

**PAPER 5: COST MANAGEMENT
MAY 2000**

Question 1 is compulsory.
Answer any four from the rest.
Working notes should form part of your answer.

Question 1

- (a) Describe the importance of value analysis in cost reduction. **(4 Marks)**
 (b) Mention few areas of material cost control **(4 Marks)**
 (c) GG Ltd. Manufactures and sells an equipment called water purifier. The cost data for each batch of ten numbers of water purifier is as follows:

Components	A	B	C	D	E
Machine Hours	20	28	24	-	-
Labour Hours	--	-	-	4	2
	Rs.	Rs.	Rs.	Rs.	Rs.
Variable Costs	64	108	116	24	8
Fixed Costs as apportioned	36	52	64	26	22

Assembly costs (all variable) Rs.50 per batch.

Selling price Rs.800 per batch.

Maximum available machine capacity for making components A,B and C is 10,800 hours and it cannot be increased further. Labour is available for making components D and E and for assembling the product.

Estimated increase in demand next year is 50% and fixed costs in general may increase by Rs.10,000.

In order to release production capacity to meet increased market demand, the company decided to purchase one of the machine made components.

Quote Ltd., only supplier of components A, B and C. Because of incomplete records, it is unable to quote single figure prices. Its quotation is as follows:

Component	Pessimistic view Rs.	Probability	Most likely view Rs.	Probability	Optimistic view Rs.	Probability
A	120	0.25	110	0.5	80	0.25
B	200	0.25	130	0.5	140	0.25
C	160	0.25	140	0.5	120	0.25

It is agreed between the companies that the price of each of the components will be determined on an overall basis based on information found in the quotation.

You are required to :

- (i) Indicate, in the context of key factory, the maximum number of batches that could be produced, if each of the three alternatives namely buying A or B or C is considered. **(8 Marks)**
 (ii) Analyze the financial implication of purchase and advise which component is to be bought keeping in view the fact that production capacity will be limited to a 50% increase. **(4 Marks)**
 (iii) Prepare a Profit Statement for the period assuming that the component chosen by you is bought out and extra production is made and sold. **(4 Marks)**

Question 2

- (a) What is activity based costing? **(4 Marks)**
 (b) What are the applications of incremental cost techniques in making managerial decisions? **(5 Marks)**
 (c) AB Ltd., manufactures product "X". The company operates a single shift of 8 hours for 300 days in a year. The capital employed in the business is Rs.18 crores. **(10 Marks)**

The manufacturing operations of the company comprise of four production departments. The company at present produces 9,000 units of product "X" at maximum capacity. However the capacity utilization of all the four departments are not equal and the present individual capacity utilizations are as under:

Department	Capacity utilization
A	75
B	100
C	70
D	50

The present return on capital of the company has gone down to 10% from the earlier cut-off rate of 15% due to increased cost of production.

As the company cannot operate more than one shift, the management is considering two alternative proposals to increase the return on capital employed.

The two alternatives are:

Alternative I:

To hire out the surplus capacity of departments A, C and D. The cost and revenue projections are as under:

Department	Hire charges per hour	Incremental cost per hour
	Rs.	Rs.
A	2,500	2,000
C	1,800	1,500
D	1,600	1,200

Alternative II:

To increase the installed capacity of the factory to 12,000 units by adding plant and machinery in department B at a capital cost of Rs.4 crore. Any balance surplus capacity in other departments after meeting the increased volume to be hired out as per alternative I. The additional units would fetch an incremental revenue of Rs.1,600 per unit.

You are required to evaluate the two proposals and suggest to the management which of the two proposals is to be accepted.

Question 3

(a) Explain the concept of cost plus pricing. What are its advantages and disadvantages? **(8 Marks)**

(b) A company produces main product “Super” and a co-product “Mild”. The main product is sold entirely to its collaborator, but the product “mild” is sold at the local market. The company increased its capacity as a result of which the output of “Mild” increased to 15,000 m/t per annum at a price of Rs.1,000 pt. **(11 Marks)**

However in the face of increased competition to sell the entire o of 15,000 m/t of “Mild” the company will have to reduce the sale price by Rs.50 pt. every year for next 5 years and thereafter the price will stabilize at Rs. 750 pt.

As an alternative, the company can convert “Mild” into “Medium” at a variable cost of Rs.200 per (metric) tonne. However to enter the sale price will have to be Rs.1,200 pt. in the first year and Rs.1,30 pt. in the second year.

The sale of Medium will be 1,000 m/t in the first year and there upon going up by 1,000 m/t each year. The company will have to invest Rs.30 lakhs in capital outlay to produce “Medium”.

You are required to present the projected sales volume (quantity and value) of products “Mild” and “Medium” and also appraise the investment of Rs.30 lakhs at 12% per annum for the period of next 5 years.

Year	1	2	3	4	5
Present value of Rupee one at 12% p.a.	0.89	0.79	0.71	0.64	0.57

Question 4

- (a) Briefly explain the methods of separating semi-variable costs into their fixed and variable elements. **(6 Marks)**
- (b) Division Z is a profit centre, which produces four products – A, B C and D. Each product is sold in the external market also. Data for the period is as follows: **(13 Marks)**

	A	B	C	D
Market price per unit Rs.	150	146	140	130
Variable cost of production per unit Rs.	130	100	90	85
Labour hours required per unit	3	4	2	3

Product D can be transferred to division Y, but the maximum quantity that might be required for transfer is 2,500 units of D.

The maximum sales in the external market are:

- A 2,800 units
- B 2,500 units
- C 2,300 units
- D 1,600 units

Division Y can purchase the same product at a slightly cheaper price of Rs.125 per unit instead of receiving transfers of product D from Division Z.

What should be the transfer price for each unit for 2,500 units of D, if the total labour hours available in division Z are:

- (i) 20,000 hours?
- (ii) 30,000 hours ?

Question 5

- (a) Describe three distinct group of variances that arise in standard costing. **(6 Marks)**
- (b) The working results of a company for two corresponding years are shown below:

	Year 1 (Rs.in lakhs)	Year 2 (Rs.in lakhs)
Sales	1,200	1,240
Direct material	600	648
Direct wages and variable overheads	360	412
Fixed overheads	160	300
	<u>1,120</u>	<u>1,360</u>
Profit	80	180

In year 2, there has been an increase in the selling price by 10%. Following are the details of material consumption and utilization of direct labour hours during the two years.

	Year 1	Year 2
Direct material consumption in m/t	5,00,000	5,40,000
Direct labour hours	75,00,00	80,00,00

You are required to :

- (i) Keeping year 1 as base year, analyze the results of year 2 and work out the amount which each factor has contributed to change in profit. **(9 Marks)**
- (ii) Find out the break even sales for both years. **(2 Marks)**
- (iii) Calculate the percentage increase in selling price that would be needed over the sale value of year 2 to earn a margin of safety of 45%. **(2 Marks)**

Question 6

- (a) In what circumstances it may be justifiable to sell at a price below marginal cost? **(4 Marks)**

- (b) "Cost is not the only criterion for deciding in favour of shut down" – Briefly explain. **(3 Marks)**
- (c) Unique Products manufactures and sells in a year 20,000 units of a particular product to definite customers at a price of Rs.100 per unit. the concern has a capacity to produce 25,000 units of the product per annum. To produce beyond 25,000 units per annum, the concern will have to install a new equipment at a cost of Rs.15 lakhs. The equipment will have a life span of 10 years and will have no residual value. There is an offer from a client to purchase 10,000 units of the product regularly at a price of Rs.90 per unit. The order, if accepted, will have to be over and above the existing level of production of 20,000 units. The cost structure is as under:

	Per unit
	Rs.
Direct material	30
Direct labour	20
Variable overhead	10
Profit	20

During the coming year, it has been estimated that the cost of the direct material, as compared to the current year will increase by 10%. Because of certain wage agreement direct labour cost will increase by 25%. Fixed overheads will increase by 10%. If the new order for 10,000 units is accepted, fixed overheads will increase further by Rs.60,000 due to increased administrative charges.

You are required to analyze whether the concern should accept the order or instead of that try to secure order for the balance unused capacity, as available now, through some sales promotion expenses which will be Rs.50,000 per annum. Ignore financial charges for the new investment.

- (d) A firm furnishes the following information : **(4 Marks)**

Capacity in units	Unit cost	Unit price
	Rs.	Rs.
2,000	40	100
3,000	35	95
4,000	34	94
5,000	32	--
6,000	31	--

At present the firm is operating at 4,000 units capacity and has received an order for 2,000 units from an export market at Rs.28 per unit. Should the order be accepted?