

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 manufacture 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)

- Prepare a divisional profitability statement at each level of output, for division X and Y separately.
- Find out the profitability of the company as a whole at the output level where:
 - Division X's net profit is maximum;
 - Division Y's net profit is maximum;
- 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

- "Standard Costing system is not compatible with Activity Based Costing System" Do you agree with this statement? Explain your answer. **(3 Marks)**
- How the opportunity cost for inefficient use of scarce resources be presented in variance reports under standard costing system? **(4 Marks)**
- 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

- What is "Price skimming policy" and at which situation it should be exercised? **(3Marks)**
- "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)**
- 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)**