FINAL EXAMINATION

December 2024

P–16(SCM)
Syllabus 2022

STRATEGIC COST MANAGEMENT

Time Allowed: 3 Hours

Full Marks: 100

The figures in the margin on the right side indicate full marks.
Working notes should form part of the respective answers.

Wherever considered necessary, candidates may make appropriate assumptions and clearly state them in the respective answer.

Answer to Question No.1 *in Section A is compulsory. Further answer* any five *from question no. 2 to question no. 8.*

Section-A (Compulsory)

1. Choose the correct option from the four alternatives given : 2×15=30

   (i) Which of the following important pillars of Strategic Cost Management determines the company's comparative position in the industry in terms of performance ?

   (A) Cost Driver Analysis

   (B) Value Chain Analysis

   (C) Strategic Positioning Analysis

   (D) Competitive Value Analysis

   (ii) ROTIZ Ltd., a manufacturing company has a break-even point when sales are ₹ 12,00,000 and fixed costs at that level of sales are ₹ 4,80,000.

   If the margin of safety (MOS) and sales of the company are 40% and 5,00,000 units respectively, what will be the sale price per unit ?

   (A) ₹ 6

   (B) ₹ 5

   (C) ₹ 4

   (D) None of the above

   (iii) Which of the following quality costs is incurred when inferior products are delivered to customers?

   (A) Prevention Costs

   (B) Appraisal Costs

   (C) External Failure Costs

   (D) Internal Failure Costs

Please Turn Over

(iv) DASN Ltd., operates a throughput accounting system. The details of product MB per unit are as under :

	₹
Selling Price	50
Material Cost	20
Conversion Cost	15

If time on bottleneck resource is 10 minutes, what will be the return per hour for product MB ?

(A) ₹ 300

(B) ₹ 270

(C) ₹ 180

(D) ₹ 150

(v) In a factory where standard costing system is followed the production department consumed 1100 kgs of a material @ ₹ 8 per kg for product X resulting in material price variance of ₹ 2200(Fav) and material usage variance of ₹ 1000(Adv). What is the standard material cost of actual production of product X?

(A) ₹ 11,000

(B) ₹ 20,000

(C) ₹ 14,000

(D) ₹ 10,000

(vi) 120 units of semi-conductors are required to be sold to earn a profit of ₹ 1,00,000 in a monopoly market. The fixed cost for the period is ₹ 80,000. The contribution in the monopoly market is as high as 3/4th of its variable cost. Determine the target selling price per unit.

(A) ₹ 4,500

(B) ₹ 3,250

(C) ₹ 4,000

(D) ₹ 3,500

(vii) The average cost function for a product is given by $AC = \frac{1}{3}\chi^2 + \chi + 8$, in terms of output χ. If the marginal cost is ₹ 23 what will be the number of units (Output) ?

(A) 3

(B) 4

(C) 5

(D) 0

(viii) 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
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

(ix) Optimistic and pessimistic time of an activity respectively are 4 days and 16 days. Variance of the duration of the activity will be:—

(A) 4 days

(B) 2 days

(C) 3 days

(D) None of the above

(x) The normal duration and normal cost of an activity of project BOZ are 12 days and ₹ 400 respectively. The cost slope is ₹ 80 per day, if the crash cost of the activity is ₹ 560, what will be the crash duration of the activity ?

(A) 12 Days

(B) 10 Days

(C) 8 Days

(D) 6 Days

(xi) Which one of the following is not a Spread Sheet ?

(A) Quip

(B) MS Excel

(C) E views

(D) Google Sheets

(xii) # Script Ends – is related to which type of Programming Language ?

    (A) SPSS

    (B) Python

    (C) SAS

    (D) R Programming

(xiii) LONAX Ltd., a manufacturing company has developed a new product and just completed the manufacture of first 16 units of the product. If the first unit took 6 hours to manufacture and the first 16 units together took 62.9856 hours to produce, the Learning Curve (LC) rate would be

    (A) 80 %

    (B) 85 %

    (C) 90 %

    (D) 95 %

(xiv) In Simple Exponential Smoothing forecast to give higher weightage to recent demand information, the smoothing constant must be close to

    (A) −1

    (B) 0

    (C) 0.3

    (D) 1

(xv) Children's Park in a city with various signals and crossing is the simulated model of city traffic. This is a type of

    (A) Analogue Simulation

    (B) Computer Simulation

    (C) Monte Carlo Simulation

    (D) Both (A) and (C) of the above

SECTION – B

(Answer any Five questions)

Each question carries 14 Marks. $14 \times 5 = 70$

2. GREEN SINE (C) Ltd., a cement manufacturing company, produces '50 grade' cement for which the company has an assured market. The output for 2024 has been budgeted

at 180000 units at 90% capacity utilization. The cost sheet based on output (per unit) is as follows :

	(₹)
Selling Price	130
Direct Material	30
Component " EX "	9.40
Direct Wages @ Rs 7 per hour	28
Factory Overheads (50% fixed)	24
Selling and distribution Overheads (75% variable)	16
Administrative Overheads (Fixed)	5

The factory overheads are applied on the basis of direct labour hours.

To utilize the idle capacity and to improve the profitability of the company, the following proposal was put up before the Board of Directors for consideration :

An order has been received from abroad for 6000 units of product '53 grade' cement at ₹ 175 per unit. The cost data are :

Direct material ₹ 56 per unit, direct labour 10 hours per unit, selling and distribution overheads applicable to this product order is ₹ 14 per unit and variable factory overheads are chargeable on the basis of direct labour hours.

The company at present manufactures component 'EX' one unit of which is required for each unit of product '50 grade' cement. The cost details for 15000 units of component 'EX' are as follows :

	(₹)
Direct Material	30,000
Direct Labour	52,500
Variable Overheads	25,500
Fixed Overheads	33,000
Total	1,41,000

The component "EX" however is available for purchase at the market at ₹ 7.90 per unit.

Required :

(i) Prepare a statement showing profitability of the company as envisaged in the Budget.

(ii) Evaluate the export order and state whether it is acceptable or not.

(iii) Make an appraisal of proposal to manufacture component "EX" and state whether component "EX" should be manufactured in the factory or purchased from the market. Assume that no alternative use of spare capacity is available.   14

3. (a) ROXIN Ltd., has two Divisions–M and N. Division–M manufactures product A-15 which it sells in outside market as well as to Division–N which processes it to manufacture Z-25. The manager of Division–N has expressed the opinion that transfer price is too high. The two divisional managers are about to enter into discussions to resolve the conflict and manager of Division–M is to supply him with some information prior to discussions.

Division–M has been selling 50000 units to outsiders and 10000 units to Division–N all at ₹ 25 per unit. It is not anticipated that these demand will change. The variable cost is ₹ 15 per unit and the fixed costs are ₹ 3,00,000. Divisional investment in assets is ₹ 12,00,000.

The manager of Division–M anticipates that Division–N will want a transfer price of ₹ 22. If he does not sell to Division–N, ₹ 40,000 of fixed costs and ₹ 2,00,000 of assets can be avoided. The manager of Division–M would have no control over the proceeds from the sale of the assets and is judged primarily on his rate of return.

Required :

(i) Analyze should the Manager of Division–M transfer its products at ₹ 22 to Division–N.

(ii) Assess the lowest price that the Division–M should accept. 7

(b) SOVAN Ltd., a manufacturing company is preparing budget for 2025. The parameters relating to sales, price and cost are as follows :

Sales Price	₹ 200 per unit
Variable Cost	₹ 120 per unit
Fixed Costs	₹ 20,00,000 per year

Sales forecast have been prepared which disclose the following :

Quantity	Probability	Quantity	Probability
15000	0.10	35000	0.30
20000	0.10	40000	0.10
25000	0.10	45000	0.10
30000	0.20	-	-

Required :

(i) Analyze the break-even quantity.

(ii) Analyze how many units must be sold to (a) earn a profit of ₹ 6,00,000 (b) incur a loss of ₹ 5,00,000.

(iii) Based on the sales forecast, identify the probability that the company can break-even.

(iv) Analyze the probability of achieving sales volumes involved in part (ii) 7

4. (a) ANTOX Ltd ., is producing a product in 10 batches each of 15000 units in a year and incurring following overheads thereon :

	Amount (₹)
Material procurement	22,50,000
Maintenance	17,30,000
Set up	6,84,500
Quality control	5,14,800

The prime costs for the year amounted to ₹ 3,01,39,000.

The company is using currently the method of absorbing overheads on the basis of prime cost. Now it wants to shift to activity based costing. Information relevant to activity drivers for the year are as under :

Activity Driver	Activity Volume
No. of purchase orders	1500
Maintenance hours	9080
No. of set-ups	2250
No. of inspections	2710

The company has produced a batch of 15000 units and has incurred ₹ 26,38,700 and ₹ 3,75,200 on materials and wages respectively.

The usage of activities of the said batch are as follows :

Material orders	48 orders
Maintenance hours	810 hours
No. of set-ups	40
No. of inspections	25

Required :

(i) Evaluate cost of product per unit on absorption costing basis for the said batch.

(ii) Assess the cost driver rate.

(iii) Analyze the total cost per unit of output of the said batch on the basis of activity based costing. 7

(b) "Value Analysis enables people to contribute towards value addition by continuous focus on product design and services". – In this context, summarize the phases of Value Analysis. 7

5. GINTECH Ltd., a manufacturing company using the budgetary control and standard costing system, manufactures a product for which the standard selling price has been ascertained as follows :

	₹ per unit
Material = 2 units at ₹ 20	40
Labour = 20 hours @₹ 2	40
Variable overhead	8
Fixed overhead	20
Total Cost	108
Profit	32
Selling Price	140

During the budget period the company could produce and sell only 8000 units as against, a budget of 10000 units.

The company's Profit and Loss Account is presented below :

		₹		₹
To	Material (16500 units)	3,96,000	By Sales (8000 units)	11,20,000
	Wages (170000 hrs.)	3,46,800		
	Variable overhead	60,000		
	Fixed overhead	1,84,000		
	Net Profit	1,33,200		
		11,20,000		11,20,000

4000 hours were lost due to power failure. There were no opening or closing work in progress.

Required :

(i) Analyze the relevant variances (Material, Wages, Variable overhead, Fixed overhead and Sale etc.)

(ii) Prepare a statement reconciling Actual Profit with Standard Profit in terms of the variances. **14**

6. (a) A salesman has to visit five cities A, B, C, D and E. The inter-city distances in kilometre are tabulated below. Note the distance between two cities need not be same both ways.

From / To	A	B	C	D	E
A	-	12	24	25	15
B	6	-	16	18	7
C	10	11	-	18	12
D	14	17	22	-	16
E	12	13	23	25	-

If the salesman starts from city A and has to come back to city A, by applying the principles of Assignment which route would you advise him to take so that total distance travelled by him is minimised?

7

(b) A bakery bakes 100 cakes per day. The sale of cakes depends upon demand which has the following distribution:

Sale of cakes (Nos.)		Probability
97		0.10
98		0.15
99		0.20
100		0.35
102		0.15
103		0.05

There is no carry-over of inventory. The following details are given:

Variable production cost per cake	₹ 14
Selling price per cake	₹ 18
Penalty attracted per unsold cake	₹ 3
Penalty attracted per unit of demand not met	₹ 1

Random numbers to be used: 09, 98, 64, 98, 94, 01, 78, 10, 15, 19

Simulate and assess the profit/loss for the next ten days using the above random numbers.

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7. RONTECH (I) Ltd., an engineering firm won a contract to install an instrument landing device at the local airport. The complete installation can be broken down into seven separate activities. Each activity (Labelled A through G), its predecessor activities, normal time (days) and cost and crash time(days) and cost are given below (in table):

Activity and Identification	Predecessor Activity	Normal duration (Days)	Crash duration (Days)	Normal Cost (₹)	Crash Cost (₹)
A (1 – 2)	—	7	5	500	900
B (2 – 4)	A	4	5	400	600
C (2 – 3)	A	5	5	500	500
D (2 – 5)	A	6	4	800	1000
E (4 – 6)	B, C	7	4	700	1000
F (5 – 6)	C, D	5	2	800	1400
G (6 – 7)	E, F	6	4	800	1600

Required :

  (i) Design the project network and indicate all paths through it.

  (ii) Assess the critical path and the normal duration.

  (iii) Evaluate the percentage increase in cost to complete the project in 21 days.   14

8. (a) Two Firms P and Q are competing for business under the conditions so that one firm's gain is another firm's loss. Firm P's pay-off matrix is given below :

		Firm Q		
		No Advertising	Medium Advertising	Heavy Advertising
Firm P	No Advertising	10	5	-2
	Medium Advertising	13	12	15
	Heavy Advertising	16	14	10

Required :

  (i) Suggest optimal strategies for the two firms.

  (ii) Assess the value of Game.   7

  (b) On the basis of the quarterly sales (in ₹ Lakh) of commodity cumin of BOXIN Ltd., for the year 2020-2024, the following calculations were made.

Trend : $Y = 25 + 0.6t$

With Origin : 1st quarter of 2020; and Scale 1 unit of t = One quarter, where y = Quarterly sales, t = Time units.

Seasonal variations :

Quarter	I	II	III	IV
Seasonal Index	90	95	105	110

Required :

Using the multiplicative model of the time series, estimate the sales for each of four quarters of 2024.

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