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

PART – I

Answer Question Number 1 which is compulsory (20 marks)

1. Choose the most appropriate answer to the following questions giving justification. [10 × 2= 20]

(i) A Ltd. has fixed its price to earn a 30% return on investment of ₹7,00,000, when full cost per unit is ₹100. What would be the target selling price if it manufactures & sell 7500 units of the product?

(a) ₹ 120

(b) ₹ 130

(c) ₹ 128

(d) ₹ 210

(ii) A Ltd. manufactures 4 products A,B,C & D with sales value mix of 33 1/3%, 41 2/3%, 16 2/3% & 8 1/3% and P/V ratio is 40%, 352%, 20% & 60% respectively; Calculate overall P/V ratio if budget sale value is ₹1,20,000.

(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 variable cost ratio is 60%. When actual salws were ₹1,70,000, what would be company's warning of safety in units?

(a) 2,000 units

(b) 17,000 units

(c) 15,000 units

(d) 5,000 units

(iv) A Company makes a product & sells it to its 100% subsidiary & also to outside market at ₹24 per piece, which gives a contribution of 40%. For outside sales, variable cost constitutes ₹3 per unit as distribution cost. What would be the transfer price to subsidiary if there is no capacity constraint?

(a) ₹ 24

(b) ₹ 21

(c) ₹11.40

(d) ₹ 14.40

(v) ABC Ltd is in automobile manufacturing industry.
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) Calculate the total time taken to produce the 5th to 8th unit of the product under 90% learning curve if the first unit of a product is produced using 4000 hours.
(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) Currently XYZ Ltd. has PBIT of ₹19.20 lakhs on total assets of ₹96 lakhs. It has been decided to increase assets by ₹24 Lakh which will lead to an increase the operating profit before depreciation by ₹8.40 lakhs. If, depreciation increases by ₹4.80 lakhs what will be ROI?

(a) to increase by 1%

(b) to decrease by 1%

(c) to decrease by 1-5%

(d) to remain the same

(ix) An organisation estimated that 40,000 units could be sold annually at ₹60 each. For improvement of the product ₹40 lakh is needed as investment. If, the company desires to get a ROI of 15% then what would be the target cost per unit?

(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
Find out the actual purchase price per unit?

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

PART – II

Answer any five questions from question numbers 2 to 8. Each question carries 16 marks [16x5= 80]

2.(a) A Ltd. engaged in manufacturing of 3 products. Details of these 3 products are given below:

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) Find out throughput accounting ratio and comment on it. 8

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

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

Construct the effect on the profits T Ltd., for six months (25 weeks) of supplying units to V Ltd. If the following are adopted as transfer prices:
(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 (preparing cost / Total Cost) x Unit Profit
(vi) At an agreed market price of ₹8.50 Assume no increase in fixed cost 8

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

Particulars	X	Y	Z
Direct Materials (₹)	66	75	90
Direct Labour	24	30	40
	15	15	20

Dept	Rate per Hour (₹)	Hrs.	Hrs.	Hrs.
I	5	18	10	20
II	6	5	4	6.5
III	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 price are as under:

Product	Budget Quantity	Selling price (/per
X	9,750	270
Y	7,800	280
Z	7,800	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) Propox optimal product mix.
(ii) Find out the profit under the optimal product mix. 6+6=12

(b) A company is engaged in manufacturing 3 products. Find out the profitability of products.
(i) Total sales potential in unit is limited,
(ii) Total sales potential in vale is limited
(iii) raw materials are in short supply,
(iv) production capacity (machine hours) is limited. 4

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

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) Distinguish 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 uint 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.

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

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

6. (a) In a village dispensary patients are treated by a doctor on a first-come-first-serve 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. 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

8

(b) A manufacturer has three distribution centres P, Q, and R. 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
P	55	30	40	50	40
Q	35	30	100	45	60
R	40	60	95	35	30

We have to find out the optimum distribution cost. **8**

7. (a) ABC an Auto-mobile company prepared a design of its latest model for which various activities are adoped 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. **8**

(b) For selecting the best mix of five possible products A, B, C, D and E. the management of A Ltd. wants to use linear programming model and the following information is 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: 4×4= 16

(a) Business Process Re-engineering

(b) Value Engineering

(c) Simulation Technique

(d) Four P's of TQM

(e) Usefulness of Pareto Analysis.