



FINAL EXAMINATION
MODEL QUESTION PAPER
PAPER – 16
STRATEGIC COST MANAGEMENT

SET - 1
TERM – DECEMBER 2024
SYLLABUS 2022

Time Allowed: 3 Hours

Full Marks: 100

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

SECTION – A (Compulsory)

1. Choose the correct option:

[15 x 2=30]

- (i) If project A has a net present value (NPV) of ₹30,00,000 and project B has an NPV of ₹50,00,000, what is the opportunity cost if project B is selected?
- ₹23,00,000
 - ₹30,00,000
 - ₹20,00,000
 - ₹50,00,000
- (ii) Marketing department of an organisation 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, sell, distribute and service one mixer will be:
- ₹37.50
 - ₹40.00
 - ₹45.00
 - ₹48.60
- (iii) Glasso, a manufacturer of large windows, is experiencing a bottleneck in its plant. Setup time at one of its workstations has been identified as the culprit. A manager has proposed a plan to reduce setup time at a cost of ₹ 7,20,000. The change will result in 800 additional windows. The selling price per window is ₹ 18,000, direct labour costs are ₹ 3000 per window, and the cost of direct materials is ₹ 7,000 per window. Assume all units produced can be sold. The change will result in an increase in the throughput contribution of _____.
- ₹ 64,00,000
 - ₹ 88,00,000
 - ₹ 56,80,000
 - ₹ 1,44,00,000
- (iv) Which of the following is TRUE about the theory of constraints?
- TOC recognizes that lower inventories means slower response to customers.
 - TOC recognizes that lowering inventory decreases carrying costs and thus decreases operating expenses and improves net income.
 - TOC recognizes that lower inventories means more defects.
 - TOC recognizes that EOQ is important.
- (v) Backflush costing is most likely to be used when:
- Management desires sequential tracking of costs



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- b) A Just-in-Time inventory philosophy has been adopted
c) The company carries significant amount of inventory
d) Actual production costs are debited to work-in-progress
- (vi) A company produces a product which is sold at a price of ₹80. Its Variable cost is ₹32. The company's Fixed cost is ₹11,52,000 p.a. The company operates at a margin of safety of 40%. The total sales of the company is: -
a) 4,000 units
b) 40,000 units
c) 30,000 units
d) 20,000 units
- (vii) Max Ltd. Fixes the inter divisional transfer prices for its product on the basis of cost plus a return on investment in the division. The budget for division X for 2023-2024 appears as under –

Fixed Assets	₹5,00,000
Current assets	₹3,00,000
Debtors	₹2,00,000
Annual fixed cost of the division	₹8,00,000
Variable cost per unit of the product	₹10
Budgeted volume	4,00,000 units per year
Desired ROI	28%

Transfer price for division X is:

- a) ₹12.70
b) ₹10.70
c) ₹8.70
d) ₹14.70
- (viii) 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
- (ix) Uniform costing is:
a) a separate method of costing
b) a type of costing
c) a technique of costing
d) None of the above
- (x) If the time taken to produce the first unit of a product is 4000 hrs, what will be the total time taken to produce the 5th to 8th unit of the product, when a 90% learning curve applies?
a) 10,500 hours
b) 12,968 hours
c) 9,560 hours
d) 10,368 hours



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- (xi) The Objective Function of a LPP is $Z = 3x_1 + 2x_2$. If $x_1 = 10$ and $x_2 = 5$ then the value of Z is –
- 35
 - 40
 - 45
 - 50

- (xii) 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 is –

VENDORS			
ITEMS	V_1	V_2	V_3
I	110	120	130
II	115	140	140
III	125	145	165

- ₹ 375
 - ₹ 385
 - ₹ 390
 - None of the above
- (xiii) In a PERT network, the optimistic time for a particular activity is 9 weeks and the pessimistic time is 21 weeks. Which one of the following is the best estimate of the standard deviation for the activity?
- 12
 - 9
 - 6
 - 2
- (xiv) Tableau is a –
- Business Intelligence Tool
 - Visualisation Tool
 - Both (a) and (b)
 - None of the above
- (xv) Script Ends – is related to which type of programming language?
- R Programming
 - SAS
 - Python
 - SPSS



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SECTION – B

(Answer any 5 questions out of 7 questions given. Each question carries 14 marks.)

[5 x 14 = 70]

2. Forward and Foundry Ltd. is feeling the effects of a general recession in the industry. Its budget for the coming half year is based on an output of only 500 tons of casting a month which is less than half of its capacity. The prices of casting vary with the composition of the metal and the shape of the mould, but they average ₹175 a ton. The following details are from the Monthly Production Cost Budget at 500 tone levels:

Particulars	Core making (₹)	Melting and pouring(₹)	Moulding (₹)	Cleaning and Grinding (₹)
Labour	10,000	16,000	6,000	4,500
Variable overhead	3,000	1,000	1,000	1,000
Fixed overhead	5,000	9,000	2,000	1,000
	18,000	26,000	9,000	6,500
Labour and O.H. rate per direct labour hour	9.00	6.50	6.00	5.2

Operation at this level has brought the company to the brink of break-even. It is feared that if the lack of work continues, the company may have to lay off some of the most highly skilled workers whom it would be difficult to get back when the volume picks up later on. No wonder, the work's Manager at this juncture, welcomes an order for 90,000 casting, each weighing about 40 lbs., to be delivered on a regular schedule during the next six months. As the immediate concern of the Works Manager is to keep his work force occupied, he does not want to lose the order and is ready to recommend a quotation on a no-profit and no-loss basis.

Materials required would cost ₹1 per casting after deducting scrap credits. The direct labour hour per casting required for each department would be:

Core Making	0.09
Melting and pouring	0.15
Moulding	0.06
Cleaning and grinding	0.06

Variable overheads would bear a normal relationship to labour cost in the melting and pouring department and in the moulding department. In core making, cleaning and grinding however, the extra labour requirements would not be accompanied by proportionate increases in variable overhead. Variable overhead would increase by ₹1.20 for every additional labour hour in core making and by 30 paise for every additional labour hour in cleaning and grinding. Standard wage rates are in operation in each department and no labour variances are anticipated.

To handle an order as large as this, certain increases in factory overheads would be necessary amounting to ₹1,000 a month for all departments put together. Production for this order would be spread evenly over the six months' period.

You are required to:



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- (A) Prepare a revised monthly labour and overhead cost budget, reflecting the addition of this order.
(B) Determine the lowest price at which quotation can be given for 90,000 castings without incurring a loss. [14]

3. (a) Transferor Ltd. has two processes, Preparing and Finishing. The normal output per week is 7,500 units (Completed) at a capacity of 75%. Transferee 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 Transferor Ltd. at existing capacity is as follows:

Material = ₹2.00 (variable 100%)

Labour = ₹2.00 (Variable 50%)

Overhead = ₹4.00 (variable 25%)

The sale price of a completed unit of Transferor Ltd is ₹16 with a profit of ₹4 per unit.

Required:

Evaluate the effect on the profits of Transferor Ltd., for six months (25 weeks) of supplying units to Transferee Ltd. with the following alternative transfer prices per unit:

- (i) Marginal Cost
 - (ii) Marginal Cost + 25%
 - (iii) Marginal Cost + 15% Return on capital (assume capital employed as ₹20 lakhs)
 - (iv) Existing Cost
 - (v) Existing Cost + a portion of profit on the basis of $\{(Preparing\ cost \div Total\ Cost) \times Unit\ Profit\}$.
 - (vi) At an agreed market price of ₹8.50. Assume no increase in fixed cost. [7]
- (b) S Ltd. has sales of 2,00,000 units at a price of ₹100.00 per unit and profit of ₹70.00 Lakhs in the current year. Due to stiff competition, next year the Company has to reduce its price of product @ 3% to achieve same target volume of sales. The cost structure and profit for the current year is given as below:

Particulars	(₹ Lakhs)
Direct Material	50.00
Direct Wages	40.00
Variable Factory Overheads	15.00
Fixed Overheads including Sales & Admin Expenses	25.00
Total Cost	130.00

To achieve the Target Cost to maintain the same profit, the Company is evaluating the proposal to reduce Labour Cost and Fixed Factory Overheads. A Vendor supplying the Machine suitable for the Company's operations has offered an advanced technology Semi-Automatic Machine of ₹10 Lakhs as replacement of Old Machine worth ₹3 Lakhs. The Vendor is agreeable to take back the Old Machine at ₹1 Lakh only. The Company's policy is to charge depreciation at 15% on WDV. The Maintenance Charge of the Existing Machine is ₹1 Lakh per annum whereas there will be warranty of services free of cost for the New Machine first two years. There are 7 Supervisors whose Salary is ₹1.50 Lakhs per annum. The New Machine having Conveyor Belt is expected to help in cost cutting measures in the following ways -

- (1) Improve Productivity of workers by 10%
- (2) Cut-down Material Wastage by 5%
- (3) Elimination of services of Supervisors because of automatic facilities of the machine
- (4) Saving in Packaging Cost by ₹1 Lakhs.

Assuming Cost of Capital to be 15%, calculate how many Supervisors should be removed from the production activities to achieve the Target Cost. [7]



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4. (a) B Ltd. has decided to adopt JIT policy for materials. The following effects of JIT policy are identified-
1. To implement JIT, the company has to modify its production and material receipt facilities at a capital cost of ₹10,00,000. The new machine will require a cash operating cost ₹1,08,000 p.a. The capital cost will be depreciated over 5 years.
 2. Raw material stockholding will be reduced from ₹40,00,000 to ₹10,00,000.
 3. The company can earn 15% on its long-term investments.
 4. The company can avoid rental expenditure on storage facilities amounting to ₹33,000 per annum. Property. Taxes and insurance amounting to ₹22,000 will be saved due to JIT programme
 5. Presently there are 7 workers in the store department at a salary of ₹5,000 each per month. After implementing JIT scheme, only 5 workers will be required in this department. Balance 2 workers' employment will be terminated.
 6. Due to receipt of smaller lots of Raw Materials, there will be some disruption of production. The costs of stock-outs are estimated at ₹77,000 per annum.
- Determine the financial impact of the JIT policy. Advise the company for implementation of JIT system. [7]
- (b) Discuss the phases of Value Analysis. [7]

5.

Particulars	₹ In Lakhs	
	31-03-2023	31-03-2024
Sales	120	129.60
Prime Cost of Sales	80	91.10
Variable Overheads	20	24
Fixed expenses	15	18.50
Profit	5	(4)

During 2023-24, average prices increased over those of the previous years:

- (1) 20% in case of sales
- (2) 15% in case of prime cost
- (3) 10% in case of Overheads.

Prepare a profit variance statement from the above data. [14]

6. (a) A farmer has a farm with 125 acres. He produces Carrot, Beetroot and Potato. Whatever he produces is fully sold in the market. He gets ₹5 per kg for Carrot, ₹4 per kg for Beetroot and ₹5 per kg for Potato. The average yield is 1,500 kg of Carrot per acre, 1,800 kg of Beetroot per acre and 1,200 kg of Potato per acre. To produce each 100 kg of Carrot and Beetroot and 80 kg of Potato, a sum of ₹12.50 has to be spent for manure. Labour required for each acre to raise the crop is 6 man-days for Carrot and Potato each and 5 man-days for Beetroot. A total of 500 man-days of labour at the rate of ₹40 per man-day are available.
- Develop a LPP to maximise the farmer's total profit. [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
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3000	0.20	4000	0.30
5000	0.30	6000	0.40
7000	0.40	8000	0.20
12000	0.10	10000	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 ₹8000. Compute the estimated balance at the end of the 12week period. Compute the highest weekly balance during the quarter. Determine the average weekly balance for the quarter. [7]

Random Numbers:

For Receipts	03	91	38	55	17	46	32	43	69	72	24	22
For Payments	61	96	30	32	03	88	48	28	88	18	71	99

7. (a) A small maintenance project consists of the following twelve jobs whose precedence relations are identified with their node number:

Job (i,j)	:	(1,2)	(1,3)	(1,4)	(2,3)	(2,5)	(2,6)
Duration (in days)	:	10	4	6	5	12	9
Job (i,j)	:	(3,7)	(4,5)	(5,6)	(6,7)	(6,8)	(7,8)
Duration (in days)	:	12	15	6	5	4	7

- (i) Draw an arrow diagram representing the project.
(ii) Calculate earliest start, earliest finish, latest finish time for all the jobs. [7]

- (b) The Learning Curve in management accounting has now become or is going to become an accepted tool in industry, for its applications are almost unlimited. When it is used correctly, it can lead to increased business and higher profits; when used without proper knowledge, it can lead to lost business and bankruptcy. Discuss precisely:

- (i) Your understanding of the Learning Curve;
(ii) The theory of Learning Curve;
(iii) The areas where Learning Curves may assist in management accounting; and
(iv) Illustrate the use of Learning Curves for calculating the expected average unit cost of making–
(A) 4 machines (B) 8 machines

Using the data below:

Direct Labour needed to make first machine = 1000 hrs.

Learning Curve = 90%

Direct Labour cost = ₹15 per hour.

Direct materials cost = ₹1,50,000

Fixed cost for either size orders = ₹60,000. [7]

8. (a) A firm has the Cost Function $C = x^3/3 - 7x^2 + 111x + 50$ and Demand function $x = 100 - p$. Determine the Equilibrium Output, Price and Profit earned. [7]

- (b) The following table relates to the tourist arrivals in India during 2015 to 2021.

Year	2015	2016	2017	2018	2019	2020	2021
Tourist arrivals (lakhs)	18	20	23	25	24	28	30

Fit a Straight Line trend by the Method of Least Squares and estimate the number of tourists that would arrive in the year 2025. [7]