

25P244

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Name:

Reg.No:

SECOND SEMESTER M.Com. DEGREE EXAMINATION, APRIL 2026

(CBCSS - PG)

(Regular/Supplementary/Improvement)

CC19PMCM2C10 - MANAGEMENT SCIENCE

(Commerce)

(2019 Admission onwards)

Time : 3 Hours

Maximum : 30 Weightage

Part-A

Answer any *four* questions. Each question carries 2 weightage.

1. Describe the role of Management Science.
2. What do you understand by Graphic Method of solving a LPP?
3. Distinguish between feasible and basic feasible solutions.
4. Explain the terms 'Safety stock' and 'Lead time'.
5. Define the terms Queue.
6. What is Free float?
7. Define Competitive game.

(4 × 2 = 8 Weightage)

Part-B

Answer any *four* questions. Each question carries 3 weightage.

8. What are Models in Management Science?
9. A diet is to contain at least 4000 units of carbohydrates, 500 units of fat and 300 units of protein. Two foods A and B are available. Food A costs Rs. 2 per unit and food B costs Rs. 4 per unit. A unit of food A contains 10 units of carbohydrates, 20 units of fat and 15 units of protein. A unit of food B contains 25 units of carbohydrates, 10 units of fat and 20 units of protein. Formulate the problem as an LPP.
10. Explain the various steps involved in solving LPP by graphic method
11. Consider a modified form of 'matching based coins' game. The matching player A is paid Rs. 8 if two coins turn both heads and Rs. 1.00 if two coins turn both tails. B is paid Rs. 3 when the two coins do not match. Given the choice of being A or B, and what would be your strategy?
12. What do you understand by degeneracy in transportation problems? How would you solve degeneracy?

13. Find the optimum solution to the following assignment problem showing the cost for assigning workers to jobs.

	X	Y	Z
A	18	17	16
B	15	13	14
C	19	20	21

14. A bank has only one typist. Since the typing work varies in length and number of copies required, the typing rate is randomly distributed, approximately as a poisson distribution with mean service rate of 8 letters per hour during entire 8-hour work day. If the time of the typist is valued at Rs. 15 per hour, determine the following (i) equipment utilization (ii) the present time that an arriving letter has to wait (iii) average system time (iv) average cost due to waiting and operating typewriter.

(4 × 3 = 12 Weightage)

Part-C

Answer any **two** questions. Each question carries 5 weightage.

15. What do you mean by Assignment Problem? Explain the Assignment Algorithm.
16. Solve the following problem:
 Maximize $Z = 6X_1 + 4X_2$
 Subject to $-2X_1 + X_2 \leq 2$
 $X_1 - X_2 \leq 2$
 $3X_1 + 2X_2 \leq 9$
 $X_1, X_2 \geq 0$
17. The annual demand for an item is 6200 units. The unit cost is Rs. 8/-and inventory carrying charges 45% per annum. If the cost at one procurement is Rs. 350/-determine:
 1. Economic Order Quantity.
 2. Number of orders per year.
 3. Time between two consecutive orders.
 4. Total inventory cost (TIC).
 5. The total optimal cost including purchase cost.
18. Explain the usefulness of PERT and CPM techniques in decision making.

(2 × 5 = 10 Weightage)
