**FINAL EXAMINATION**

June 2026

***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 four alternatives given:** 2×15=30

(i) LDT Manufacturers is evaluating its research and development programs for the upcoming year.The four products under consideration all appear to offer favourable profitability if they can be carried out successfully. But, due to budget constraint one product can be launched. The following information is relevant:

| | Probability of Success | | Expected Profit |
|---|---|---|---|
| **Product** | **Commercially** | **Technically** | **(₹ in Crore)** |
| P01 | 0.7 | 0.4 | 10 |
| P02 | 0.8 | 0.5 | 12 |
| P03 | 0.5 | 0.9 | 9 |
| P04 | 0.4 | 0.8 | 14 |

Which product should be launched?

(A) P01
(B) P02
(C) P03
(D) P04

(ii) A company has a break-even point when sales are ₹ 3,20,000 and variable cost at that level of sales are ₹ 2,00,000. How much would P/V ratio increase or decrease if variable expenses are dropped by ₹ 30,000?

(A) Increase by 27.5%
(B) Increase by 9.375%
(C) Decrease by 9.375%
(D) Increase by 37.5%

(iii) A firm has a fixed cost of ₹ 1,00,000 and a break-even sale of ₹ 8,00,000. What is its projected profit at ₹ 12,00,000 sales?

(A) ₹ 50,000

(B) ₹ 1,50,000

(C) ₹ 2,00,000

(D) None of the above

(iv) AON Ltd. following Activity Based Costing expected to place a total of 2,895 purchase orders at a total cost of ₹ 1,10,010. These costs are expected to occur at a constant rate throughout the budget year, which is divided into 13 four-week periods. During the four-week period ended on 30th September,2025, a total of 210 purchase orders were placed at a cost of ₹ 7,650. The over-recovery of these costs for the four-week period was

(A) ₹ 330

(B) ₹ 350

(C) ₹ 370

(D) ₹ 390

(v) AB Ltd.uses standard cost system.The following information pertains to direct labour for Product X for the month of March,2026:

Standard rate per hour= ₹ 8

Actual rate per hour= ₹ 8.40

Standard hours allowed for acual production=2000 hours

Labour Efficiency variance= ₹ 1,600(Adverse)

What were the actual hours worked?

(A) 1,800

(B) 1,810

(C) 2,200

(D) 2,190

(vi) A firm is required to procure three items I, II & III from three vendors $V_1$, $V_2$ & $V_3$ respectively. The quoted prices in Rupees are given in the table below. The management policy clearly states that each item should be procured from only one vendor and each vendor should supply only one item. The minimum total cost of procurement following the principle of Assignment is

| | VENDORS | | |
|---|---|---|---|
| **ITEMS** | **$V_1$** | **$V_2$** | **$V_3$** |
| I | 220 | 240 | 260 |
| II | 230 | 280 | 280 |
| III | 250 | 290 | 330 |

(A) ₹ 750
(B) ₹ 770
(C) ₹ 780
(D) ₹ 790

(vii) The daily demand for a product follows the distribution below:

| Demand(units) | 0 | 1 | 2 | 3 | 4 |
|---|---|---|---|---|---|
| Probability | 0.10 | 0.20 | 0.30 | 0.20 | 0.20 |

Random number intervals are assigned as below:

| 00-09 | 10-29 | 30-59 | 60-79 | 80-99 |
|---|---|---|---|---|
| 0 | 1 | 2 | 3 | 4 |

A simulation is run for 4 days using the random numbers:
14,67,85,33
What is the average simulated demand over these 4 days?
(A) 2 units
(B) 2.25 units
(C) 2.50 units
(D) None of the above

(viii) Ross Ltd., has developed a new product and just completed the manufacture of first four units of the product. If the first unit took 4 hours to manufacture and the first 4 units together took 11.56 hours to produce, the Learning Curve (LC) rate would be
(A) 69.50 %
(B) 75.00 %
(C) 80.10 %
(D) 85.00 %

(ix) QuickBooks is primarily used for:
(A) Data visualization and dashboard creation
(B) Accounting and financial management
(C) Statistical analysis and modeling
(D) Database management

(x) Which one of the following is true for a Blue Ocean Strategy?
(A) Exploit existing demand
(B) Beat the competition
(C) Make the competition irrelevant
(D) Make the value-cost trade off

(xi) The higher the actual hours worked
(A) the lower is the capacity usage ratio.
(B) the higher is the capacity usage ratio.
(C) the lower is the capacity utilisation ratio.
(D) the higher is the capacity utilisation ratio.

(xii) A Kanban is a visual signal that indicates that it is time to replenish stock and possibly reorder. In which of the following this is referred to?
(A) JIT Systems
(B) JIT Strategy
(C) Both (A) and (B)
(D) None of the above

(xiii) Uniform Costing may not be successfully applied in the following case:
(A) In a single enterprise having a number of branches, each of which manufactures the same set of products with the same facilities
(B) In a number of entities in the same industry bound by a trade association
(C) In a number of units across different geographical locations manufacturing one or more of a given set of products
(D) In different branches of the same company, each branch making a different product using a unique process

(xiv) A major risk in implementing Business Process Reengineering is
(A) over dependence on Information Technology.
(B) increase in product prices.
(C) reduced market share.
(D) employee resistance to change.

(xv) Marketing department of Axis Ltd. 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 and sell one mixer will be

(A) ₹ 37.50

(B) ₹ 40.00

(C) ₹ 45.00

(D) ₹ 48.60

## Section-B

**(Answer any Five Questions.)**

Each question carries 14 marks. (14×5 = 70)

**2.** MHT Limited is currently manufacturing 5000 units of the product 'MH 100' annually making full use of its machine capacity. The selling price and total costs per unit associated with 'MH 100' are as follows :

| | ₹ | ₹ |
|---|---|---|
| Selling price per unit | | 900 |
| Costs per unit : | | |
| Direct materials | 200 | |
| Variable machine operating costs | 150 | |
| (₹ 100 per machine hour) | | |
| Manufacturing overhead costs | 180 | |
| Marketing and administrative costs | 200 | 730 |
| Operating income per unit of 'MH 100' | | 170 |

MHT Limited can sell additional 3000 units of 'MH 100', if it can outsource those additional units.

Rex Limited, a supplier of quality products, has agreed to supply upto 6000 units of 'MH 100' per year at a price of ₹ 650 per unit delivered at MHT's factory.

MHT Limited can use its facility to produce an alternative product 'MH 200'. It can sell up to 12000 units of 'MH 200' annually. Estimated selling price and total costs per unit to manufacture and sell 12000 units of 'MH 200' are as follows :

| | ₹ | ₹ |
|---|---|---|
| Selling price per unit | | 600 |
| Costs per units : | | |
| Direct materials | 200 | |
| Variable machine operating costs | 50 | |
| (₹ 100 per machine hour) | | |
| Manufacturing overheads costs | 60 | |
| Marketing and administrative costs | 110 | 420 |
| Operating income per unit of 'MH 200' | | 180 |

Other information pertaining to the operation of MHT Limited is as follows :

(I) MHT Limited use machine hours as the basis for assigning fixed manufacturing overhead. The fixed manufacturing overhead for the current year is ₹ 3,00,000. These costs will not be affected by the product-mix decision.

(II) Variable marketing and administrative costs per unit for various products are as follows :

| | | |
|---|---|---|
| Manufactured | 'MH 100' | ₹ 80 |
| Purchased | 'MH 100' | ₹ 40 |
| Manufactured | 'MH 200' | ₹ 60 |

Fixed marketing and administrative costs for the current year is ₹ 6,00,000.

**Required :**

(i) **Assess** the contribution per unit of manufactured 'MH 100' and manufactured 'MH 200'.

(ii) **Assess** the contribution per unit between manufactured 'MH 100' and purchased 'MH 100'.

(iii) **Calculate** the quantity of each product that MHT Limited should manufacture and/or purchase to maximize operating income. 14

**3.** (a) Global Multinational Ltd. (GML) is organized on decentralized lines, with each manufacturing division operating as a separate profit centre. Each division has full authority to decide on sale of the division's output to outsiders and to other divisions.

Division Dx had always purchased its requirements of a component from Division Dz but when informed that Division Dz was increasing its selling price to ₹150, the manager of Division Dx decided to look at outside suppliers. Division Dx can buy the components from an outside supplier for ₹135. But Division Dz refuses to lower its price in view of its need to maintain its return on the investment.

The top management has the following information:

- Dx's annual purchase of the component : 1,000 units.
- Dz's variable costs per unit : ₹120.
- Dz's fixed cost per unit : ₹20

**Required:**

From the viewpoint of the company as a whole **analyze** and **assess** the following situations:

(i) Will the company as a whole benefit, if Division Dx buys the component at ₹135 from an outside supplier?

(ii) If Division Dz did not produce the material for Division Dx, it could use the facilities for other activities resulting in a cash operating savings of ₹18,000. Should Division Dx then purchase from outside sources?

(iii) Suppose there is no alternative use of Division Dz's facilities and the market price per unit for the component drops by ₹20. Should Division Dx now buy from outside? 7

(b) BEE Ltd. sells its product at ₹1,000 per unit. Due to competition, its competitors are likely to reduce price by 15%. BEE wants to respond aggressively by cutting price by 20% and expects that the present volume of 1,50,000 units p.a. will increase to 2,00,000. BEE wants to earn a 10% target profit on sales. Based on a detailed value engineering the comparative position is given below:

| **Particulars** | **Existing (₹)** | **Target (₹)** |
|---|---|---|
| Direct material cost per unit | 400 | 385 |
| Direct manufacturing labour cost per unit | 55 | 50 |
| Direct machinery costs per unit | 70 | 60 |

| | | |
|---|---|---|
| Direct manufacturing costs per unit | 525 | 495 |
| Manufacturing overheads: | | |
| No. of orders (₹80 per order) | 22,500 | 21,250 |
| Testing hours (₹2 per hour) | 45,00,000 | 30,00,000 |
| Units reworked (₹100 per unit) | 12,000 | 13,000 |

Manufacturing overheads are allocated using relevant cost drivers. Other operating costs per unit for the expected volume are estimated as follows:

| | |
|---|---|
| Research & Design | 50 |
| Marketing & Customer Service | 130 |
| Total | 180 |

**Required:**

(i) **Calculate** target costs per unit and target costs for the proposed volume showing break up of different elements.

(ii) **Prepare** target product profitability statement. 7

**4.** (a) MOKN Ltd., manufactures four products, namely A, B, C and D using the same plant and process. The following information relates to a production period.

| Product | A | B | C | D |
|---|---|---|---|---|
| Output in Units | 720 | 600 | 480 | 504 |

The four products are similar and are usually produced in production runs of 24 units and sold in batches of 12 units. The total overheads incurred by the company for the period are as follows :

| | ₹ |
|---|---|
| Machine operation and maintenance cost | 63,000 |
| Setup costs | 20,000 |
| Store receiving | 15,000 |
| Inspection | 10,000 |
| Material handling and dispatch | 2,592 |

During the period the following cost drivers are to be used for the overhead cost:

| Cost | Cost Driver |
|---|---|
| Setup cost | No. of production runs |
| Store receiving | Requisitions raised |
| Inspection | No. of production runs |
| Material handling and dispatch | Orders executed |

It is also determined that :

- Machine operation and maintenance cost should be apportioned between setup cost, store receiving and inspection activity in the ratio 4 : 3 : 2.
- Number of requisition raised on store is 50 for each product and the no. of orders executed is 192, each order being for a batch of 12 units of a product.

**Required :**

(i) **Analyze** the Activity Based Costing Recovery Rate.

(ii) **Assess** the total overhead costs per unit of each product using Activity Based Costing. 7

(b) **Apply** the classification of Cost of Quality to **assess** the following items under appropriate categories of quality costs, viz., Prevention Costs (PC), Appraisal Costs (AC), Internal Failure Costs (IFC) and External Failure Costs (EFC):

(i) Product acceptance
(ii) Design review
(iii) Discount due to defects
(iv) Re-inspection
(v) Statistical process control activities
(vi) Cost of field servicing
(vii) Depreciation of testing equipment

[**Note:** Write only the Roman numbers of the items given against appropriate categories] 7

**5.** (a) Zenith Manufacturing Ltd. produces a finished product using two grades of raw materials: Grade A (premium) and Grade B (standard). The company has been experiencing quality issues and cost overruns in their latest product line.

Standard specifications of finished product:

- Grade A material: 60 kg at ₹ 150 per kg
- Grade B material: 40 kg at ₹ 100 per kg
- Standard loss in process: 5% of total input
- Standard output from 100 kg input: 95 kg of finished product

Actual Results for March 2026:

- Finished output: 9,500 kg
- Grade A used: 6,200 kg at ₹ 160 per kg
- Grade B used: 4,500 kg at ₹ 90 per kg
- Total actual cost: ₹13,97,000

**Required:**

**Assess** comprehensive material variances: Cost, Price, Usage, Mix, and Yield Variances. 7

(b) The standard cost data of three products X, Y and Z manufactured by Preet India Ltd. (PIL) are given below together with the budgeted sales and unit selling prices for 2025-26:

| | X | Y | Z |
|---|---|---|---|
| Budgeted sales (units) | 25,000 | 20,000 | 15,000 |
| Selling price per unit (₹) | 40 | 60 | 80 |
| Cost per unit (₹) | 28 | 48 | 64 |

In April 2026, the cost department of PIL gathered the following details for 2025-26:

| | X | Y | Z |
|---|---|---|---|
| Actual sales (units) | 20,000 | 22,000 | 16,000 |
| Average Selling price per unit (₹) | 42 | 56 | 81 |
| Actual Cost per unit (₹) | 30 | 50 | 63 |

**Required:**

(i) **Calculate** Budgeted profit and Actual profit for 2025-26

(ii) **Assess** the variance in profit **analyzed** into:

(a) Cost Variance

(b) Sales Price Variance

(c) Sales Volume Variance 7

**6.** (a) A firm produces three products A, B and C. It uses two types of raw materials I and II of which 5000 and 7500 units respectively are available. The raw material requirements per unit of the products are given below:

| **Raw Material** | **Requirements per unit of Product** | | |
|---|---|---|---|
| | **A** | **B** | **C** |
| I | 3 | 4 | 5 |
| II | 5 | 3 | 5 |

The labour time for each unit of product A is twice that of product B and three times that of product C. The entire labour force of the firm can produce equivalent of 3000 units. The minimum demand of the three products is 600, 650 and 500 units respectively. Also, the ratios of the number of units produced must be equal to 2:3:4. Assume the profits per unit of A,B and C as ₹ 50, 50 and 80 respectively.

**Develop** a Linear Programming Model for this problem. 7

(b) Singh Transporters has trucks available at four different sites in the following numbers:

Site A - 5 trucks

Site B - 10 trucks

Site C - 7 trucks

Site D - 3 trucks

Customers - W, X and Y require trucks as shown below:
Customer W - 5 trucks
Customer X - 8 trucks
Customer Y - 10 trucks

Variable costs of getting trucks to the customers are given below:
From A to W = ₹ 7, to X = ₹ 3,to Y = ₹ 6
From B to W = ₹ 4 ,to X = ₹ 6, to Y = ₹ 8
From C to W = ₹ 5, to X = ₹ 8, to Y = ₹ 4
From D to W = ₹ 8, to X = ₹ 4, to Y = ₹ 3

**Develop** the above as a transportation problem and **apply** Vogel's Approximation Method to find the initial solution. 7

**7.** (a) The two breakfast food manufacturing firms A and B are competing for an increased market share. To improve its market share, both the firms decide to launch the following strategies:

A1, B1 = Give coupons
A2, B2 = Decrease price
A3, B3 = Maintain present strategy
A4, B4 = Increase advertising

The pay- off matrix, shown in the following table, describes the increase in market share for firm A and decrease in market share for firm B:

| | | **FIRM B** | | | |
|---|---|---|---|---|---|
| | | B1 | B2 | B3 | B4 |
| **FIRM A** | A1 | 35 | 35 | 25 | 5 |
| | A2 | 30 | 20 | 15 | 0 |
| | A3 | 40 | 50 | 0 | 10 |
| | A4 | 55 | 60 | 10 | 15 |

**Suggest** the optimal strategy for Firm A and **assess** the value of the game. 7

(b) A project consists of the following activities whose time estimates are given against each as under:

| **Activity** | **Estimated Duration (weeks)** | | |
|---|---|---|---|
| | **Optimistic** | **Most Likely** | **Pessimistic** |
| 1-2 | 3 | 6 | 15 |
| 1-3 | 2 | 5 | 14 |
| 1-4 | 6 | 12 | 30 |

| | | | |
|---|---|---|---|
| 2-5 | 2 | 5 | 8 |
| 2-6 | 5 | 11 | 17 |
| 3-6 | 3 | 6 | 15 |
| 4-7 | 3 | 9 | 27 |
| 5-7 | 1 | 4 | 7 |
| 6-7 | 4 | 19 | 28 |

**Required:**

(i) **Develop** the project network clearly showing EST and LST for each activity.

(ii) **Analyze** the critical path and **assess** the expected project duration.

(iii) **Assess** the probability that the project will be completed in 38 weeks.

(iv) **Assess** what project duration will have 95% chance of completion ($Z_{0.95} = 1.65$)

**Given:**

| **Z** | **0.21** | **0.41** | **0.82** |
|---|---|---|---|
| $\phi$ | 0.0832 | 0.1591 | 0.2939 |

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**8.** (a) Ajooba Ltd. manufactures pen drives. The market research department estimates that the quantity sold per day varies with price per unit as per the following equation:

q = (900-p)/3, where q = quantity sold per day and p= price per unit.

The variable cost per unit is ₹ 324 and attributable fixed costs are ₹1,000 per day. The Sales Department thinks that maximum profit coincides with maximum revenue but the managing director is not so sure.

As a Management Accountant you are required to **analyze** the position so as to confirm or refute the sales department's assertion. 7

(b) My Fashion, a garment manufacturer, has modern outlook and they depend heavily on business forecasting methodology to plan their business activities like manufacturing, marketing, finance etc. At the beginning of the year 2026 they have forecasted data of demand of their products for the month of April as 2,00,000 units. But the actual demand turned out to be 2,10,000 units.

Using a Smoothing Coefficient of 0.1 **assess** the forecast demand for the following periods when the actual demands are as follows:

| Period | May | June | July | August | September | October |
|---|---|---|---|---|---|---|
| Sales (in, 000 units) | 214 | 217 | 228 | 235 | 225 | 221 |

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