



FINAL EXAMINATION
MODEL QUESTION PAPER
PAPER – 16
STRATEGIC COST MANAGEMENT

SET - 2
TERM – DECEMBER 2023
SYLLABUS 2022

Time Allowed: 3 Hours

Full Marks: 100

The figures in the margin on the right side indicate full marks.

SECTION – A

1. Choose the correct alternative.

[15 x 2=30]

(i) A company has forecast sales and cost of goods sold

$$\left[\text{Inventory Turnover} = \frac{\text{CoGS}}{\text{Average Inventory}} \right]$$

for the coming year as ₹ 25 lakhs and ₹ 18 lakhs respectively. The inventory turnover has been taken as 9 times per year. In case the inventory turnover increases to 12 times and the short-term interest rate on working capital is taken as 10%, what will be the saving in cost?

- a. ₹ 10,000
- b. ₹ 20,000
- c. ₹ 15,000
- d. ₹ 5,000

(ii) Six Sigma is about

- a. Quality systems
- b. Quality control process
- c. Statistical technique
- d. None of the above

(iii) The break-even point of a manufacturing company is ₹1,60,000. Fixed cost is ₹48,000. Variable cost is ₹12 per unit. The PV ratio will be:

- a. 20%
- b. 40%
- c. 30%
- d. 25%

(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 ₹ 1.50 per unit for distribution costs. This is, however not incurred in internal sales. There are no capacity constraints. To maximize company profit, the transfer price to subsidiary should be _____.

- a. ₹ 9.60
- b. ₹ 12.90



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- c. ₹ 14.40
d. None of these
- (v) A particular job required 800 kgs of material – P. 500 kgs. of the particular material is currently in stock. The original price of the material – P was ₹ 300 but current resale value of the same has been determined as ₹ 200. If the current replacement price of the material – P is ₹ 0.80 per kg., the relevant cost of the material – P required for the job would be _____.
- a. ₹ 640
b. ₹ 440
c. ₹ 300
d. None of these
- (vi) The product of XYZ company is sold at a fixed price of ₹ 1,500 per unit. As per company's estimate, 500 units of the product are expected to be sold in the coming year. If the value of investments of the company is ₹ 15 lakhs and it has a target ROI of 15%, the target cost would be _____.
- a. ₹ 930
b. ₹ 950
c. ₹ 1,050
d. ₹ 1,130
- (vii) At KL Company, cost of personnel department has always been charged to production department based upon number of employees. Recently, opinion gathered from the department managers indicate that number of new hires might be better predictor of personnel cost, Total personnel department cost are ₹ 2,00,000.

Department	A	B	C
Number of employees	30	270	100
The number of new hires	8	12	5

- If number of new hires is considered the cost driver, what amount of cost will be allocated to Department A?
- a. ₹ 15,000
b. ₹ 64,000
c. ₹ 72,000
d. ₹ 40,000
- (viii) 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 |



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What is the actual purchase price per unit?

- a. ₹ 7.50
- b. ₹ 6.40
- c. ₹ 6.5
- d. ₹ 6.90

(ix) Ankit Ltd., operates throughput accounting system. The details of product A per unit are as under:

Selling Price:	₹ 75
Material Cost:	₹ 30
Conversion Cost:	₹ 20
Time to bottleneck resources:	10 minutes

What is the throughput contribution per bottleneck resource per hour?

- a. ₹ 270
- b. ₹ 150
- c. ₹ 120
- d. ₹ 90

(x) Which one of the following is not a spreadsheet?

- a. Google Sheets
- b. MS Excel
- c. EViews
- d. Quip

(xi) Which of the following is related to Financial Data Analytics?

- a. Value driver analytics
- b. Financial ratio
- c. Predictive sales analysis
- d. All the above

(xii) Which of the following methods is used for finding an initial feasible solution of a Transportation Problem?

- a. Simplex
- b. Least Cost
- c. Hungarian
- d. Big M

(xiii) Learning Curve is also known as _____.

- a. Growth curve
- b. Production curve
- c. Exponential curve
- d. Experience curve



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- (xiv) For a Cost Function $TC = 3Q^2 + 7Q + 12$, MC is _____.
- 6Q
 - $6Q + 7$
 - $3Q + 12$
 - None of the above
- (xv) Which of the following is not a forecasting technique?
- Trend line estimate
 - Delphi Method
 - Hungarian Method
 - Judgemental technique

SECTION – B

Answer any “5” Questions from Question No. 2 to Question No. 8 in Section “B”. Each Question Carries 14 marks. **[5 x 14 = 70]**

2. Household Equipments Ltd. is producing kitchen equipment from five components three of which are made using general purpose machines and two by manual labour. The data for the manufacture of the equipment is as follows: **[14]**

Components	A	B	C	D	E	TOTAL
Machines hours reqd. per unit	10	14	12			36 hrs
Labour hours reqd. per unit				2	1	3 hrs
Variable cost per unit (in ₹)	32	54	58	12	4	160
Fixed cost per unit (apportioned) (in ₹)	48	102	106	24	36	316
Total component cost (in ₹)	80	156	176	36	30	478
Assembly cost/unit (all variable)						₹ 40
Selling price/unit						₹ 600

The marketing department of the company anticipates 50% increase in demand during the next period. General purpose machinery used to manufacture A, B and C is already working to the maximum capacity of 4752 hours and there is no possibility of increasing this capacity during the next period. But labour is available for making components D and E and also for assembly according to demand. The management is considering the purchase of one of the components A, B or C from the market to meet the increase in demand. These components are available in the market at the following prices: Components A: ₹ 80, Components B: ₹160, Components C: ₹125

- i. Compute the profit made by the company from current operations.



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- ii. If the company buys any one of the components A, B or C, examine the extent of additional capacity that can be created?
- iii. Assuming 50% increase in demand during the next period, which components A, B or C should the company buy from the market?
- iv. Determine the increase in profit, if any, if the component suggested in (c) is purchased from the market.

3. (a) XY Co. has Profit Centre Divisions X and Y, making products X and Y respectively. Each unit of Y requires one unit of X and Y can sell a maximum of 50,000 units in the external market at a selling price of ₹150 per unit. X has the capacity to produce 1,00,000 units of X. The variable cost per unit is 12. Fixed costs are ₹7,20,000. X can sell the following quantities in the external market:

Price per unit (₹)	Demand Units
18	84,000
20	76,000
22	70,000
24	64,000
26	54,000 or less

Assume no stock to build up for X or Y.

Y can purchase its requirement from the external market at ₹22 per unit, but has to incur a bulk transportation cost of ₹1,50,000 for any quantity, which will not be incurred on transfers from X. [7]

- (b) SRM Ltd. has developed a new product 'Kent' which is about to be launched into the market and anticipates to sell 80,000 of these units at a sale price of ₹300 over the product's life cycle of four years. Data pertaining to product 'Kent' are as follows:

Costs of Design and development of Moulding Dies and Other tools	₹ 10,25,000
Manufacturing costs	₹ 125 per unit
Selling costs	₹12,500 per year + ₹100 per unit
Administration costs	₹ 50,000 per year
Warranty expenses	5 replacement parts per 25 units @ ₹10 per part, 1 visit per 500 units (costs ₹500 per visit)

Required:

- (i) Compute the product Kent's Life Cycle Cost.
- (ii) Suppose SRM Ltd. can increase sales volume by 25% through 15% decrease in selling price, should SRM Ltd. choose the lower price? [7]



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4. (a) The budgeted overheads and cost driver volumes of XYZ are as follows. [7]

Cost Pool	Budgeted Overheads (₹)	Cost Driver	Budgeted Volume
Material procurement	5,80,000	No. of orders	1,100
Material handling	2,50,000	No. of movements	680
Set-up	4,15,000	No. of set ups	520
Maintenance	9,70,000	Maintenance hours	8,400
Quality control	1,76,000	No. of inspections	900
Machinery	7,20,000	No. of machine hours	24,000

The company has produced a batch of 2,600 components of AX-15; its material cost was ₹1,30,000 and labour cost ₹2,45,000. The usage activities of the said batch are as follows: Material orders – 26, maintenance hours – 690, material movements – 18, inspections – 28, set ups – 25, machine hours – 1,800
Calculate – cost driver rates that are used for tracing appropriate amount of overheads to the said batch and ascertain the cost of batch of components using Activity Based Costing.

- (b) Zebra Limited introduced a quality improvement program and following results are observed –

(₹ in lakhs)

Particulars	2020 – 21	2021 – 22
Sales	10,000	10,000
Scrap	100	50
Rework	650	550
Production inspection	250	325
Production Warranty	500	250
Quality Training	125	250
Material inspection	120	90

Required:

- Classify the quality costs and express each class as a percentage of sales
 - Compute the increase in the amount of profit due to quality improvement. [7]
5. The summarized results of a company for the two years ended 31st December 2021 and 2022 are given below: [14]

Year	2022	2021
Particulars	₹ Lacs	₹ Lacs
Sales	770	600



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Direct Materials	324	300
Direct Wages	137	120
Variable Overheads	69	60
Fixed Overheads	150	80
Profit	90	40

As a result of re-organisation of production methods and extensive advertisement campaign use, the company was able to secure an increase in the selling prices by 10% during the year 2022 as compared to the previous year. In the year 2021, the company consumed 1,20,000 Kgs. of raw materials and used 24,00,000 hours of direct labour. In the year 2022, the corresponding figures were 1,35,000 kgs of raw materials and 26,00,000 hours of direct labour

You are required to:

Use information given for the year 2021 as the base year information to analyze the results of the year 2022 and to show in a form suitable to the management the amount each factor has contributed by way of price, usage and volume to the change in profit in 2022.

6. (a) Priyanshu enterprise has three factories at locations A, B and C which supply three warehouses located at D, E and F. Monthly factory capacities are 10, 80 and 15 units respectively. Monthly warehouse requirements are 75, 20 and 50 units respectively. Unit shipping costs (in ₹) are given in the following table: [7]

	To	D	E	F
From	A	5	1	7
	B	6	4	6
	C	3	2	5

The penalty costs for not satisfying demand at the warehouses D, E and F are ₹5, ₹3 and ₹2 per unit respectively. Determine the optimum distribution for Priyanshu, using any of the known algorithms. [7]

- (b) A Small retailer has studied the weekly receipts and payments over the past 200 weeks and has developed the following set of information:

Weekly receipts (₹)	Probability	Weekly Payments (₹)	Probability
3,000	0.20	4,000	0.30



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5,000	0.30	6,000	0.40
7,000	0.40	8,000	0.20
12,000	0.10	10,000	0.10

Using the following set of random numbers, simulate the weekly pattern of receipts and payments for the 12 weeks of the next quarter, assuming further that the beginning bank balance is ₹8,000. Determine the estimated balance at the end of the 12-week period? Infer with the highest weekly balance during the quarter? Compute the average weekly balance for the quarter?

Random Numbers

For Receipts	03	91	38	55	17	46	32	43	69	72	24	22
For Payments	63	96	30	32	03	88	48	28	88	18	71	99

7. A civil engineering firm has to bid for the construction of a dam. The activities and time estimates are given below: [14]

Activity	DURATION		
	Optimistic	Most likely	Pessimistic
1 – 2	14	17	25
2 – 3	14	18	21
2 – 4	13	15	18
2 – 8	16	19	28
3 – 4 (dummy)			
3 – 5	15	18	27
4 – 6	13	17	21
5 – 7 (dummy)			
5 – 9	14	18	20
6 – 7 (dummy)			
6 – 8 (dummy)			
7 – 9	16	20	41
8 – 9	14	16	22

The policy of the firm with respect to submitting bids is to bid the minimum amount that will provide a 95% probability of at best breaking even. The fixed costs for the project are 8 lakhs and the variable costs are 9,000 everyday spent working on the project. The duration is in days and the costs are in terms of rupees.

Compute the amount that the firm should bid under this policy? (You may perform the calculations on duration etc. up to two decimal places.)

8. (a) The demand (rides per day) of Roller Coaster Ride in an Entertainment Park in one of the metro cities is given by the equation $q = -450p + 41500$, where p = Price per ride in ₹.



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Ascertain the price that should have been charged to maximize the Total Revenue? [7]

- (b) There are two variables that need to be studied – Exports of raw cotton and Imports of manufactured goods into India. Following dataset for 7 years is provided. What kind of regression model should be used here? Compute the results of this regression? Interpret the model estimators. [7]

	₹ in crores						
Exports	42	44	58	55	89	98	60
Imports	56	49	53	58	67	76	58