## SECOND SEMESTER M.Com. DEGREE EXAMINATION, APRIL 2024
(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. What is Decision making?
2. What do you mean by Feasible solution?
3. What are assignment problems?
4. Define inventory.
5. What do you mean by EOQ? Derive the formula of EOQ.
6. What is resource levelling?
7. What do you mean by Accounts Receivable?

**(4 × 2 = 8 Weightage)**

### Part-B

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

8. What are Modeling, Pre modeling and Post modeling?
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. Two players A and B, without showing each other, put a coin on a table, with head or tail up. If the coins show the same side (both head or tail), the player A takes both the coins; otherwise, B gets them. Construct the matrix of the game and solve it.
11. What is Big - M method?
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 | 17 | 25 | 31 |
| 2 | 10 | 25 | 16 |
| 3 | 12 | 14 | 11 |

13. A project is expected to take 15 months along the critical path having a standard deviation of 3 months. What is the probability of completing the project on the due date? if the due date fixed is a) 18 months b) 12 months?

14. Explain about slack and float variables with suitable examples.

**(4 × 3 = 12 Weightage)**

## Part-C

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

15. Define the term Management Science, its process and various models associated with different management problems.

16. Solve the Problem under Simplex Model.

Maximize $Z = 6X_1 + 7X_2$

Subject to $X_1 + 2X_2 \leq 12$

$$X_1 + X_2 \leq 4$$

$$X_1 \leq 3$$

$$X_1, X_2 \geq 0$$

17. Draw a network diagram comprising activities A, B, C …….. and K such that the following relationships are satisfied:

(a) A, B and C are the first activities of the project and can start simultaneously.

(b) A precedes D

(c) B precedes E and F

(e) F and C precede G

(f) E precedes H and I

(g) D and I precede J

(h) J precedes K

(i) H, G and K are the terminal activities of the project.

18. What are optimistic, pessimistic and normal time estimates in PERT calculations?

**(2 × 5 = 10 Weightage)**

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