Paper 15 – Strategic Cost Management and Decision Making

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Time Allowed: 3 hours **Full Marks: 100**

Section A

1. Answer the following and each question carries 2 marks. [10×2= 20]

(i) If the first time you perform a job takes 60 minutes, how long will the eighth job take if you are on an 80% learning curve?
(a) 48 minutes (b) 30.72 minutes (c) 31 minutes (d) None of the above

(ii) NPL Ltd. Uses a JIT system and back flush accounting. It does not use a raw material stock control account During May, 8000 units were produced and sold. The standard cost per unit is ₹100; this includes materials of ₹45. During May, ₹4,80,000 of conversion costs were incurred.
The debit balance on cost of goods sold account for May was
(a) ₹8,00,000 (b) ₹8,40,000 (c) ₹8,80,000 (d) ₹9,20,000

(iii) The single price of the selling product manufactured by a company is fixed at ₹1500 per unit. In the coming year, 500 units of the product are likely to be sold. If the total value of investments of the company is ₹15 lakhs and it has a target ROI of 15%, the target cost would be:
(a) ₹9.30 (b) ₹9.50 (c) ₹1050 (d) None of these

(iv) Which of the following would decrease unit contribution margin the most?
(a) 15% decrease in selling price
(b) 15% increase in variable costs
(c) 15% decrease in variable costs
(d) 15% decrease in fixed costs

(v) A company determines its selling price by making up variable costs 60%. In addition, the company uses frequent selling price mark down to stimulate sales. If the mark down average 10%, what is the company's contribution margin ratio?
(a) 30.6% (b) 44% (c) 86.4% (d) None of these

(vi) Back flush costing is most likely to be used when
(a) Management desires sequential tracking of costs
(b) A Just-in-Time inventory philosophy has been adopted
(c) The company carries significant amount of inventory
(d) Actual production costs are debited to work-in-progress.

(vii) A company produces two joint products, P and V. In a year, further processing costs beyond split-off point spent were ₹ 8,000 and ₹ 12,000 for 800 units of P and 400 units of V respectively. P sells at ₹ 25 and V sells at ₹ 50 per unit. A sum of ₹ 9,000 of joint cost were allocated to product P based on the net realization method. What were the total joint cost in the year?
(a) ₹ 20,000 (b) ₹ 10,000 (c) ₹15,000 (d) None of these

(viii) When allocation service department cost to production departments, the method that does not consider different cost behavior patterns is the
(a) Step method (b) Reciprocal method
(c) Single rate-method (d) Dual rate-method

(ix) ABC Ltd. has developed a new product just complete the manufacture of first four units of the product. The fist unit took 2 hours to manufacture and the first four units together took 5.12 hours to produce. The Learning Curve rate is

(a) 83.50% (b) 80.00% (c) 75.50% (d) None of (a), (b) or (c)

(x)

No. Units Sold Per Day	500
Sales Price	₹25
Direct Materials Cost per unit	₹10
Other Factory Costs per Day	₹6000
No. Hours of bottleneck used per day	8

The Return per Factory Hour for product is

(a) ₹925 (b) ₹938 (c) ₹883 (d) ₹750

Section B

Answer any five questions from Question No. 2 to 8
Each question carries 16 marks. [5 ×16 = 80]

2 (a) K & Co. manufactures and sells 15,000 units of a product. The Full Cost per unit is ₹200. The Company has fixed its price so as to earn a 20% Return on an Investment of ₹18,00,000.

Required:

1. Calculate the Selling Price per unit from the above. Also, calculate the Mark-up % on the Full Cost per unit.
2. If the Selling Price as calculated above represents a Mark-up % of 40% on Variable cost per unit, calculate the Variable cost per unit.
3. Calculate the Company's Income if it had increased the Selling Price to ₹230. At this price, the company would have sold 13,500 units. Should the Company have increased the Selling price to ₹230?
4. In response to competitive pressures, the Company must reduce the price to ₹210 next year, in order to achieve sales of 15,000 units. The Company also plans to reduce its investment to ₹16,50,000. If a 20% Return on Investment should be maintained, what is the Target Cost per unit for the next year?

[8]

2 (b) The ORC Club of a large public sector undertaking has a cinema theater for the exclusive use of themselves and their families. It is a bit difficult to get good motion pictures for show and so pictures are booked as and when available.

The theater has been showing the picture 'Blood Bath' for the past two weeks. This picture, which is strictly for adults only has been a great hit and the manager of the theater is convinced that the attendance will continue to be above normal for another two weeks, if the show of 'Blood Bath' is extended. However, another popular movie, eagerly looked forward to by both adults and children alike, 'Appu on the Airbus' is booked for next two weeks. Even if 'Blood Bath' is extended the theater has to pay the regular rental on 'Appu on the Airbus' as well.

Normal attendance at theater is 2,000 patrons per week, approximately one fourth of whom are children under the age of 12. Attendance of 'Blood Bath' has been 50% greater than the normal total. The manager believes that this would taper off during the second two weeks, 25% below that of the first two weeks, during the third week and 33 1/3 % below that of the first two weeks, during the fourth week. Attendance for 'Appu on the Airbus' would be expected to be normal throughout its run regardless of the duration.

All runs at the theater are shown at a regular price of ₹2 for adults and ₹1.20 for children fewer than 12. The rental charge for 'Blood Bath' is ₹ 900 for one week or ₹1,500 for two weeks. For 'Appu on the Airbus' it is ₹ 750 for one week or ₹ 1,200 for two weeks. All other operating costs are fixed - ₹ 4,200 per week, except for the cost of potato wafers and cakes, which average 60% of their selling price, sales of potato wafers and cakes regularly average ₹ 1.20 per patron, regardless of age.

The Manager can arrange to show 'Blood Bath' for one week and 'Appu on the Airbus' for the following week or he can extend the show of 'Blood Bath' for two weeks or else he can show 'Appu on the Airbus' for two weeks as originally booked.

Show by computation, the most profitable course of action he has to pursue. [8]

3. (a) SPOT Ltd. manufactures and sells as single product X whose price is ₹40 per unit and the variable cost is ₹16 per unit.

(i) If the fixed costs for this year are ₹4,80,000 and the annual sales are at 60% margin of safety, calculate the rate of net return on sales, assuming an income tax level of 40%.

(ii) For the next year, it is proposed to add another product line Y whose selling price would be ₹50 per unit and the variable cost ₹10 per unit. The total fixed costs are estimated at ₹6,66,600. The sales mix of X:Y would be 7:3. At what level of sales next year, would SPOT Ltd. break even ? Give separately for both X and Y the break even sales in rupees and quantities. [10]

3. (b) Company A can manufacture 1,000 units bicycles in a month for a fixed cost of ₹3,00,000. The variable cost is ₹500 per unit. Its current demand is 600 units which it sales at ₹1,000 per unit. It is approached by Company Z for an order of 200 units of ₹700 per unit. Should the Company A accept the order? Give your views as a CMA. [6]

4. (a) AYX Ltd. manufactures three products. The material cost, selling price and bottleneck resource details per unit are as follows:

Particulars	Product X	Product Y	Product Z
Selling price (₹)	66	24	15
Material and other variable cost (₹)	75	30	15
Bottleneck resource time (minutes)	90	40	20

Budgeted factory costs for the period are ₹ 2,21,600. The bottleneck resources time available is 75,120 minutes per period.

Required:

(i) Company adopted throughput accounting and products are ranked according to 'product return per minute'. Select the highest rank product.

(ii) Calculate throughput accounting ratio and comment on it. [8]

4 (b) XYZ Ltd. follows JIT system. It had following transactions in May, 2017:

(i) Raw materials were purchased for ₹2,00,000.

(ii) Direct labour cost incurred ₹ 36,000

(iii) Actual overhead costs ₹ 3,00,000

(iv) Conversion costs applied ₹ 3,16,000

All materials, that were purchased, were placed into production and the production was also completed and sold during the month. The difference between actual and applied costs is computed.

You are required to pass Backflush journal entries. [8]

5. (a) A Company with two manufacturing division is organized on profit centre basis. Division 'A' is the only source for the supply of a component that is used in Division B in the manufacture of a product KPO. One such part is used each unit of the product KPO. As the demand for the product is not steady. Division B can obtain order for increased quantities only by spending more on sales promotion and by reducing the selling prices. The manager of Division B has accordingly prepared the following forecast of sales quantities and selling prices.

Sales units per day	Average Selling price per unit of KPO (₹)
1,	5.25
2,	3.98
3,	3.30
4,	2.78
5,	2.40
6,	2.01

The manufacturing cost of KPO in Division B is ₹3,750 first 1,000 units and ₹750 per 1,000 units in excess of 1,000 units.

Division A incurs a total cost of ₹1,500 per day for an output to 1,000 components and the total costs will increase by ₹900 per day for every additional 1,000 components manufactured. The Manager of Division A states that the operating results of Division will be optimised if the transfer price of the component is set at ₹1.20 per unit and he has accordingly set the aforesaid transfer price for his supplies of the component to Division A.

You are required:

(i) Prepare a schedule showing the profitability at each level of output for Division A and Division B

(ii) Find the profitability of the company as a whole at the output level which (A) Division A's net profit is maximum. (B) Division B's net profit is maximum.

(iii) If the company is not organised on profit centre basis, what level of output will be chosen to yield the maximum profit.

[8]

5. (b) XYZ Ltd. makes three main products, using broadly the same production methods and equipment for each. A conventional product costing system is used at present, although and Activity Based Costing (ABC) system is being considered. Details of the three products, for typical period are:

	Labour Hours per	Machine Hours per unit	Material per unit	Volumes unit
Product X	½	1 ½	₹20	750
Product Y	1 ½	1	₹12	1,250
Product Z	1	3	₹25	7,000

Direct labour costs ₹6 per hour and production overheads are absorbed on a machine hour basis. The rate for the period is ₹28 per machine hour.

You are required:

(i) to calculate the cost per unit for each product using conventional methods. Further analysis shows that the total of production overheads can be divided as follows

	%
Costs relating to set-ups	35
Costs relating machinery	20
Costs relating materials handling	15
Costs relating to inspection	30
Total production overhead	100%

The following activity volumes are associated with the product line for the period as a whole.

Total activities for the period

	Number of Set-ups	Number of movements of materials	Number of Inspections
Product X	75	12	150
Product Y	115	21	180
Product Z	480	87	670
	670	120	1,000

You are required:

(ii)To calculate the cost per unit for each product using ABC principles; c) to comment on the reasons for any differences in the costs in your answers to (a) and (b).

[8]

6. (a) The ABC Pvt. Ltd., which has a satisfactory preventive maintenances system in its plant has installed a new Hot Air Generator based on electricity instead of fuel oil for drying its finished products. The Hot Air Generator required periodic shutdown maintenance. If the shutdown is scheduled yearly, the cost of maintenance will be as under:

Maintenance Cost	Probability
₹15,000	0.3
₹20,000	0.4
₹25,000	0.3

The costs are expected to be almost linear, i.e., if the shutdown is scheduled twice a year the maintenance cost will be double.

There is no previous experience regarding the time taken between breakdowns. Costs associated with breakdown will vary depending upon the periodicity of maintenance. The probability distribution of breakdown cost is estimated as under:

Breakdown Costs per annum	Shutdown once a year	Shutdown twice a year
₹75,000	0.2	0.5
₹80,000	0.5	0.3
₹1,00,000	0.3	0.2

Simulate the total costs – maintenance and breakdown costs – and recommend whether shutdown overhauling should be resorted to once a year or twice a year?

[8]

6. (b) A captain of a cricket team has to allot five middle batting positions to five batsmen. The average runs scored by each batsman at these positions are as follows:

Batting Position						
Batsmen		III	IV	V	VI	VII
	A	40	40	35	25	50
	B	42	30	16	25	27
	C	50	48	40	60	50
	D	20	19	20	18	25
	E	58	60	59	55	53

Make the assignment so that the expected total average runs scored by these batsmen are maximum. [8]

7.(a) A Company manufactures 3 products which are processed through 3 different production stages. The time required to manufacture one unit of each of the three products and the daily capacity of the stages are given in the following table:

State	Time/unit in minutes			
	Product	Product 2	Product 3	Stage capacity (minutes)
1	1	2	1	430
2	3	-	2	460
3	1	4	-	420
Profit/unit	₹3	₹2	₹5	

[8]

7. (b) The following table gives data on normal time & cost and crash time& cost for a project.

Activity	Normal		Crash	
	Time (days)	Cost (₹)	Time (days)	Cost (₹)
1 – 2	6	600	4	1,000
1 – 3	4	600	2	2,000
2 – 4	5	500	3	1,500
2 – 5	3	450	1	650
3 – 4	6	900	4	2,000
4 – 6	8	800	4	3,000
5 – 6	4	400	2	1,000
6 – 7	3	450	2	800

The direct cost per day is ₹100

(i) Draw the network and identify the critical path [8]

(ii) What are the normal project duration and associated cost?

8. Write Short note (any four) **[4×4]**

(a) Advantages of Activity Based Costing

(b) Lean Accounting

(c) Vogel's Approximation Method (VAM)

(d) Steps to be followed to increase the throughput

(e) Benefits of Inter-firm Comparison