

**PAPER 5: COST MANAGEMENT
MAY 2002**

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

Question 1

- (a) Explain “relevant costs and benefits’ in the context of decision –making, **(4 Marks)**
 (b) Explain the term “life –cycle’ costing. **(4 Marks)**
 (c) XYZ Limited is currently manufacturing 5,000 units of the product “XY 100” annually, making full use of its machine capacity. The selling price and total costs per unit associated with “XY 100” are as follows;

| | Rs. | Rs. |
|--|------------|------------|
| Selling price per unit | | 900 |
| Costs per unit: | | |
| Direct materials | 200 | |
| Variable machine operating costs (Rs.100 per machine hour) | 150 | |
| Manufacturing overhead costs | 180 | |
| Marketing and administrative costs | <u>200</u> | <u>730</u> |
| Operating income per unit of “XY 100” | | <u>170</u> |

XYZ Limited can sell additional 3,000 units of “XY 100”, if it can outsource those additional units.

ABC Limited, a supplier of quality products, has agreed to supply upto 6,000 units of “XY 100” per year at a price of Rs.650 per unit delivered at XYZ’ s factory.

XYZ Limited can use its facility to produce an alternative product “XY 200”. It can sell up to 12,000 units of “XY 200” annually. Estimated selling price and total costs per unit to manufacture and sell 12,000 units of “XY 200” are as follows:

| | Rs. | Rs. |
|--|------------|------------|
| Selling price per unit | | 600 |
| Cost per unit: | | |
| Direct materials | 200 | |
| Variable machine operating costs (Rs.100 per machine hour) | 50 | |
| Manufacturing overheads costs | 60 | |
| Marketing and administrative costs | <u>110</u> | <u>420</u> |
| Operating income per unit of “XY 200” | | <u>180</u> |

Other information pertaining to the operation of XYZ Limited is as follows:

- (a) XYZ Limited use machine hours as the basis for assigning fixed manufacturing overhead. The fixed manufacturing overhead for the current year is Rs.3,00,000. these costs will not be affected by the product mix decision.
 (b) Variable marketing and administrative costs per unit for various products are as follows:
 Manufactured “XY 100” Rs.80
 Purchased “XY 100” Rs.40
 Manufactured “XY 200” Rs.60
 Fixed marketing administrative costs for the current year is Rs.6,00,000. these costs will not be affected by the product mix decision.

Required :

Calculate the quantity of each product that XYZ Limited should manufactured and / or purchase to maximize operating income

Show your calculation. **(16marks)**

Question 2

- (a) Differentiate between “cost indifference point” and “break-even point” **(4 Marks)**

- (b) A Limited has been offered a contract that, if accepted, would significantly increase next year's activity level. The contract requires the production of 20,000 kgs. Of product X and specifies a contract price of Rs.1,000 per kg. The resources required in the production of each kg. of X include the following;

Resources per kg of X.

| | | |
|-------------|--|---------|
| Labour : | | |
| Grade 1 | | 2 Hours |
| Grade 2 | | 6 Hours |
| Materials : | | |
| A | | 2 units |
| B | | 1 Liter |

Grade 1 labour is highly skilled and although currently under utilized in the firm, it is A's policy to continue to pay Grade 1 labour in full. Acceptance of the contract would reduce the idle time of Grade 1 labour. Idle time payments are treated as non-production overheads.

Grade 2 is unskilled with a high turnover, and may be considered a variable cost.

The cost to A for each type of labour are:

Grade 1 Rs.40 per hour; Grade 2 Rs.20 per hour.

The materials required to fulfill the contract would be drawn from the materials already in stock Material A is widely used within the firm and any usage for the contract will necessitate replacement. Material B was purchased to fulfill an expected order that was not received. If material B is not used for the contract, it will be sold.

For accounting purpose FIFO is used. The various values and costs for A and B are as follows:

| | A | B |
|----------------------|----------------|----------------|
| | Per unit (Rs.) | Per unit (Rs.) |
| Book Value | 80 | 300 |
| Replacement cost | 100 | 320 |
| Net realizable value | 90 | 250 |

A single recovery rate for the fixed factory overheads is used throughout the firm, even though some of these costs could be attributed to a particular product of department. The overhead is recovered by applying a pre-determined rate per productive labour hour. Initial estimates of next year's activity, which exclude the current contract, show fixed production overhead of Rs.60,00,000 and production labour hours of 3,00,000. acceptance of the contract would increase fixed production overheads by Rs.22,80,000.

Variable production overheads are accurately estimated at Rs.30 per productive labour hour.

Acceptance of the contract would encroach on the resources used to produce and sale another product Y, which is also made by A Limited. It is estimated that the sale of Y would then decrease by 5,000 units in the next year only. However, this reduction in sale of Y would enable attributable fixed factory overhead of Rs.5,80,000 to be avoided. Information on Y is as follows:

| | |
|-----------------------------------|----------|
| | Per unit |
| Selling | Rs.700 |
| Labour Grade 2 | 4 hours |
| Materials relevant variable costs | Rs.120 |

Required:

Advise A Limited on the desirability of the acceptance of the contract purely on economic considerations. Show your calculations. **(15 Marks)**

Question 3

- (a) Distinguish between "Cost Reduction" and "Cost Management" **(4 Marks)**
- (b) The two manufacturing division of a company is organized on profit centre basis. Division X is the only source of a component required by Division Y for their product "P". Each unit of P requires one unit of

the said component. As the demand of the product is not steady orders for increased quantities can be obtained by manipulating prices. The manager of Division Y has given the following forecast:

| Sales per day (Units) | Average price per units of P (Rs.) |
|-----------------------|------------------------------------|
| 5,000 | 393.75 |
| 10,000 | 298.50 |
| 15,000 | 247.50 |
| 20,000 | 208.50 |
| 25,000 | 180.00 |
| 30,000 | 150.75 |

The manufacturing cost (excluding the cost of the component from Division X) of P in Division Y is Rs.14,06,250 on first 5,000 units and Rs.56.25 per unit in excess of 5,000 units.

Division X incurs a total cost of Rs.5,62,500 per day for an output upto 5,000 components and the total costs will increase by Rs.3,37,500 per day for every additional 5,000 components manufactured. The manager of Division X has set the transfer price for the component at Rs.90 per unit to optimize the performance of his Division.

Required:

(15 Marks)

- (i) Prepare a divisional profitability statement at each level of output, for division X and Y separately.
- (ii) Find out the profitability of the company as a whole at the output level where:
 - a. Division X's net profit is maximum;
 - b. Division Y's net profit is maximum;
- (iii) Find out at what level of output, the company will earn maximum profit, if the company is not organized on profit centre basis.

Question 4

- (a) "Standard Costing system is not compatible with Activity Based Costing System" Do you agree with this statement? Explain your answer. **(3 Marks)**
- (b) How the opportunity cost for inefficient use of scarce resources be presented in variance reports under standard costing system? **(4 Marks)**
- (c) ABC Limited provides the following information for April,2002 :

| | Budget | Actual |
|-----------------------------|----------|----------|
| No. of working days | 20 | 20 |
| Man hours | 40,000 | 43,000 |
| Output per man hour (units) | 3.2 | 3.0 |
| Overhead – Fixed (Rs.) | 32,000 | 31,500 |
| - variable (Rs.) | 1,02,400 | 1,14,000 |

Required:

Compute variable overhead variances, fixed overhead variances and total overhead variance **(12 Marks)**

Question 5

- (a) What is "Price skimming policy" and at which situation it should be exercised? **(3Marks)**
- (b) "Key objectives in accounting for spoilage are determining the magnitude of costs of spoilages and distinguishing between the costs of normal and abnormal spoilage." Discuss the statement. **(4Marks)**
- (c) The following are cost data for three alternative ways of processing the clerical work for cases brought before the LC Court system.

| | A | B | C |
|----------------------|--------|----------------|-----------------|
| | Manual | Semi-automatic | Fully automatic |
| | Rs. | Rs. | Rs. |
| Monthly fixed costs: | | | |
| Occupancy | 15,000 | 15,000 | 15,000 |
| Maintenance contract | 0 | 5,000 | 10,000 |

| | | | |
|-----------------------------------|-------------------|--------------|--------------------|
| Equipment lease | 0 | 25,000 | 1,00,000 |
| | 15,000 | 45,000 | 1,25,000 |
| Unit variable costs (per report): | | | |
| Supplies | 40 | 80 | 20 |
| Labour | 5 hrs × 40 or 200 | 1hr×60 or 60 | 0.25 hr × 80 or 20 |
| | 240 | 140 | 40 |

Required:

- Calculate cost indifference points. Interpret your results.
- If the present case load is 600 cases and it is expected to go up to 850 cases in near future, which method is most appropriate on cost considerations? **(12Marks)**

Question 6

- “Use of absorption costing method for the valuation of finished goods inventory provides incentive for over production”. Elucidate the statement. **(4 Marks)**
- ABC electronics makes audio player model “AB 100”. It has 80 components ABC sells 10,000 units each month at Rs.3,000 per unit. The cost of the manufacturing is Rs.2,000 per unit or Rs.200 lakhs per month for the production of 10,000 units. Monthly manufacturing cost incurred are as follows

| | |
|-----------------------------------|---------------|
| | (Rs. Lakhs) |
| Direct material costs | 100.00 |
| Direct manufacturing labour costs | 20.00 |
| Machining costs | 20.00 |
| Testing costs | 20.0 |
| Rework costs | 15.00 |
| Overhead costs | 0.20 |
| Engineering costs | 19.80 |
| | <u>200.00</u> |

Labour is paid on piece rate basis. Therefore, ABC considers direct manufacturing labour cost as variable cost.

The following additional information is available for “AB 100”

- Testing and inspection time per unit is 2 hours.
- 10 per cent of “AB 100” manufactured are reworked.
- It currently takes 1 hour to manufacture each unit of “AB 100”
- ABC places two orders per month for each component. Each component is supplied by different supplier.

ABC has identified activity cost pools and cost drives for each activity. The cost per unit of the cost driver for each activity cost pool is as follows:

| Manufacturing Activity | Description of activity | Cost driver | Cost per unit of cost driver |
|------------------------|--|---------------------------|--------------------------------|
| 1. Machine Costs | Machining components | Machine hours of capacity | Rs. 200 |
| 2. Testing costs | Testing components and finished products. (Each unit of “AB 100” is tested individually) | Testing hours | Rs.125 |
| 3. Rework costs | Correcting and fixing errors and defects | Units of “AB 100”reworked | Rs.1,500 per unit |
| 4. Ordering cost | Ordering of components | Number of orders | Rs.125 per order |
| 5. Engineering costs | Designing and managing of products and processes | Engineering works | Rs.1,980 per engineering hour. |

Over a long run horizon, each of the overhead cost described above vary with chosen cost drivers.

In response to competitive pressure ABC must reduce the price of its product to Rs.2,600 and to reduce the cost by atleast Rs.400 per unit. ABC does not anticipate increase in sales due to price reduction. However, if it does not reduce price it will not be able to maintain the current sales level.

Cost reduction on the existing model is almost impossible. Therefore, ABC has decided to replace “AB 100” by a new model “AB 100”, which is a modified version of “AB 100”. The expected effect of design modification are as follows:

- (i) The number of components will be reduced to 50.
- (ii) Direct material cost to be lower by Rs.200 per unit.
- (iii) Direct manufacturing labour costs to be lower by Rs.20 per unit.
- (iv) Machining time required to be lower by 20 per cent.
- (v) Testing time required to be lower by 20 per cent.
- (vi) Rework to decline to 5 per cent.
- (vii) Machining capacity and engineering hours capacity to remain the same. ABC currently outsource the rework on defective units.

Required:

- (i) Compare the manufacturing cost per unit of “AB 100” and “AB 200”
 - (ii) Determine the immediate effect of design change and pricing decision on the operating income of ABC.
- Ignore income tax. Assume that the cost per unit of each cost driver for “AB 100” continues to apply to “AB 200”
- (15Marks)**