



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) Operations management is concerned essentially with the utilization of resources. Utilisation of resources means
  - a. Obtaining maximum effect from resources
  - b. Minimizing loss of resources
  - c. Minimising under utilization or waste of resources
  - d. All the above
- (ii) In a linear programming model feasible solution is
  - a. The basic solution to the general L.P. problem
  - b. Any solution that also satisfies the non-negative restrictions of the general L.P. problem
  - c. A solution which optimize (maximize or minimize) the objective function of a general L.P. problem
  - d. A basic solution to the system of equation if one or more of the basic variables become equal to zero.
- (iii) Multiple shift operation enhances
  - a. Firm's Capacity utilisation
  - b. Demand for firm's product
  - c. Firm's labour turnover
  - d. Firm's channel conflict
- (iv) Which of the following is not a method for solving Assignment problem?
  - a. Complete Enumeration method
  - b. Hungarian method
  - c. Simplex method
  - d. Natural method



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- (v) Of all paths through the network, the critical path
  - a. has the maximum expected time
  - b. has the minimum expected time
  - c. has the maximum actual time
  - d. has the minimum actual time
- vi) It is the basis for decisions regarding capacity planning, facilities (or plant) layout, equipment and design of work systems. This is
  - a. Process Design
  - b. Process Planning
  - c. Process Strategy
  - d. Process Selection
- vii) 'Z' chart is a chart used in:
  - a. Programme control
  - b. Job control
  - c. Cost control
  - d. Quality control
- viii) The most obvious reason for product design is
  - a. To offer new products to sustain in the market
  - b. To offer new products to fulfil changing preferences of customers
  - c. To offer new products to remain competitive in the market
  - d. To offer new products to cope with changing regulations in the market

**(b) Fill in the blanks** **1×4=4**

- 1. Design thinking is a ----- stage process.
- 2. -----organizes the workstations in such a way that similar type of machines and services i.e., facilities are located together.
- 3. ----- encompasses all the activities that are performed to produce the final products as per the specifications in line with the requirements of the customers.
- 4. ----- is the maximum amount by which duration time of an activity can be increased without increasing the total duration time of the project.

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

- 1. Gantt Chart is a principal tool used in scheduling.
- 2. One of the limitations of Gantt Chart is that it does not clearly indicate the details regarding progress of activities.
- 3. Preventive maintenance ensures greater safety to workers.



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2. (a) (i) What do you mean by Lean Production?  
(ii) Discuss in brief the types of capacity planning.
- (b) (i) Define EBQ.  
(ii) Solve the ABC analysis of the following table.

Annual Usage of Inventory by value

Item Number	Annual Rupee Usage (₹)	Percentage of total value (%)
22	95,000	40.69
68	75,000	32.12
27	25,000	10.71
03	15,000	6.43
82	13,000	5.57
54	7,500	3.21
36	1,500	0.64
19	800	0.34
23	425	0.18
41	225	0.10
TOTAL	₹2,33,450	100%

[3+3+3+6=15]

3. (a) One unit of Product A contributes ₹ 7 and requires 3 units of raw material and 2 hours of labour. One unit of Product B contributes ₹ 5 and requires 1 unit of raw material and 1 hour of labour. Availability of Raw Material at present is 48 units and hence there are 40 hours of labor.

Formulate it as Linear Programming Problem

- (b) The activities involved in a PERT Project are detailed in the adjoining table:  
 $t_o$  = optimistic,  $t_m$  = most likely time, and  $t_p$  = pessimistic time

Job i - j	Duration (days)		
	$t_o$	$t_m$	$t_p$
1-2	3	6	15
2-3	6	12	30
3-5	5	11	17
7-8	4	19	28
5-8	1	4	7
6-7	3	9	27



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4-5	3	6	15
1-6	2	5	14
2-4	2	5	8

- (i) Draw a network diagram.
- (ii) Identify the critical path after estimating and examining the earliest and latest event time for all nodes. [5+10=15]

4. (a) A bakery keeps stock of a popular brand of cake, Previous experience shows the daily demand pattern for the item with associated probabilities, as given below:

Daily demand (number)	0	10	20	30	40	50
Probability	0.01	0.20	0.15	0.50	0.12	0.02

Use the following sequence of random numbers to simulate the demand for next 10 years.

Random numbers: 48, 78, 19, 51, 56, 77, 15, 14, 68, 9

Also estimate the daily average demand for the cakes on the basis of simulated data.

- (b) The following data has been collected from a manufacturing plant which are related to work study for 150 hrs on a floor shop employing 7 labours having a shift of 8 hrs in a day.
- Number of observations documented in total = 300
  - Number of observations in which no working activity is observed = 500
  - Manual to machine ratio = 3:2
  - Average Rating factor = 120%
  - Number of product produced during the period of study = 7000

Company has its own policy regarding personal allowance which is pegged at 11% of normal standard time to produce a product.

The floor shop produces 49000 products per month for 24 working days, it has an absenteeism of around 6%.

Calculate efficiency of utilization of labour and productive efficiency of labour.

[9+6=15]

5. (a) Faber's Car wash & Dry is an automatic five minutes' 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.
  - The average time cars spend in line and service.



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- (b) A Public transport system is experiencing the following number of breakdowns for months over the past 2 years in their new fleet of vehicles:

Number of breakdowns	0	1	2	3	4
Number of months this occurred	2	8	10	3	1

Each break down costs the firm an average of ₹ 2,800. For a cost of ₹ 1,500 per month, preventive maintenance can be carried out to limit the breakdowns to an average of one per month.

Which policy is suitable for the firm? Support your answer with needful calculations and justifications. [6+9=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) The monitoring, evaluating and disseminating of information from the external and internal environments to key people within the organisation is called \_\_\_\_\_.
- Strategy Formulation
  - Evaluation and control
  - Strategy Implementation
  - Environmental scanning
- (ii) The balanced score card is a \_\_\_\_\_ approach to performance management.
- top-down
  - bottom up
  - indirect
  - direct
- (iii) This test is a catch-all category, indicating that the structure must fit legal, stakeholder, trade union or similar constraints.
- The Feasibility Test
  - The People Test
  - The Parenting Advantage Test
  - The Specialized Cultures Test



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(iv) \_\_\_\_\_ is similar to referral programs.

- a. Influencer Marketing
- b. Affiliate marketing
- c. Social Media Marketing Platforms
- d. Content marketing

(b) State whether the following statements are “True” or “False”. [1×3=3]

- (i) Deep learning describes automated learning of implicit properties of, or underlying rules for data.
- (ii) Strategy Implementation involves positioning forces before the action.
- (iii) A strategic business unit (SBU) is a part of an organisation for which there is a distinct external market for goods or services that is different from another SBU.

(c) Fill in the blanks [1 × 3 = 3]

- (i) A \_\_\_\_\_ industry consists of a large number of small or medium-sized companies, none of which is in a position to determine industry price.
- (ii) \_\_\_\_\_ framework helps to identify the sources of competition in an industry or sector.
- (iii) \_\_\_\_\_ is the ratio of the number of units of inputs required to produce a unit of output.

7. (a) Answer all the questions

- (i) What is strategic management?
- (ii) What are the objectives of strategic management?
- (iii) Distinguish between red ocean strategy and blue ocean strategy. [2+2+3=7]

(b) “PESTEL Analysis provides broad information from which to identify Key drivers of change” – Critically assess PESTEL Analysis as a tool and evaluate how it helps understanding of emerging business environment. [8]

8. (a) (i) Demonstrate the nine design tests against which to check specific tailor-made structural solutions designed by Michael Goold and Andrew Campbell?

- (ii) Which of the nine test stress fit with the key objectives and constraints of the organisation. [8]



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- (b)** Answer both the questions
- (i) Prepare a set of narratives explaining how digital transformation of a business helps in achieving competitive advantage.
  - (ii) Relate the reasons mentioned in (i) to the common elements of digital strategy? [7]
- 9. (a)** Answer both the questions
- (i) Prepare a list of characteristics which classifies big data.
  - (ii) In spite of the fact that cloud computing has huge benefits yet, it has some major causes of concern. Demonstrate each cause of concern. [7]
- (b)** “Business Process Reengineering may be considered to be a radical redesign of business processes often used by companies to cut costs and return to profitability” – critically analyse the statement. [8]