



OPERATIONS MANAGEMENT AND STRATEGIC MANAGEMENT

Time Allowed: 3 Hours

Full Marks: 100

The figures in the margin on the right side indicate full marks.
Where considered necessary, suitable assumptions may be made and
clearly indicated in the answer.

SECTION – A : [OPERATIONS MANAGEMENT]

**Answer Question No. 1 which is compulsory and any three from
Questions Nos. 2, 3, 4 & 5**

1. (a) Choose the correct alternatives: 1×8=8

- (i) The Starting point of Production cycle is:
 - a. Product design
 - b. Production Planning
 - c. Routing
 - d. Market research.
- (ii) Negative float signifies
 - a. Reduction in target time to finish the work in time
 - b. Adjustment of target time to finish the work before schedule
 - c. Reduction in target time to crash the critical path
 - d. Adjustment of target time to maintain the most likely time of activities
- (iii) On which of the following areas ISO 9003 is applicable?
 - a. Procurement
 - b. Production
 - c. Installation
 - d. Servicing
- (iv) One of the product examples for line layout is:
 - a. Repair workshop
 - b. Welding shop
 - c. Engineering College
 - d. Cement
- (v) One of the important charts used in Programme control is:
 - a. Material chart
 - b. Gantt chart
 - c. Route chart
 - d. Inspection chart

**OPERATIONS MANAGEMENT AND STRATEGIC MANAGEMENT**

- (vi) Most suitable layout for continuous production is
- Line layout
 - Process layout
 - Group technology
 - Matrix layout
- (vii) The method used in scheduling a project is:
- A schedule of breakdown of orders
 - Outline Master Programme
 - PERT & CPM
 - Schedule for large and integrated work.
- (viii) JIT stands for
- Just in time purchase
 - Just in time production
 - Just in time use of materials
 - Just in time order the material.

(b) Fill in the blanks**1×4=4**

- (i) A _____ is defined as a onetime activity with a series of tasks that produces a specific out come to achieve organizational goals.
- (ii) _____ signified the freedom for rescheduling or to start the job.
- (iii) The investment on machines in a straight line layout is _____ than the investment on machines in a functional layout.
- (iv) To evaluate the work done by preventive maintenance, _____ is derived at from the total time of stoppage of the machine for scheduled and unscheduled maintenance work.

(c) State whether the following statements are True/False.**1×3=3**

- Job evaluation is used to measure absolute job worth.
- Training boosts employee morale.
- EFT (Earliest Finish Time) is the sum of the earliest start time plus the time of duration for any event.

2. (a) Briefly discuss the scope of Operation Management.

(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., Patna, Ranchi, and Dhanbad. The fixed costs of the three location are estimated to be ₹30 lakh, ₹50 lakh, and ₹25 lakh per annum respectively. The variable costs are ₹300, ₹200 and ₹350 per unit respectively.



OPERATIONS MANAGEMENT AND STRATEGIC MANAGEMENT

The expected sales price of the cooking range is ₹700 per unit Find out:

- (i) The range of annual production/sales volume for which each location is most suitable and
- (ii) Analyze which one of the three locations is the best location at a production/sales volume of 18,000 units? [5+10=15]

3. (a) (i) What does Product Design do?
(ii) Briefly explain the five stages of Design Thinking?

- (b) The products P, Q and R are being produced in a plant having profit margin as ₹3, ₹5 and ₹4 respectively. The A, B and C are of scarce supply and the availability is limited to 8, 15 and 10 units respectively. Specific consumption is indicated in the table below:

	P	Q	R	Available units
A	2	3	-	8
B	3	2	4	15
C	-	2	5	10
	3/-	5/-	4/-	

Write down the problem mathematically for maximization of profit margin.

[3+4+8=15]

4. (a) Calculate the standard production per shift of 8 hours duration, with the following data: Observed time per unit = 5 minutes, Rating Factor -120%, total allowances = 30% of normal time.
- (b) Customers arrive at a bakery at an average rate of 16 per hour on weekday mornings. The arrival can be described by a Poisson distribution with a mean of 16. Each clerk can serve a customer in an average of three minutes; This time can be described by an exponential distribution with a mean of 30. Minutes.
- a. What are the arrival and service rates?
 - b. Compute the average number of customers being served at any time.
 - c. Suppose it has been determined that the average number of customers waiting in line is 3.2. compute the average number of customers in the system (i.e., waiting in line or being served), the average time customers wait in line, and the average time in the system.
 - d. Determine the system utilization for M = 1, 2 and 3 servers. [5+10=15]



OPERATIONS MANAGEMENT AND STRATEGIC MANAGEMENT

5. (a) A Project consists of seven activities. Activities P, Q, R runs simultaneously. The relationships among the various activities is as follows:

Activity	Immediate Successor
P	S
Q	T
R	U

Activity “V” is the last operation of the project and it is also immediate successor to S, T and U. Draw the network of the project.

- (b) A firm is using a machine whose purchase price is ₹15,000. The installation charges amount to ₹3,500 and the machine has a scrap value of only ₹1,500 because the firm has a monopoly of this type of work. The maintenance cost in various years is given in the following table:

Year	1	2	3	4	5	6	7	8	9
Maintenance Cost (₹)	260	760	1100	1600	2200	3000	4100	4900	6100

The firm wants to determine after how many years should the machine be replaced on economic considerations, assuming that the machine replacement can be done only at the year end. [7+8=15]

SECTION – B : [STRATEGIC MANAGEMENT]

Answer Question No. 6 which is compulsory and any two from Questions Nos. 7, 8 & 9

6. (a) Choose the correct answer from the given alternatives (you may write only the Roman numeral and the alphabet chosen for your answer): [1×4=4]
- (i) Which among the following provide the standards for performance appraisal?
- Mission
 - Vision
 - Values
 - Objectives
- (ii) Absolute cost advantages arise from
- superior production operations and processes
 - control of particular inputs required for production
 - access to cheaper funds
 - all of the above



OPERATIONS MANAGEMENT AND STRATEGIC MANAGEMENT

- (iii) A _____ is a business unit in a growing market, but not yet with high market share.
- cash cow
 - dog
 - question mark
 - star
- (iv) Which among the following is not a component of a blockchain?
- Distributed ledger technology
 - Immutable record
 - Smart contracts
 - Increased threat
- (b) State whether the following statements are “True” or “False”. [1×3=3]
- Digital strategy focuses on technology and culture.
 - Deep learning describes automated learning of implicit properties of, or underlying rules for data.
 - Monitoring strategic thrusts is a critical task that should be continued to be performed during strategy implementation.
- (c) Fill in the blanks [1 × 3 = 3]
- _____ reflects the value of bringing together specialists so that they can develop their expertise in close collaboration with each other.
 - _____ asks whether a proposed structure will set up links between parts of the organisation that are important but bound to be strained.
 - _____ stresses the importance of clear lines of accountability, ensuring the control and commitment of managers throughout the structure
7. (a) “The balanced scorecard (BSC) is a framework to translate a strategy into operational terms in terms of tasks and actions” – exhibit with a diagram the BSC and the four specific perspectives of the BSC which are considered the pillars of the BSC. [8]
- (b) The FAST framework is the core ingredient of ‘Management by Objectives’. Do you agree? Discuss with reason. [7]



OPERATIONS MANAGEMENT AND STRATEGIC MANAGEMENT

8. (a) Elucidate Porter's Value Chain of an organisation and Porter's Five Forces Framework. Also show how they are interrelated with brief examples. [4+4=8]
- (b) 'One of the most common and long-standing ways of appreciating the balance of a portfolio of business of a company is the Boston Consulting Group (BCG) Matrix' – Critically assess the given statement with a few brief examples. [7]
9. (a) Clarify the concept of Internet of Things (IoT). Demonstrate recent developments which have facilitated the growth of IoT. [8]
- (b) What is goal congruence? Why is it so important for superior performance of an organization with one of the divisions producing a finished goods which serves as an input of another division? How can it be achieved? [7]