

24P244

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Name : .....

Reg. No : .....

**SECOND SEMESTER M.Com. DEGREE EXAMINATION, APRIL 2025**

(CBCSS-PG)

(Regular/Supplementary/Improvement)

**CC19P MCM2 C10 - MANAGEMENT SCIENCE**

(Commerce)

(2019 Admission onwards)

Time: 3 Hours

Maximum: 30 Weightage

**Part-A**

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

1. Define the term Management Science.
2. What is a linear programming problem?
3. Distinguish between feasible and basic feasible solutions.
4. What is Buffer Stock?
5. What do you understand by queuing model?
6. What is CPM?
7. What do you mean by 'minimax and maximin principle'?

**(4 × 2 = 8 Weightage)**

**Part-B**

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

8. What is meant by process of Management Science?
9. What are the basic assumptions in Linear Programming Model?
10. What is a feasible region? What will be the shape of a feasible region?
11. Find initial feasible solution to the transportation problem by Vogels approximation method.

Plants	W1	W2	W3	Supply
P1	10	7	14	19
P2	5	7	6	28
P3	4	5	8	17
Demand	18	25	19	65

12. A project work consists of three major jobs for which three contractors have submitted tenders. The tender amount coated in lakhs of rupees are given in the matrix below.

Contractors	Jobs		
	A	B	c
1	19	25	31
2	10	25	16
3	12	12	11

13. The following table gives the activities in a construction project and other relevant information.

Activity :	1-2	1-3	2-3	2-4	3-4	4-5
Duration :	30	25	10	12	8	10

- (a) Draw the network for the project. (b) Find free, total and independent floats for each activity.  
Which are the critical activities?

14. Customer arrive at a one window drive in bank according to poisson distribution with mean 10 per hour, Service time per customer is exponential with mean 5 minutes. The space in front of the windows, including that for the serviced car can accommodate a maximum of three cars. Other cars wait outside this space.

- (a) What is the probability that arriving customer can drive directly to the space in front of the window?  
(b) What is the probability that arriving customer will have to wait outside the indicated space?  
(c) How long is an arriving customer expected to wait before starting service?

(4 × 3 = 12 Weightage)

### Part-C

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

15. Explain the decision-making process under Markov Analysis.
16. A manufacturing company can make two products A and B. each of the products require time on a cutting machine and a finishing machine. Relevant data are furnished below:

Particulars	Product A	Product B
Cutting Hours per unit	2	1
Finishing Hours per unit	3	3
Profit per unit	Rs.6	Rs. 4
Maximum Sales (Units per week)	200 units	

The number of cutting hours available per week is 390 and finishing hour is 810. How many units of the product should be produced each week in order to achieve maximum profit for the company?

17. The annual demand for an item is 4200 units. The unit cost is Rs. 8 and inventory carrying charges 35% per annum. If the cost at one procurement is Rs. 250 determine.
- (a) Economic Order quantity per unit. (b) Number of orders per year.  
(c) Time between 2 consecutive orders. (d) The total optimal cost including purchase cost.

18. What are main steps in the application of Network Techniques?

(2 × 5 = 10 Weightage)

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