000 boxes on 1st January, 2005 and expected to produce 1,30,000 boxes as was in the just ended year of 2004. Expected sale would be 1,50,000 boxes. Costing department has worked out escalation in cost by 25% on variable cost and 10% on fixed cost. Fixed cost for the year 2004 is Rs.40 per unit. New price announced for 2005 is Rs.100 per box. Variable cost on opening stock is Rs.40 per box. You are required to compute Breakeven volume for the year 2005. **(7 Marks)**

Question 4

(a) Critically examine “It is prudent to hold large inventories in an inflationary economy”. **(4 Marks)**

(b) A businessman employs 20 swing machinists, but he is aware that ten are the better workers than others. He is considering to conduct a training programme for his ten less efficient machinists to increase their efficiency to be equal to that achieved by “better” workers. Relevant data are as follows:

(11 Marks)

- There is one sewing machine for each machinist.
- All the machinists are engaged on similar work and are paid Rs.2.20 each good garment produced on piece work system.
- To rectify each rejected garment costs Rs.4, this work is done by subcontractor.
- Garment machining department operates 2,000 hours a year.
- Average output of per machinist (on the basis of all 20 machinists) is 12 good garments with one rejected per worker per hour. However 10 less efficient machinists average only 10 good garments with 1.5 rejected per worker per hour.
- Depreciation of each sewing machine is Rs.10,000 per year and the variable cost of power, cleaning and preventive maintenance is Rs.5 per hour per machine.
- Fixed production overhead other than depreciation is Rs.20 per machine hour.
- Selling price per garment is Rs.18.
- Direct material cost per garment is Rs.12.
- Training will not reduce productive hours.
- There is no problem in selling increased output.

You are required

- (a) To prepare a statement of comparative costs for the “better” worker and the “less efficient” workers excluding material cost.
- (b) To find out the benefit derived over a one year period, if Rs.1,00,000 is spent on a training course for the “less efficient” workers to match the efficiency with the “better” workers.

(c) Explain the concept of activity based costing. How ABC system support corporate strategy? **(4 Marks)**

Question 5

(a) A Company is organized into two divisions. Division X produces a component, which is used by division Y in making of a final product. The final product is sold for Rs.540 each. Division X has capacity to produce 2,500 units and division Y can purchase the entire production. The variable cost of division X in manufacturing each component is Rs.256.50.

Division X informed that due to installation of new machines, its depreciation cost had gone up and hence wanted to increase the price of component to be supplied to division Y to Rs.297, however division Y can buy the component from outside the market at Rs.270 each. The variable cost of division Y in manufacturing the final product by using the component is Rs.202.50 (excluding component cost).

Present the statement indicating the position of each Division and the company as whole taking each of the following situations separately:

- (i) If there is no alternative use for the production facility of X, will the company, if division Y buys from outside suppliers at Rs.270 per component?
- (ii) If internal facilities of X are not otherwise idle and the alternative use of the facilities will an annual cash saving of Rs.50,625 to division X, should division Y purchase the component from outside suppliers?
- (iii) If there is no alternative use for the production facilities of division X and the selling price for the component in the outside market drops by Rs.20.25, should division Y purchase from outside supplier?

(iv) What transfer price would be fix for the component in each above circumstances?

- (b) A small project is composed of seven activities , whose time estimates are listed below. Activities are identifies by their beginning (i) and ending (j) node numbers. **(7 Marks)**

Activity (i-j)	Estimated durations (in days)		
	Optimistic	Most likely	Pessimistic
1-2	2	2	14
1-3	2	8	14
1-4	4	4	16
2-5	2	2	2
3-5	4	10	28
4-6	4	10	16
5-6	6	12	30

- (a) Draw the project network.
 (b) Find the expected duration and variance for each activity. What is the expected project length?
 (c) What is the probability that project will be completed atleast 8 days earlier than expected?
 (d) If the project due date is 38 days, what is the probability of meeting the due date?

Given :

Z	0.50	0.67	1.00	1.33	2.00
P	0.3085	0.2514	0.1587	0.0918	0.0228

Question 6

- (a) Three grades of coal A, B and C contains phosphorus and ash as impurities. In a particular industrial process, fuel up to 100 ton (maximum) is required which could contain ash not more than 3% and phosphorus not more than .03%. It is desired to maximize the profit while satisfying these conditions. There is an unlimited supply of each grade. The percentage of impurities and the profits of each grades are as follows:

Coal	Phosphorus (%)	Ash(%)	Profit in Rs.(per ton)
A	.02	3.0	12.00
B	.04	2.0	15.00
C	.03	5.0	14.00

You are required to formulate the Linear – programming (LP) model to solve it by using simplex method to determine optimal product mix and profit.

- (b) A Publishing house has bought out a new monthly magazine, which sells at Rs. 37.5 per copy. The cost of producing it is Rs.30 per copy. A News stand estimates the sales pattern of the magazine as follows:

(8 Marks)

Demand	Copies	Probability
0	< 300	0.18
300	< 600	0.32
600	< 900	0.25
900	< 1200	0.15
1200	< 1500	0.06
1500	< 1800	0.04

The news stand has contracted for 750 copies of the magazine per month from the publisher.

The unsold copies are returnable to the publisher who will take them back at cost less Rs.4 per copy for handling charges.

The news stand manager wants to simulate of the demand and profitability. The following random number may be used for simulation:

27,15,56,17,98,71,51,32,62,83,96,69.

You are required to –

- (i) Allocate random numbers to the demand patten forecast by the newsstand.
- (ii) Simulate twelve months sales and calculate the monthly and annual profit / loss.
- (iii) Calculate the loss on lost sales.