



OPERATIONS MANAGEMENT AND STRATEGIC 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) Linear Programming is a technique used for determining:
- Production Programme
 - Plant Layout
 - Product Mix
 - Manufacturing sequence
- (ii) Which method is used to find the optimal production schedule that minimizes costs using limited resources?
- Linear programming
 - PERT/CPM
 - Lean accounting
 - Break even analysis
- (iii) Which of the following is NOT a core principle of Lean manufacturing?
- Elimination of waste
 - Continuous improvement (Kaizen)
 - Respect for people
 - Maximizing inventory levels
- (iv) 'Z' chart is a chart used in:
- Programme control.
 - Job control.
 - Cost control.
 - Quality control.
- (v) The purpose of Gantt chart is to:
- Schedule and monitor project activities
 - Control inventory levels
 - Improve product quality
 - Conduct market analysis
- (vi) Which of the following refers to the practice of designing products so that they can be easily and efficiently manufactured?
- Total Quality Management
 - Lean manufacturing
 - Concurrent engineering
 - Design for Manufacture and Assembly (DFMA)



OPERATIONS MANAGEMENT AND STRATEGIC MANAGEMENT

- (vii) The monthly requirement of raw material for a company is 3000 units. The carrying cost is estimated to be 20% of the purchase price per unit, in addition to ₹2 per unit. The purchase price of raw material is ₹20 per unit. The ordering cost is ₹25 per order. Calculate EOQ?
- 548 units
 - 590 units
 - 600 units
 - 500 units
- (viii) Wanda's Car Wash & dry is an automatic, five-minute operation with a single bay. On a typical Saturday morning, cars arrive at a mean rate of eight per hour, with arrivals tending to follow a Poisson distribution. Find the average number of cars in line.
- 0857
 - 1.225
 - 0.667
 - 0.125
- (ix) In a particular plant there are 15 workers manufacturing a single product and the output per month consisting of 29 days of that particular product is 270. How much is the monthly productivity?
- 15 units
 - 20 units
 - 18 units
 - 12 units
- (x) The BCG Matrix categorizes products into:
- Stars, Cows, Pigs, Dogs
 - Growth, Decline, Stability, Innovation
 - Cash cows, Dogs, Question marks, Stars
 - None of the above
- (xi) What does VRIO framework assess?
- Industry attractiveness
 - Core competencies
 - External environment
 - Competitive intensity
- (xii) Which approach focuses on creating new demand in an uncontested market space?
- Competitive strategy
 - Red ocean strategy
 - Blue ocean strategy
 - Market segmentation strategy
- (xiii) Which type of diversification strategy involves entering a new market with new products?
- Horizontal diversification
 - Vertical diversification



OPERATIONS MANAGEMENT AND STRATEGIC MANAGEMENT

- c) Conglomerate diversification
 - d) Concentric diversification
- (xiv) Which of the following is NOT a component of the McKinsey 7S Framework?
- a) Strategy
 - b) Structure
 - c) Sales
 - d) Skills
- (xv) Which of the following is NOT a component of the Balanced Scorecard framework?
- a) Financial perspective
 - b) Customer perspective
 - c) Internal business processes
 - d) Supplier relationships

SECTION – B

(Answer any five questions out of seven questions given. Each question carries 14 marks.)

[5 × 14 = 70]

2. (a) State the importance of layout. [7]
(b) Discuss the factors that will affect industrial productivity. [7]

3. (a) Analyze the functions of production control and also state its types. [7]

(b) A company planning to manufacture a household cooking range has to decide on the location of the plant. Three locations are being considered viz., Lucknow, Jamnagar, and Payampalli. The fixed costs of the three locations are estimated to be ₹40 lakh, ₹45 lakh, and ₹35 lakh per annum respectively. The variable costs are ₹400, ₹250 and ₹300 per unit respectively.

The expected sales price of the cooking range is ₹900 per unit. Calculate the following:

- (i) The range of annual production/sales volume for which each location is most suitable and
- (ii) Which one of the three locations is the best location at a production/sales volume of 12,000 units?

Calculate and plot the total costs per annum at the three different locations for the various cases of production volume of 5,000, 10,000, 15,000, 20,000, 25,000 units. [7]

4. (a) A captain of a cricket team has to allot five middle batting positions to five batsmen. The average runs scored by each batsman at these positions are as follows:

		Batting Position				
		III	IV	V	VI	VII
A		40	40	35	25	50
B		42	30	16	25	27

**OPERATIONS MANAGEMENT AND STRATEGIC MANAGEMENT**

Batsmen						
	C	50	48	40	60	50
	D	20	19	20	18	25
	E	58	60	59	55	53

Prepare the assignment so that the expected total average runs scored by these batsmen are maximum. [7]

- (b) A businessman is considering taking over a certain new business. Based on past information and his own knowledge of the business, he works out the probability distribution of the monthly costs and sales revenues, as given here:

Cost (in ₹)	Probability	Sales Revenue (₹)	Probability
19,000	0.10	22,000	0.10
21,000	0.15	22,800	0.17
22,000	0.30	23,500	0.23
23,500	0.25	25,400	0.30
24,700	0.20	26,700	0.15
		24,000	0.05

Use the following sequences of random numbers to be used for estimating costs and revenues. Prepare a probability distribution of the monthly net revenue.

Sequence 1	20	63	46	16	45	41	44	66	87	26
	78	40	29	92	21	36	57	03	28	08
Sequence 2	23	57	99	84	51	29	41	11	66	30
	41	80	62	74	64	26	41	40	97	15

[7]

5. (a) A large computer installation contains 2,000 components of identical nature which are subject to failure as per probability distribution that follows:

Month End:	1	2	3	4	5
% Failure to date:	10	25	50	80	100

Components which fail have to be replaced for efficient functioning of the system. If they are replaced as and when failures occur, the cost of replacement per unit is ₹3. Alternatively, if all components are replaced in one lot at periodical intervals and individually replace only such failures as occur between group replacement, the cost of component replaced is ₹1.

Calculate the following

- Which policy of replacement would be economical.
- If group replacement is economical at current costs, then at what cost of individual replacement would group replacement be uneconomical.
- How high can the cost per unit in-group replacement be to make a preference for individual



OPERATIONS MANAGEMENT AND STRATEGIC MANAGEMENT

replacement policy?

[7]

(b) Analyse the given data

Activity	Optimistic time(to)	Most likely Time(tm)	Pessimistic time(tp)
1-2	6	9	12
1-5	4	7	8
2-3	14	17	20
2-4	7	10	13
2-5	3	5	9
3-7	13	18	25
4-6	10	14	16
4-7	12	15	18
5-6	9	11	12
6-7	17	20	25

Find the

- (i) expected duration of the project
- (ii) critical path
- (iii) variance of the project.
- (iv) EST, EFT, LST, LFT
- (v) total float of each activity

[7]

6. (a) The four core principles that underpin effective goal systems can be summarised into the acronym FAST. Explain the four core principles and their benefits and how it is different from SMART. [7]

(b) Describe the different types of digital marketing strategies. [7]

7. (a) Several scholars have criticized the formal planning model for three main reasons: the unpredictability of the real world, the role that lower-level managers can play in the strategic management process, and the fact that many successful strategies are often the result of serendipity, not rational strategizing. These scholars have advocated an alternative view of strategy making. Analyse the alternatives of strategic planning. [7]

(b) Analyse the stages in strategic planning process. [7]

8. (a) Managers often describe their organisation by drawing an organisation chart, mapping out its formal structure. These structural charts define the 'levels' and roles in an organisation. With context to this, discuss the various structures of organization for implementation of strategy. [7]

(b) Business Process Engineering may be considered to be a radical redesign of business processes often used by companies to cut costs and return to profitability. Discuss with appropriate example. [7]