Paper 15- Strategic Cost Management- Decision Making

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

This paper contains two sections **A** and **B**. **Section A** is compulsory and contains question No.1 for 20 marks. **Section B** contains question Nos. 2 to 8, each carrying 16 marks. Answer any five questions from **Section B**.

Section – A [20 Marks]

1. Choose the most appropriate answer to the following questions giving justification [10x2=20]

(i) Ink Ltd. makes leather purses. It has drawn up the following budget for its next financial period:
Selling price per unit ₹11.60; Variable production cost per unit ₹3.40; Sales commission 5% of selling price; Fixed production costs ₹4,30,500; Fixed selling and administration costs ₹1,98,150; Sales 90,000 units. The margin of safety represents:
(a) 5.6% of budgeted sales
(b) 8.3% of budgeted sales
(c) 11.6% of budgeted sales
(d) 14.8% of budgeted sales

(ii) A company uses a predetermined overhead recovery rate based on machine hours. Budgeted factory overhead for a year amounted to ₹7,20,000, but actual factory overhead incurred was ₹7,38,000. During the year, the company absorbed ₹7,14,000 of factory overhead on 1,19,000 actual machine hours. What was the company's budgeted level of machine hours for the year?
(a) 116098
(b) 119000
(c) 120000
(d) 123000

(iii) A company uses standard absorption costing to value inventory. Its fixed overhead absorption rate is ₹12 per labour hour and each unit of production should take four labour hours. In a recent period when there was no opening inventory of finished goods, 20000 units were produced using 100000 labour hours. 18000 units were sold. The actual profit was ₹4,64,000.What profit would have been earned under a standard marginal costing system?
(a) ₹3,68,000
(b) ₹4,40,000
(c) ₹3,44,000
(d) ₹5,60,000

(iv) X plc intends to use relevant costs as the basis of the selling price for a special order: the printing of a brochure which requires a particular type of paper that is not regularly used by X plc although a limited amount is in X plc's inventory which was left over from a previous job. The cost when X plc bought this paper last year was ₹15 per ream and there are 100 reams in inventory. The brochure requires 250 reams. The current market price is ₹26 per ream and resale value is ₹10 per ream. The relevant cost of the paper to be used in printing the brochure is:

(a) ₹2,500
(b) ₹4,900
(c) ₹5,400
(d) ₹6,500

(v) Alpha uses decision tree analysis to evaluate potential projects. The company has been looking at the launch of a new product which it believes has a 70% probability of success. The company is however considering undertaking an advertising campaign costing ₹50,000, which would increase the probability of success to 95%. If successful, the product would generate income of ₹2,00,000 otherwise ₹70,000 would be received. What is the maximum that the company would be prepared to pay for the advertising?

(a) ₹32,500
(b) ₹29,000
(c) ₹17,500
(d) ₹50,000

(vi) A company uses standard absorption costing. The following information was recorded by the company for October:

	Budget	Actual
Output and sales (units)	8700	8200
Selling price per unit	₹26	₹31
Variable cost per unit	₹10	₹10
Total fixed overheads	₹34,800	₹37,000

The sales price variance for October was:

(a) ₹38,500 adverse
(b) ₹38,500 favourable
(c) ₹41,000 adverse
(d) ₹41,000 favourable

(vii) Based on the data given, what is the amount of the overhead under/over absorbed?

Budgeted overheads	₹4,93,200
Budgeted machine hours	10,960
Actual machine hours	10,493
Actual overhead	₹5,14,157

(a) ₹20,957 under-absorbed
(b) ₹20,957 over-absorbed
(c) ₹41,972 over-absorbed
(d) ₹41,972 under-absorbed

(viii) Bunny uses a JIT system and backflush 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; includes materials of ₹45. During May, ₹4,80,000 of conversion costs were incurred. The debit balance on the cost of goods sold account for May was:

(a) ₹8,00,000
(b) ₹8,40,000
(c) ₹8,80,000
(d) ₹9,20,000

(ix) A company manufactures two products using common handling facility. The total budgeted material handling cost is ₹60,000. The other details are:

Particulars	Product X	Product Y
Number of units produced	30	30
Material moves per product line	5	15
Direct labour hours per unit	200	200

Under ABC System, the material handling costs to be allocated to Product X (per unit) would be:

(a) ₹1,000
(b) ₹500
(c) ₹1,500
(d) ₹2,500

(x) The selling price of Product P is set at ₹1,500 for each unit and sales for the coming year are expected to be 500 units. If the company requires a return of 15% in the coming year on its investment of ₹15,00,000 in product P, the target cost for each unit for the coming year is:

(a) ₹930
(b) ₹990
(c) ₹1,050
(d) ₹1,110

Section – B

Answer any five questions.

[16×5= 80]

2. (a) Amar Ltd. produces 4 products P, Q, R and S by using three different machines X, Y and Z. Each machine capacity is limited to 6000 hours per month. The details given below are for July-

Particulars	P	Q	R	S
Selling Price p.u. (₹)	10,000	8,000	6,000	4,000
Variable Cost p.u. (₹)	7,000	5,600	4,000	2,800
Machine Hours required p.u.				
Machine X	20	12	4	2
Machine Y	20	18	6	3
Machine Z	20	6	2	1
Expected Demand (units)	200	200	200	200

1. Find out the Bottleneck Activity.
2. Allocate the Machine Hours on the basis of the Bottleneck.
3. Ascertain the profit expected in the month if the monthly Fixed Cost amounts to ₹9,50,000.
4. Calculate the unused spare hours of each machine. **[8]**

(b) A lodging home is being run in a small hill station with 50 single rooms. The home offers concessional rates during six off-season months in a year. During this period, half of the full room rent is charged. The management's profit margin is targeted at 20% of the room rent. The following are the cost estimates and other details for the year ending 31st march, 2019 (assume a month to be of 30 days):

(a) Occupancy during the season is 80%, while in the off-season is 40% only;

(b) Expenses:

	₹
(i) Staff salary (excluding room attendants)	2,75,000
(ii) Repairs to buildings	1,30,500
(iii) Laundry and linen	40,000
(iv) Interior and tapestry	87,500
(v) Sundry expenses	95,400

(c) Room attendants are paid ₹5 per room-day on the basis of occupancy of the rooms in a month.

(d) Monthly lighting charges are ₹120 per room, except in four months of winter when it is ₹30 per room and this cost is on the basis of full occupancy for a month.

You are required to work out the room rent chargeable per day both during the season and the off-season months, on the basis of the above information. **[8]**

3. (a) A manufacturing unit of Ash Co. has presented the following details:

Average units produced and sold per month	240000
No. of workers	80
Sales value	₹60 Lakhs
Contribution	₹24 Lakhs
Wage rate	₹5 per unit

The production manager proposes to introduce a new automated machine due to which following changes will take place:

1. No. of units produced and sold are expected to increase by 20%.
2. No. of workers will be reduced to 60.
3. With a view to provide incentive for increased production, Production manager intends to offer 1% increase in wage rate for every 3% increase in average individual output achieved.
4. Decrease in selling price by @%.

Required: Calculate amount of extra contribution after introduction of new automated machine and give your recommendations. **[8]**

(b) A manufacturing concerns has a multi-purpose Plant capable of operating at full capacity at 5000 machine hours per month. It may produce three products inter-changeably, for which the output and cost details are as follows:

Product	Output per Machine Hour	Material Costs
A	500 units	₹42.50 per 1000 units
B	250 units	₹17.50 per 1000 units
C	1000 units	₹30.00 per 1000 units

Labour Cost is ₹15 per machine hour while variable overheads will be ₹5 per machine hour. Fixed costs of this department are ₹1,00,000 per monthly production period.

The company estimates from past experience that the full capacity can be used at all times if machine time can be freely moved from one product to another as dictated by demand and is anxious to establish suitable product selling prices (per 1000 units). The three price fixing methods under consideration are:

- To fix prices at product cost plus 20%
- To fix prices so as to give a contribution of ₹35 per machine hour
- To fix prices arbitrarily (per 1000 units) as Product A - ₹150, Product B - ₹230 and Product C - ₹90.

Prepare a comparative statement of prices that would be charged under the three methods. Suggest which method should be adopted. **[8]**

4. (a) Stanley Cassette Ltd. Has budgeted the following sales for Feb 2020

Cassette A	1100 units @ ₹50 per unit
Cassette B	950 units @ ₹100 per unit
Cassette C	1250 units @ ₹80 per unit

As against this, the actual sales were:

Cassette A	1300 units @ ₹55 per unit
Cassette B	1000 units @ ₹95 per unit
Cassette C	1200 units @ ₹78 per unit

The cost per unit of Cassettes A, B and C was ₹45, ₹85 and ₹70 respectively.
Compute the different variances to explain the difference between the budgeted and actual profit. **[10]**

(b) A firm of printer is contemplating joining the Uniform costing system being operated by its trade association but the Managing Director is doubtful about the advantages of becoming involved in the scheme. Prepare a report to the Managing Director describing the advantages that the firm is likely to gain. **[6]**

5. (a) There are two Profit Centres namely Division A and Division B in Ditya Ltd. Division A produces four products P, Q, R and S. Each product is sold in the external market also. The relevant data for Division A are as follows:

	P	Q	R	S
Market price per unit (₹)	700	690	560	460
Variable cost of production per unit (₹)	660	620	360	370
Labour hours required per unit (Hours)	6	8	4	6

The maximum sales in the external market are: P – 3000 units, Q – 3500 units, R – 2800 units and S – 1800 units.

Product S can be transferred to Division B also but the maximum quantity that might be required for transfer is 2200 units of S.

Division B can also purchase the same product at a price of ₹420 per unit from the market instead of receiving transfers of Product S from Division A.

Required:

a) Calculate the Transfer Price for each unit for 2200 units of product S, if the Total Labour Hours available in Division A are – (i) 48000 hours, (ii) 64000 hours.
b) Whether is it profitable for Division B to get transfer 2200 units of Product S from Division A in above (a) situation?

Show calculation of units to nearest unit and rest upto two decimal points. **[8]**

(b) A Company produces three products P, Q and R for which the Standard Cost per unit and quantities produced are as under:

Products	P	Q	R
Units produced and sold	36000	48000	96000
Direct Material Cost per unit ₹	60	48	45
Direct Labour Cost per unit ₹	30	24	18
Machine Hours per unit (hours)	0.5	0.4	0.3

Total Production Overheads are absorbed on Machine Hour basis. The rate is ₹60 per Machine Hour.

The Company has analyzed its operations and determined that five activities act as Cost Drivers for Overheads. Data relating to five activities are given below:

Activity Area	Cost Driver	Cost of each activity as % of Total Production Overhead Cost
Store Receiving	Number of Requisitions	25%
Machine Set-up	Number of Set-ups	20%
Machine Running	Machine Hours worked	25%
Packing	Packing time in Hours	16%
Storage	Area in Square Metres	14%

The investigation into the Production Overhead Activities for the period revealed the following:

Activity	P	Q	R
Number of Requisitions	1200	1500	3900
Number of Machine Set-ups	60	120	320
Packing Hours	3000	4800	10200
Storage (sq. metres)	10800	12000	19200

Required:

1) Calculate the Total Production Overheads.
2) Prepare Product Cost Statement showing per unit cost under Traditional Absorption Costing Method.
3) Calculate the Cost Driver Rates.
4) Prepare Product Cost Statement showing per unit cost under ABC Method.
5) What is the difference in Costs due to adoption of Traditional Absorption Costing Method and ABC Method? **[8]**

6. (a) A Company has just completed the manufacture of 40 units of a new product. The manufacturing costs are-

Direct Material	200000
Direct Labour: 8000 hours @ ₹ 20 per hour	160000
Variable Overheads	80000
Special Tools (re-usable)	10000
Fixed Overhead apportioned	100000
Total	550000

The Company's policy is to add a profit of 12% on Selling Price.

The Company received another order for 120 units of this product for which the Company quoted, based on its policy on absorption cost basis, a price of ₹15625 per unit. The Customer struck the order to ₹11000 per unit. The Company is short of work and so is keen to take up more orders but it is reluctant to accept this order price because it is against the policy to accept any price before its cost. The Company experiences a Learning Curve of 90%.

Compute the Gain or Loss arising from acceptance of the order of ₹11000 p.u. and advise the Company suitably. **[8]**

(b) Aditya Enterprises is having three plants manufacturing dry-cells, located at different locations. Production cost differs from plant to plant. There are five sales offices of the company located in different regions of the country. The sales prices can differ from region to region. The shipping cost from each plant to each sales office and other data are given below:

Product Data

Production Cost per unit (₹)	Max. capacity in no. of units	Plant no.
20	150	1
22	200	2
18	125	3

Shipping Costs (₹)

	Sales Offices				
	A	B	C	D	E
Plant 1	1	1	5	9	4
Plant 2	9	7	8	3	6
Plant 3	4	5	3	2	7

Demand and Sales Prices

Demand (units)	80	100	75	45	125
Sales Price (₹)	30	32	31	34	29

Find the production and distribution schedule most profitable to the company. **[8]**

7. (a) You are provided with the following information:

Activity	Precedence	Time Estimates		
		Optimistic	Most likely	Pessimistic
A: 1-2	None	1	2	3
B: 2-3	A	1	4	7
C: 2-4	A	1	2	9
D: 3-5	B	1	2	9
E: 4-5	C	2	3	4
F: 5-6	D , E	2	3	4

Required:

(i) Draw a project network. Identify the critical path and expected length of the project.
(ii) Find out variance for different activities.
(iii) Find out standard deviation of the network.
(iv) What is the probability of completing the project in 12 days?
(v) What is the probability of completing the project in 14 days?
(vi) What is the probability of completing the project in 10 days? **[8]**

(b) Akash Ltd. manufactures 2 products X and Y and sells them at ₹90 and ₹80 respectively. Each product passes through two Departments P and Q before it becomes a finished product. The capacities of Departments P and Q are limited to 3400 hours and 3640 hours respectively. Each product requires 2 kg of Direct Materials "k", of which the maximum availability is 17000 kgs at ₹5 per kg. Product X and Y have a maximum market demand of 7400 units and 10000 units respectively. The time requirements of the products in the Production Department are as under-

Department	Machine Hour Rate	Product X	Product Y
P	₹40 per hour	0.50 hours	0.30 hours
Q	₹60 per hour	0.40 hours	0.45 hours

From the above data – (a) Identify the Limiting Factors, (b) Compute the Contribution per unit of P and Q, (c) Compute Contribution per unit of each Limiting Factor identified as above, (d) Determine what is the best possible combination of P and Q in order to maximize profit, if Fixed Costs for the period is ₹124750. **[8]**

8. Write short notes on any four of the following: **4×4=16**

(a) Socio Economic Costing
(b) Difference between Cost Control and Cost Reduction
(c) Six Sigma
(d) Applications of Learning curve
(e) Limitations of Simulation