

**FACULTY OF COMMERCE & BUSINESS MANAGEMENT**  
**BBA (Gen) CBCS II-Year (IV-Semester) Regular & Backlog Examinations, June/July-2023**  
**Management Science**

Time: 3 Hours

Max Marks: 80

**SECTION-A**

(5×4=20 Marks)

Answer any Five questions from the following

1. Distinguish between production management and operations management.
2. Mention any four advantages of continuous production.
3. Explain how 'work study' concepts can be utilized to improve 'productivity'.
4. Define plant layout and give its objectives.
5. Discuss the importance of good vendor relations. What are the plus and minus points of a multiple-source buying policy.
6. Explain the use of OR techniques in management decision making.
7. Discuss the steps of Hungarian method.
8. List and explain the assumptions of linear programming problems.

**SECTION-B**

(5×12=60 Marks)

Answer all the following questions

9. (a) How does the production and operations management function distinguish itself from the other functions of management?  
**(OR)**  
 (b) Explain the concept of production planning and control. Discuss its main functions.
10. (a) Suggest suitable locations for the plants of following products:  
 (i) Ships  
 (ii) Cameras  
 (iii) Readymade garments.  
 (iv) Antibiotic medicines.  
 Give reasons for your choice.  
**(OR)**  
 (b) Define capacity planning. Discuss the procedure of capacity planning.
11. (a) What are the comparative advantages and disadvantages of carrying too high or too low stocks of inventories of (i) Raw materials; (ii) Finished goods. Explain, with the help of some illustrative examples?  
**(OR)**  
 (b) A company annually deals with 10,000 bottles of balms. The cost per bottle is Rs.20 and the company's cost of placing an order for the balm is Rs.500. The company's standard annual return on working capital fund is 12%. The cost of physical storage of the balm is fixed.  
 (i) Determine the optimal order quantity.  
 (ii) Inventory cycle duration for the balm.  
 (iii) How many orders should be placed each year?  
 (iv) Find the total relevant annual inventory cost for the balm.

12. (a) Minimise  $z = x - 3y$   
 Subject to the constraints  
 $x + y \leq 300$   
 $x - 2y \leq 200$   
 $2x + y \geq 100$   
 $x, y \geq 0$ .  
 By graphical method.

**(OR)**

- (b) Use duality to solve the LPP  
 Minimize  $z = 4x_1 + 2x_2 + 3x_3$   
 subject to  $2x_1 + 4x_2 \geq 5$   
 $2x_1 + 3x_2 + x_3 \geq 4$   
 $x_1, x_2, x_3 \geq 0$

13. (a) In a post office there is one clerk serving all the customers. Customers arrive following Poisson distribution at an average of 3 minutes per customer. The clerk can handle 25 customers in 1 hour. Find the following.
- (i) What the probability that the clerk is free?
  - (ii) If there are 10 total working hours in a day, then during this period exactly how many hours he works.
  - (iii) What is the expected number of customers in the system?

**(OR)**

- (b) Solve the following assignment problem for minimum solution.

		Time Matrix					
		Machines	M <sub>1</sub>	M <sub>2</sub>	M <sub>3</sub>	M <sub>4</sub>	M <sub>5</sub>
Workers							
W <sub>1</sub>			9	5	6	7	8
W <sub>2</sub>			8	5	7	7	8
W <sub>3</sub>			6	8	5	6	9
W <sub>4</sub>			8	10	7	6	5
W <sub>5</sub>			4	6	5	6	4