FINAL EXAMINATION

December 2025

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.

All working notes should form part of the respective answers.

Wherever 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 in Section-B.

Section-A (Compulsory)

Answer all the questions. Each question carries two marks.

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

(i) RIM Ltd. has estimated the demand level of its product:

Sales (units)	5,000	10,000	15,000	20,000
Probability	0.10	0.20	0.40	0.30

It has estimated contribution of ₹ 4 per unit and total fixed costs of ₹ 60,000. What is the probability that the company will make a profit of at least ₹ 15,000?

(A) 40 %

(B) 30 %

(C) 20 %

(D) None of the above

(ii) SM Ltd., a manufacturing company produces a product which is sold at a price of ₹ 80 p.u. Its break even sales is ₹ 15 lakhs, while its fixed cost is ₹ 6 lakhs. What will be its desired quantity of sales to earn a profit of ₹ 4 lakhs?

(A) 18,750 units

(B) 31,250 units

(C) 32,320 units

(D) None of the above

(iii) BOS Ltd., a manufacturing company, requires ₹ 90 lakhs in sales to meet target net profit of ₹ 15 lakhs. The company's contribution margin is 30%. What will be its fixed cost?

(A) ₹ 15 lakhs

(B) ₹ 12 lakhs

(C) ₹ 10 lakhs

(D) ₹ 20 lakhs

(iv) TONZ Ltd. manufactures two products BX and BZ using common material handling facility. The total budgeted material handling cost is ₹ 80,000. The other details are:

	Product BX	Product BZ
Number of units produced	20	40
Material moves per product line	15	5
Direct Labour hour per unit	100	100

Under Activity Based Costing System the material handling cost to be allocated to product BZ (per unit) would be

(A) ₹ 400

(B) ₹ 500

(C) ₹ 1,500

(D) None of the above

(v) YEN Ltd., adopting Standard Costing System in its factory, budgets for fixed overhead of ₹ 50,000 and production of 10,000 units for a month of year 2025. Actual production is 9,500 units. If the fixed overhead cost is increased to ₹ 52,000, the fixed overhead volume variance will be

(A) ₹ 1,000 (Adv.)

(B) ₹ 2,000 (Fav.)

(C) ₹ 2,500 (Fav.)

(D) ₹ 2,500 (Adv.)

(vi) If (50, 0), (50, 14), (25, 50) and (13, 50) are the Corner Points of the feasible region of the Linear Programming problem, Maximize $Z = 2x_1 + 3x_2$, then maximum value of the objective function will be

(A) ₹ 200

(B) ₹ 270

(C) ₹ 240

(D) ₹ 120

(vii) The pay-off matrix of a game for the Company S and Company T is given below:

Company T

$$\text{Company S} \begin{bmatrix} 25 & 12 & 10 & 30 \\ 15 & 13 & 6 & 8 \\ 30 & 5 & 8 & 6 \end{bmatrix}$$

Using Maximin-Minimax principle what will be the value of the game?

(A) 15

(B) 12

(C) 10

(D) None of the above

(viii) An operation of KON Ltd. has a Learning Curve 90% and the first unit produced took 30 minutes. The labour cost is ₹ 120 per hour. How much should the second unit labour cost?

(A) None of the below options

(B) ₹ 60

(C) ₹ 54

(D) ₹ 48

(ix) Which of the following is / are feature(s) of Zoho Analytics Tools?

(A) B1 and Analytics platform

(B) Deployable in the cloud as well as on premises server

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

(D) Rich Accounting Solution for small business

(x) Which one of the following, simply answers the question "What else will accomplish the purpose of the product, service or process we are studying?"

(A) Value Engineering

(B) Value Analysis

(C) Business Process Re-engineering

(D) Supply Chain Strategy

(xi) The shadow price of skilled labour for SD Ltd. is currently ₹ 10 per hour. What does this mean?

(A) The cost of obtaining additional skilled labour is ₹ 10 per hour.

(B) There is a hidden cost of ₹ 10 for each hour of skilled labour actively worked.

(C) Contribution will be increased by ₹ 10 per hour for each extra hour of skilled labour that can be obtained.

(D) The total costs will be reduced by ₹ 10 for each additional hour of skilled labour that can be obtained.

(xii) Kanban Japanese System under JIT Approach ensures

(A) continuous supply of inventory or product.

(B) minimum and maximum level of stock to be maintained.

(C) inventory valuation.

(D) All of the above

(xiii) Standard Cost and Budgeted Cost are

(A) interrelated but not interdependent.

(B) interdependent but not interrelated.

(C) interrelated and interdependent.

(D) None of the above

(xiv) Which of the following is not a principle of Business Process Re-engineering?

(A) Organise work around outcomes, not tasks.

(B) Capture information once and at the source.

(C) Empower workers who use the process.

(D) Rely heavily on hierarchy and supervision.

(xv) 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

SECTION-B

(Answer *any Five* Questions.)

Each question carries 14 marks. 14×5=70

2. BNR Ltd. has spare capacity in two of its manufacturing departments — Department 4 and Department 5. A five-day week of 40 hours is worked, but there is only enough internal work for 3 days per week so that 2 days per week (16 hours) could be available in each department. BNR Ltd. has sold this time to another manufacturer, but there is some concern about the profitability of this work.

The accountant has prepared a table given the hourly operating cost in each department. The summarized figures are as follows:

	Department 4	Department 5
	₹	₹
Power Costs	40	60
Labour Costs	40	20
Overhead Costs	40	40
	120	120

The labour is paid on a time basis and there is no change in the weekly wage bill whether or not the plant is working at full capacity. The overhead figures are based on firm's current overhead absorption rates (fixed and variable) when the departments are operating at 90% of full capacity (assume a 50 weeks year). The budgeted fixed overhead attributed to Department 4 is ₹ 36,000 p.a. and that for Department 5 ₹ 50,400 p.a.

As a short term measure, the company has been selling processing time to another manufacturer @ ₹ 70 per hour in either departments. The customer is willing to continue this arrangement and to purchase any spare time available, but BNR Ltd., is considering the introduction of a new product on a minor scale to absorb the spare capacity.

Each unit of the new product would require 45 minutes in Department 4 and 20 minutes in Department 5. The variable cost of the required input material is ₹ 10 per unit. The market study indicated as follows:

(I) With a selling price of ₹ 100, the demand would be 1,500 units p.a.

(II) With a selling price of ₹ 110, the demand would be 1,000 units p.a.

(III) With a selling price of ₹ 120, the demand would be 500 units p.a.

Required:

(i) Analyze relevant cost per unit for producing the new product.

(ii) Assess the best price per unit to be charged for the new product to achieve optimum profit.

(iii) Prepare the best weekly programme for the spare time in two manufacturing departments.

(iv) Analyze and quantify the weekly gain that this programme and price should yield. 14

3. (a) KAPN Ltd., has two manufacturing divisions. Each division operates as an independent profit centre. Division A is the only source of a component that is used in Division B in manufacturing of a final product UBEKA. For each unit of UBEKA, one component manufactured by Division A is used. Demand for UBEKA is not steady. Division B can increase sell of UBEKA by spending on sales promotion and / or by reducing selling price. The Manager of Division B has prepared the following forecast:

Sales in units per day	1,000	2,000	3,000	4,000	5,000	6,000
Average selling price per unit of UBEKA (₹)	52.50	39.80	33.00	27.80	24.00	20.10

The manufacturing cost of UBEKA in Division B is ₹ 37,500 on first 1,000 units and additional ₹ 7.50 per unit for every additional 1,000 units manufactured. Division A incurs a total cost of ₹ 15,000 per day, for an output of 1,000 components and the total costs will increase by ₹ 9,000 per day for every additional 1,000 components manufactured.

Manager of Division A states that operating results of his Division will be optimized if the transfer price is set at ₹ 12 per component and accordingly he has set the above transfer price.

Required:

(i) Analyze the profitability at each level of Division A and Division B.

(ii) Assess the profitability of company as a whole at the output level

(a) when the net profit of Division A is maximum.

(b) when the net profit of Division B is maximum.

(iii) If the company is not organized on profit centre basis what level of output will be chosen to yield maximum profit? 7

(b) RRS International Ltd. has developed a new product 'Meu' which is to be launched soon. The company anticipates to sell 1,25,000 of these units at a sale price of ₹ 400 per unit over the product life cycle of three years. The other data pertaining to the product 'Meu' are as under:

Research & Development cost	₹ 32,50,000
Manufacturing cost per unit	₹ 175
Fixed Manufacturing cost per year	₹ 12,75,000
Marketing cost per unit (including 4% commission on sales)	₹ 90
Fixed Marketing cost per year	₹ 6,72,000
Administration cost per year	₹ 6,60,000
Warranty expenses	4 replacements parts per 50 units @ ₹ 30 per part

Required:

(i) Analyze and assess the life cycle cost of the product 'Meu'.

(ii) Evaluate the revised life cycle cost if the company increases sales by 12% through 5% reduction in sales price along with increase in fixed manufacturing cost by ₹ 1,20,000 per year.

(iii) Advise whether the company should go for reduction in sale price. 7

4. (a) A factory of MOBN Ltd. a manufacturing company using Throughput Accounting System produces products S and T for a month in 2025 details of which are presented below:

Particulars	Product S	Product T
Selling price per unit (₹)	110	120
Direct Material cost per unit (₹)	50	76
Direct Labour cost p.u. (₹)	12	10
Variable Overheads p.u. (₹)	20	15
Production (units)	20,000	30,000
Time required on the bottleneck resources (Hrs. p.u.)	5	4

Total fixed overhead is ₹ 4,50,000 each month. There are 2,30,000 bottleneck hours available each month.

Required:

Calculate the following:

(i) Total Factory Cost (TFC)
(ii) Cost per factory hour
(iii) Return per bottleneck hour for both Product S and Product T
(iv) Throughput Accounting (TA) ratios for both Product S and Product T
(v) Throughput cost per month
(vi) Efficiency Ratio 7

(b) "Lean Accounting is the application of Lean Philosophy to all accounting and finance processes and systems"— In this context, Align the Principles and Practices of Lean Accounting. 7

5. (a) DOXIN Ltd., a manufacturing company operating the Budgetary Control and Standard Costing System, has furnished the following information:

Particulars	Product P	Product R
Standard price per unit (₹)	24	30
Actual price per unit (₹)	30	40
Standard input (kg.)	50	?
Actual input (kg.)	40	70
Material Price Variance (₹)	?	?
Material Usages Variance (₹)	?	600 (Adv.)
Material Cost Variance (₹)	?	?

Material Mix Variance for both products together was ₹ 90 (Adv.).

Required:

Assess the following which includes missing variances as indicated by Question Marks in the above table:

(i) Material Mix Variance (Product P and R)
(ii) Material Usage Variance (Product P)
(iii) Material Price Variance(Product P and R)
(iv) Material Cost Variance (Product P and R) 7

(b) The following are the information regarding overheads of a company:

Overhead Cost Variance = ₹ 2,800 (A)

Overhead Volume Variance = ₹ 2,000 (A)

Budgeted overheads = ₹ 12,000

Actual overhead recovery rate = ₹ 8 per hour

Budgeted hours for the period = 2,400 hours

Required:

Assess the following:

(i) Overhead Expenditure Variance

(ii) Actual incurred overheads

(iii) Actual hours for actual production

(iv) Overhead Capacity Variance

(v) Overhead Efficiency Variance

(vi) Standard hours for actual production

(vii) Standard Rate per hour 7

6. (a) LM Company has the option of producing two products in its plant. The costs and selling prices per unit of two products are detailed below:

Product	Alfa (₹)	Beta (₹)
Selling Price	1,000	900
Direct Materials@ ₹ 50 per kg	200	200
Direct Labour @ ₹ 40 per hour	160	80
Painting @ ₹ 60 per hour	60	120
Variable Overheads	380	350
Fixed costs @ ₹ 35/D.L. hour	140	70
Total costs	940	820
Profit	60	80

In any month the maximum availability of inputs is limited to the following:

Direct Materials : 960 kgs

Direct Labour hours : 800 hours

Painting hours : 400 hours

Required:

(i) Formulate a Linear Programming Problem to determine the production plan which maximizes the contributions. (You are not required to solve the LPP)

(ii) Prepare the DUAL to the problem formulated in (i). 7

(b) A State Municipal Corporation has decided to carry out road repairs on four main roads in the city and you have been asked to advise them the least cost allocation.

It is learnt that the State Government has agreed to make a special grant of ₹ 114 lakhs towards the cost with the condition that the repairs should be carried at the lowest cost. Five contractors have sent their bids. Only one road will be awarded to one contractor. The bids are given below:

		Cost of Repairs (₹ in Lakhs)			
Contractors	Road	R1	R2	R3	R4
	C1	18	28	38	30
	C2	14	34	40	39
	C3	18	36	42	38
	C4	20	24	36	36
	C5	20	30	42	32

You are also informed that contractor C1 should get R1 and C5 should get R2 to minimise costs.

(i) By applying the principles of Assignment, assess the minimum cost of allocation.

(ii) Calculate the minimum discount that the eliminated contractor should offer for meriting a contract. 7

7. (a) A computer service centre services laptops. It is proposed to study the arrival and servicing pattern of the service centre. The following information was collected over 100 days.

No. of laptops	Frequency of arrival	Frequency of service
8	10	15
9	25	20
10	20	25
11	15	16
12	18	14
13	12	10

Simulate the arrival and servicing pattern for 7 days and analyze and assess the average number of laptops held for more than one day for service. Assume FIFO method is followed for service and there is one laptop held from previous day for service at the beginning of the first day. 7

Use the following series of random numbers:

Arrivals	69	45	46	10	82	16	35
Service	52	36	62	49	68	77	55

(b) Gamma Electronics which has just developed 100 units of a new type of fire alarm has been asked to quote for a prospective contract. The customer requires separate price quotations for each of the following possible orders:

Order	Number of fire-alarms
First	60
Second	40

The firm had incurred the following costs per unit for the first 100 units, which it has just developed:

Direct Materials	₹ 500
Direct Labour:	
Department A (Highly automatic)	20 hours @ ₹ 10 per hour
Department B (Skilled Labour)	40 hours @ ₹ 15 per hour
Variable Overheads absorbed	20% of Direct Labour
Fixed Overheads absorbed:	
Department A	₹ 8 per hour
Department B	₹ 5 per hour

Required:

Calculate the price per unit for each of the two orders, assuming the firm uses a markup of 25% on total costs and allows for an 80% learning curve.

Extract from 80% Learning Curve table is given below:

X	1.0	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0
Y (%)	100.0	91.7	89.5	87.6	86.1	84.4	83	81.5	80.0

X represents the cumulative total volume produced to date expressed as a multiple of the initial production of 100 units and Y is the Learning Curve factor for a given X value, expressed as a % of the cost of initial 100 units. 7

8. (a) SUTON Ltd. (SL) a manufacturing company can sell 'X' items of a product ($X \geq 0$) at a price of ($3X^2 - 3X + 656$) each, the total cost C(X) of producing 'X' items is, $X^3 + 60X^2 + 8X$, (X being the output)

Required:

(i) Analyze the number of items SUTON Ltd., should sell to make maximum profit.

(ii) Analyze and assess the maximum profit SUTON Ltd., can earn from the product. 7

(b) The production of TURMERIC Powder by SONT Ltd., for the years 2022, 2023 and 2024 are given below:

Months \ Years	2022	2023	2024
	(Production in Thousand Tonnes)		
January	15	23	25
February	16	22	25
March	18	28	35
April	18	27	36
May	23	31	36
June	23	28	30
July	20	22	30
August	28	28	34
September	29	32	38
October	33	37	47
November	33	34	41
December	38	44	53

Required:

Assess the Seasonal Indices (monthly) for January to December by Trend Ratio Method assuming a linear trend for the data. 7