FINAL EXAMINATION | **SET - 1**

MODEL QUESTION PAPER | **TERM – JUNE 2025**

PAPER – 16 | **SYLLABUS 2022**

STRATEGIC COST MANAGEMENT

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) What is the opportunity cost of making a component part in a factory given no alternative use of the capacity?

a) The variable manufacturing cost of the component
b) The total manufacturing cost of the component
c) The total variable cost of the component
d) Zero

(ii) X Ltd. has 1000 units of an obsolete item which are carried in inventory at the original price of ₹50,000. If these items are reworked for ₹ 20,000, they can be sold for ₹ 36,000. Alternatively, they can be sold as a scrap for ₹ 6,000 in the market. In a decision model used to analyse the reworking proposal, the opportunity cost should be taken as:

a) ₹16,000
b) ₹6,000
c) ₹30,000
d) ₹20,000

(iii) In cost plus pricing, the mark-up consists of:

a) Manufacturing cost
b) Desired ROI
c) Selling and administration cost
d) Total cost and Desired ROI

(iv) JIT relates to:

a) Time Management
b) Inventory and product handling
c) TOC recognizes that lower inventories means more defects.
d) TOC recognizes that EOQ is important.

(v) Bench marking is:

a) A continuous process
b) The practice of setting targets using external information
c) Methods to provide performance assessment
d) All the above

(vi) The following figures are extracted from the books of a company: Budgeted O/H ₹ 10,000 (Fixed ₹ 6,000, Variable ₹ 4,000) Budgeted Hours 2000
Actual O/H ₹ 10,400 (Fixed ₹ 6,100, Variable ₹ 4,300) Actual Hours 2100
Variable O/H cost variance and Fixed O/H cost variance will be:
a) 100(A) and 200(A)
b) 100(F) and 200(F)
c) 100(A) and 200(F)
d) 200(A) and 100(F)

(vii) Standard costing system consists of the following key elements:
a) Setting standards for each of the operations
b) Comparing the actual performance with the standard performance
c) Analyzing and reporting variances arising from the difference between actual and standard performance
d) All of the Above

(viii) Efficiency Ratio is: _____.
a) Available working days ÷ Budgeted working days × 100
b) Budgeted hours ÷ Maximum hours in budgeted period × 100
c) Standard hours ÷ Actual hours × 100
d) None of the above

(ix) Multiple solution exist in a Linear Programming problem when:
a) One of the constraints is redundant
b) Objective Function is parallel to one of the constraints
c) Two constraints are parallel
d) All of the above

(x) Which of the following method is used to test optimality of a solution in Transportation?
a) Modified Distribution
b) Simplex
c) VAM
d) LCM

(xi) Assignment problem can be considered as a particular case of _____.
a) Transportation problem
b) Sequencing problem
c) Queuing problem
d) All of these

(xii) Monte Carlo Simulation gets its name from which of the following?
a) Data collection
b) Model formulation
c) Random number assignment
d) Analysis

(xiii) A PERT Network has nine activities on its Critical Path. The Standard Deviation of each activity on the Critical Path is 3. The S. D of the Critical Path is_____.

a) 3
b) 9
c) 81
d) 27

(xiv) When 24 hours is required to produce a condenser of a particular type then the time required to produce the 16th unit with 85% Learning Curve is _____.

a) Between 9 and 10 hours
b) Between 12 and 14 hours
c) Between 15 and 17 hours
d) Between 18 and 20 hours

(xv) Which of the following has no relation to Business Intelligence?

a) A set of business analytics solutions to retrieve, analyse and transform data into useful business sights
b) Visualisation Tools are primarily BI Tools.
c) ABS Glue is a tool used for the purpose of Business Intelligence
d) Embedded Analytics is an important part of any Business Intelligence tool.

SECTION – B

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

[5 x 14 = 70]

2. Sri Company Ltd. manufactures and sells in a year 20,000 units of a particular product to definite customers at a price of ₹100 per unit. The Firm has a capacity to produce 25,000 units of the product per annum. To produce beyond 25,000 units per annum, it will have to install a New Equipment at a cost of ₹15 Lakhs. The Equipment will have a life span of 10 years and will have no residual value. There is an offer from a Client to purchase 10,000 units of the product regularly at a price of ₹90 per unit. The order, if accepted, will have to be over and above the existing level of production of 20,000 units.

The Cost Structure of the Product (per unit basis) is Direct Materials - ₹30, Direct Labour- ₹20, Variable Overhead - ₹10 and Profit - ₹20. The present total Fixed Overheads is ₹ 4,00,000.

During the coming year, it has been estimated that the cost of Direct Material, as compared to the current year will increase by 10%. Because of certain wage agreement Direct Labour Cost will increase by 25%. Fixed OH will increase by 10%. If the new order for 10,000 units is accepted, Fixed Overheads will increase further by ₹ 60,000 due to increased administrative charges.

Analyse whether the concern should accept the order or instead of that try to secure order for the balance unused capacity, as available now, through some Sales Promotion Expenses which will be ₹50,000 per annum. Ignore financial charges for the new investment. [14]

3. (a) Division A is a profit centre which produces three products X, Y and Z. Each product has an external market. The details are as follows:

Particulars	X	Y	Z
External market price per unit (₹)	48	46	40
Variable cost of production in division A (₹)	33	24	28
Labour hours required per unit in division A	3	4	2

Product Y can be transferred to Division B, but the maximum quantity that might be required for transfer is 300 units of Y

	X	Y	Z
The maximum external sales are:	800 units	500 units	300 units

Instead of receiving transfers of Product Y from Division A, Division B could buy similar product in the open market at a slightly cheaper price of ₹45 per unit.
Calculate the transfer price be for each unit for 300 units of Y, if the total labour hours available in Division A are:
a. 3800 hours
b. 5600 hours. [7]

(b) Company X is forced to choose between two machines A and B. The two machines are designed differently but have identical capacity and do exactly the same job. Machine A costs ₹1,50,000 and will last for 3 years. It costs ₹40,000 per year to run. Machine B is an 'economy' model costing only ₹1,00,000, but will last only for 2 years, and costs ₹60,000 per year to run. These are real cash flows. The costs are forecasted in rupees of constant purchasing power. Ignore tax. Opportunity cost of capital is 10%.
Recommend which machine Company X should buy? [7]

4. (a) Modern Co produces 3 products, A, B and C, details of which are shown below:

Particulars	A	B	C
Selling price per unit (₹)	120	110	130
Direct material cost per unit (₹)	60	70	85
Variable overhead (₹)	30	20	15
Maximum demand (units)	30,000	25,000	40,000
Time required on the bottleneck resource (hours per unit)	5	4	3

There are 3,20,000 bottleneck hours available each month.
Calculate the optimum product mix based on the throughput concept [7]

(b) Discuss the underlying principles of Total quality management. [7]

5. (a) A company manufacturing a special type of fencing tile 12" × 8" × 1/2" used a system of standard costing. The standard mix of the compound used for making the tiles is:
1,200 kg. of material A @ ₹0.30 per kg.
500 kg. of Material B @ ₹0.60 per kg
800 kg. of Material C @ ₹0.70 per kg

The compound should produce 12,000 square feet of tiles of 1/2" thickness. During a period in which 1,00,000 tiles of the standard size were produced, the material usage was:

Kg		₹
7,000	Material A @ ₹ 0.32 per kg.	2,240
3,000	Material B @ ₹ 0.65 per kg.	1,950
5,000	Material C @ ₹ 0.75 per kg.	3,750
15,000		7,940

Prepare the cost figures for the period showing Material price, Mixture, Sub-usage Variance. [7]

(b)

Item	Budget	Actual
No. of working days	20	22
Output per man hour	1.0 Units	0.9 Units
Overhead cost	₹1,60,000	₹1,68,000
Man-hours per day	8,000	8,400

Calculate Overhead Variances. [7]

6. (a) A company possesses two manufacturing plants each of which can produce three products x, Y and Z from a common raw material. However, the proportions in which the products are produced are different in each plant and so are the plant's operating costs per hour. Data on production per hour costs are given below, together with current orders in hand for each product.

	Product			Operating cost/ hour in ₹
	X	Y	Z	
Plant A	2	4	3	9
Plant B	4	3	2	10
Orders on hand	50	24	60	

Develop a LPP to minimise the cost [7]

(b) The manager of a book store has to decide the number of copies of a particular tax law book to order. A book costs ₹ 60 and is sold for ₹ 80. Since some of the tax laws change year after year, any copies unsold while the edition is current must be sold for ₹ 30. From past records, the distribution of demand for this book has been obtained as follows:

Demand (No of copies)	15	16	17	18	19	20	21	22
Proportion	0.05	0.08	0.20	0.45	0.10	0.07	0.03	0.02

Using the following sequence of random numbers, generate the demand for 20 time periods (years). Calculate the average profit obtainable under each of the courses of action open to the manager. Recommend the optimal policy.

14	02	93	99	18	71	37	30	12	10
88	13	00	57	69	32	18	08	92	73

[7]

7. (a) Draw a network from the following activities. Evaluate the critical path and total duration of the project.

Activity	Immediate predecessor activity	Duration (days)
A	—	10
B	A	5
C	A	4
D	A	7
E	B,C	6
F	C,D	4
G	E,F	7

[7]

(b) The usual Learning Curve model is $Y = ax^b$ where
Y is the average time per unit for x units and 'a' is the time for first unit x is the cumulative number of units
b is the learning coefficient and is equal to (log 0.8)/(log 2) = – 0.322 for a learning rate of 80%
Given that a = 10 hours, you are required to Calculate:
(i) The average time for 20 units.
(ii) The total time for 30 units.
(iii) The time for units 31 to 40.
Given that log 2 = 0.301, Antilog of 0.5811 = 3.812
log 3 = 0.4771, Antilog of 0.5244 = 3.345.
log 4 = 0.6021, Antilog of 0.4841 = 3.049. [7]

8. (a) The demand (rides per day) of Roller Coaster Ride in an Entertainment Park in one of the metro cities is given the equation q = - 450p + 41500, where p = Price per ride in ₹. Suggest what price should have been charged to maximize the total revenue? [7]

(b) From the following past data of Sales (in lakhs Rupees) of a company estimate the same for the year 2025.

Year	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Sales	15.3	14.6	16.8	17.3	17.2	20.9	22.3	20	23.1	24.5

Assume the trend line to be linear. Calculate the monthly rate of increase of Sales. [7]