



Paper 15- Strategic Cost Management- Decision Making

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Time allowed:3 hours

Full Marks: 100

The figures in the margin on the right side indicate full

Answer Question No. 1 in Section A, which is compulsory, carrying 20 marks. Further, answer any 5(five) Questions from Section B, each carrying 16 marks

Section A (20 marks)

1. Choose the most appropriate answer to the following questions giving justification. $10 \times 2 = 20$

- (i) ANC Co. manufactures and sells 7,500 units of a product. The full cost per unit is ₹100. The Company has fixed its price so as to earn a 30% return on an investment of ₹ 7,00,000. Target selling price will be
- (a) ₹ 120
 - (b) ₹ 130
 - (c) ₹ 128
 - (d) ₹ 210
- (ii) A Ltd. manufactures 4 products A,B,C & D with sales value mix of $33 \frac{1}{3}\%$, $41 \frac{2}{3}\%$, $16 \frac{2}{3}\%$ & $8 \frac{1}{3}\%$ and variable cost of 60%, 68%, 80% & 40% of selling price respectively. Budgeted sale value is ₹1,20,000. Overall P/V ratio is
- (a) 40%
 - (b) 35%
 - (c) 28%
 - (d) 32%
- (iii) PN Company makes a single product which it sells at ₹10 per unit. Fixed costs are ₹ 60,000 per month and the product has a contribution to sales ratio of 40%. In a period when actual sales were ₹1,70,000, the Company's margin of safety in units is:
- (a) 2,000 units
 - (b) 17,000 units
 - (c) 15,000 units
 - (d) 5,000 units
- (iv) A Company makes components and sells internally to its subsidiary and also to external market. The external market price is ₹ 24 per component, which gives a contribution of 40% of sales. For external sales, variable costs include ₹ 3.00 per unit towards distribution costs. This is, however not incurred in internal sales. There are no capacity constraints. To maximize company's profit, the transfer price to subsidiary should be
- (a) ₹ 24

- (b) ₹ 21
- (c) ₹ 11.40
- (d) ₹ 14.40

(v) XYZ Ltd is a manufacturing company involved in the production of automobiles. Information from its last budget period is as follows:

Actual production 2, 75,000 Units

Budgeted Production 2, 50,000 Units

Actual fixed production Overheads ₹52, 60, 00,000

Budgeted fixed production Overheads ₹50, 00, 00,000

Then fixed overhead volume variance and expenditure variance will be:

- (a) ₹5,00,00,000 (A), ₹2,60,00,000 (F)
- (b) ₹5,00,00,000 (F), ₹2,60,00,000 (F)
- (c) ₹5,00,00,000 (F), ₹2,60,00,000 (A)
- (d) ₹5,00,00,000 (A), ₹2,60,00,000 (A)

(vi) The time taken to produce the first unit of a product is 4000 hrs. What will be the total time taken to produce the 5th to 8th unit of the product, when a 90% learning curve applies?

- (a) 10,500 hours
- (b) 12,968 hours
- (c) 9,560 hours
- (d) 10,368 hours

(vii) AB company is a supermarket group that incurs the following costs :

- (A) The bought-in price of the goods
- (B) Inventory finance costs
- (C) Self refilling costs
- (D) Costs of repacking or 'pack out' prior to storage before sale

AB company's calculating of direct product profit (DPP) would include

- (a) Costs (A) and (C) only.
- (b) All of the above cost except (b)
- (c) All of the above costs except (d)
- (d) All of the above costs.

(viii) ABC Limited has current PBIT of ₹19.20 lakhs on total assets of ₹96 lakhs. The company has decided to increase assets by ₹24 lakhs, which is expected to increase the operating profit before depreciation by ₹8.40 lakhs. There will be a net increase in depreciation by ₹4.80 lakhs. This will result in ROI

- (a) to increase by 1%
- (b) to decrease by 1%
- (c) to decrease by 1-5%
- (d) to remain the same

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(ix) Marketing department of an organisation estimates that 40,000 of new mixers could be sold annually at a price of ₹60 each. To design, develop and produce these new mixers an investment of ₹40,00,000 would be required. The company desires a 15% return on investment (ROI). Given these data, the target cost to manufacture, sell, distribute and service one mixer will be

- (a) ₹ 37.50
- (b) ₹ 40.00
- (c) ₹ 45.00
- (d) ₹ 48.60

(x) The information relating to the direct material cost of a company is as follows:

Standard price per unit	₹ 7.20
Actual quantity purchased in units	1600
Standard quantity allowed for actual production in units	1450
Material price variance on purchase (Favourable)	₹ 480

What is the actual purchase price per unit?

- (a) ₹ 7.50
- (b) ₹ 6.40
- (c) ₹ 6.50
- (d) ₹ 6.90

Section-B

Answer any five questions.

Each Question carries 16 marks

16 X 5 = 80

2(a) P 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	75	90
Material and other variable cost (₹)	24	30	40
Bottleneck resource time (minutes)	15	15	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.

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(b) Transferor Ltd. has two processes Preparing and Finishing. The normal output per week is 7,500 units (Completed) at a capacity of 75%

Transferee Ltd. had production problems in preparing and requires 2,000 units per week of prepared material for their finishing processes.

The existing cost structure of one prepared unit of Transferor Ltd. at existing capacity

Material	₹ 2.00 (Variable 100%)
Labour	₹ 2.00 (Variable 50%)
Overhead	₹ 4.00 (Variable 25%)

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Construct the effect on the profits Transferor Ltd., for six months (25 weeks) of supplying units to Transferee Ltd. with the following alternative transfer prices per unit:

- (i) Marginal Cost
- (ii) Marginal Cost + 25%
- (iii) Marginal Cost + 15% Return on capital (assume capital employed ₹20 lakhs)
- (iv) Existing Cost
- (v) Existing Cost + a portion of profit on the basis of $(\text{preparing cost} / \text{Total Cost}) \times \text{Unit Profit}$
- (vi) At an agreed market price of ₹8.50 Assume no increase in fixed cost

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3(a) XYZ Ltd. produces three products. The cost data are as under:

Particulars	X	Y	Z
Direct Materials (₹)	64	152	117
Direct Labour			

Dept	Rate per Hour (₹)	Hrs	Hrs	Hrs
1	5	18	10	20
2	6	5	4	6.5
3	4	10	5	20
		16	9	24

Fixed overheads ₹ 4,00,000 per annum.

The budget was prepared at a time, when market was sluggish. The budgeted quantities and selling prices are as under :

Product	Budget Quantity	Selling Price (/per unit)
X	9,750	270
Y	7,800	280
Z	7,80	400

Later the market improved and the sale quantities could be increased by 20% for product X and 25% each for products Y and Z. The Sales Manager confirmed that the increased quantities could be achieved at the prices originally budgeted. The Production Manager has stated that the output cannot be increased beyond the budgeted level due to limitation of direct labour hours in Department 2.

Required : (i) Set optimal product mix.

(ii) State profit under optimal product mix.

6+6 = 12

(b) A company is producing and selling three products. How would you determine relative profitability of products in each of the following independent situation ?

- (i) Total sales potential in unit is limited,
- (ii) Total sales potential in value is limited,
- (iii) Raw materials are in short supply,
- (iv) Production capacity (machine hours) is limited.

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4(a) A company manufacturing a special type of fencing tile 12" × 8" × 1/2" used a system of standard costing. The standard mix of the compound used for making the tiles is:

- 1,200 kg. of material A @ ` 0.30 per kg.
- 500 kg. of Material B @ ` 0.60 per kg
- 800 kg. of Material C @ ` 0.70 per kg

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The compound should produce 12,000 square feet of tiles of 1/2" thickness. During a period in which 1,00,000 tiles of the standard size were produced, the material usage was:

Kg		
7,000	Material A @ ₹0.32 per kg	2,240
3,000	Material B @ ₹0.65 per kg	1,950
5,000	Material C @ ₹ 0.75 per kg.	3,750
15,000		7,940

Present the cost figures for the period showing Material price, Mixture, Sub-usage Variance. **10**

(b) What is the Difference between Standard Costing and Budgetary Control? **6**

5(a) P.H. Ltd. has two manufacturing departments organised into separate profit centres known as the Basic unit and Processing unit. The Basic unit has a production capacity of 4,000 tonnes per month of Chemvax but at present its sales are limited ₹ 2,000 tonnes to outside market and 1,200 tonnes to the Processing unit.

The transfer price for the year 1986 was agreed at ₹400 per tonne. This price has been fixed in line with the external wholesale trade price on 1st January 1986. However due to heavy competition the Basic unit has been forced to reduce the wholesale trade price to ₹360 per tonne with effect from 1st June, 1986. This price however was not made applicable to the sales made to the Processing unit of the company. The Processing unit applied for revision of the price as applicable to the outside market buyers as from 1st June 1986 but the same was turned down by the basic unit.

The Processing unit refines Chemvax and packs the output Known as Colour-X in drums of 50kgs each. The selling price of colour-X is ₹40 per drum. The Processing unit has a potential of selling a further quantity of 16,000 drums of colour-X provided the overall price is reduced to ₹ 32 per drum. In that event it can buy the additional 800 tonnes of Chemvex from the basic unit whose capacity can be fully utilised. The outside market will not however absorb more than the present quantity of 2,000 tonnes

The cost data relevant to the operations are:

	Basic Unit(₹)	Processing Unit(₹)
Raw Materials/tonne	70	Transfer Price
Variable Cost/tonne	140	170
Fixed Cost/month	3,00,000	1,20,000

You are Required:

(i) Prepare statement showing the estimated profitability for June 1986 for each unit and the company as a whole on the following bases:

(a) At 80% and 100% capacity utilisation of the Basic unit at the market price and transfer price to the Processing unit of ₹400 per tonne.

(b) At 80% capacity utilisation of the basic unit at the market price of ₹360 per tonne and the transfer price to the Processing unit of ₹ 400 per tonne.

(c) At 100% capacity utilisation of the Basic unit at the market price and transfer price to the Processing unit of ₹ 360 per tonne.

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(ii) Comment on the effect of the company's transfer pricing policy on the profitability of the Processing Unit. 10

(b) Discuss the Advantages & limitations of Activity Based Costing. 6

6(a) Patients arriving at a village dispensary are treated by a doctor on a first-come-first-served basis. The inter-arrival time of the patients is known to be uniformly distributed between 0 and 80 minutes, while their service time is known to be uniformly distributed between 15 and 40 minutes. It is desired to simulate the system and determine the average time a patient has to be in the queue for getting service and the proportion of time the doctor would be idle. Carry out the simulation using the following sequences of random numbers. The numbers have been selected between 00 and 80 to estimate inter-arrival times and between 15 and 40 to estimate the service time required by the patients.

Series 1	07	21	12	80	08	03	32	65	43	74
Series 2	23	37	16	28	30	18	25	34	19	21

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(b) A manufacturer has distribution centres X, Y, and Z. These centres have 40, 20 and 40 units of his product. His retail outlets at A, B, C, D and E require 25, 10, 20, 30 and 15 units respectively. The transport cost in (Rupees/Unit) between each centre and each outlet is given in the following table:

Distribution Centre	Retail outlets				
	A	B	C	D	E
X	55	30	40	50	40
Y	35	30	100	45	60
Z	40	60	95	35	30

We have to find out the optimum distribution cost.

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7(a) XYZ Auto-manufacturing company has to prepare a design of its latest model of motorcycle. The various activities to be performed to prepare a design are as follows:

Activity	Description of activity	Preceding activity
A	Prepare drawing	-
B	Carry out cost analysis	A
C	Carry out financial analysis	A
D	Manufacture tools	C
E	Prepare bill of material	B, C
F	Receive material	D, E
G	Order sub-accessories	E
H	Receive sub-accessories	G
I	Manufacture components	F
J	Final Assembly	I, H
K	Testing and Shipment	J

Prepare an appropriate network diagram.

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(b) The management of SAB Ltd. has suggested that a linear programming model might be used for selecting the best mix of five possible products —A, B, C, D and E. The following information are available:

Particulars	Per Unit of Product				
	A	B	C	D	E
Selling Price(₹)	96	84	76	62	54
Cost(₹)					
Material	30	28	32	30	32
Direct Labour	36	32	12	8	8
Fixed Overhead	18	16	6	4	4
Total Costs	84	76	50	42	44

Expected maximum unit demand per week for each product at the prices indicated:

A	B	C	D	E
3000	24000	1800	1200	1200

Cost of material includes a special component which is in short supply. It costs ₹6 per unit. Only 11,600 units are available to the company during the week. The number of units of the special component needed for a unit of each product is:

A	B	C	D	E
2	1	4	3	6

The management of SAB Ltd. has ruled that expenditure on materials must not exceed a sum of ₹60,000. All other resources are freely available in sufficient quantities for planned need.

Formulate a linear programming model stating clearly the criterion you use.

8

8. Write short notes on any four of the following:

4x4= 16

- (a) Usefulness of Pareto Analysis.
- (b) Four P's of TQM
- (c) Simulation Technique
- (d) Value Engineering
- (e) Business Process Re-engineering