Reg. No. : ....

Name : ....

IV Semester B.A. Degree (CBCSS – Reg./Sup./Imp.)
Examination, April 2020
(2014 Admn. Onwards)
Complementary Course
4C04 ECO : MATHEMATICAL ECONOMICS – II

Time : 3 Hours

Max. Marks : 40

PART – A

Answer **all** 4 questions (**Each** question carries **1** mark) :

1. A game with only two players (player A and player B) is called a _____ .

2. The maximization of the objective function is subject to certain limitations, which are called _____ .

3. Input-output analysis was first propounded by _____ .

4. In input-output analysis, it is assumed that production relations are _____ . **(4×1=4)**

PART – B

Answer **any** 7 questions (**Each** question carries **2** marks) :

5. Distinguish between deterministic games and probabilistic games.

6. What is meant by input-output analysis ?

7. What do you mean by Linear Programming ?

8. Define feasible solution.

9. What is meant by closed input-output model ?

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10. What is a slack variable ?

11. What do you mean by final demand in input-output analysis ?

12. Explain strategy in Game theory.

13. What is Leontief Matrix ?

(7×2=14)

14. Define key element in a simplex table.

PART – C

Answer **any 4** questions (**Each** question carries **3** marks) :

15. Write down the procedure to find the saddle point.

16. Distinguish between pure strategy and mixed strategy.

17. Differentiate static and dynamic input-output model.

18. Explain how a linear programming problem is solved by simplex method.

19. What are the basic assumptions of LPP ?

20. Given a technological coefficient matrix $\begin{bmatrix} 0.2 & 0.4 \\ 0.3 & 0.5 \end{bmatrix}$, examine whether the system is viable ?

21. An animal feed company must produce at least 200 kgs of a mixture consisting of ingredients X_1 and X_2 daily. X_1 costs Rs. 3 per kg. and X_2 Rs. 8 per kg. No more than 80 kg of X_1 can be used and at least 60 kgs of X_2 must be used. Formulate the problem as a Linear Programming Problem.

(4×3=12)

PART – D

Answer **any 2** questions (**Each** question carries **5 marks**) :

22. Find the saddle point of the following pay off matrix.

Player B → Player A ↓	I	II	III	IV
I	1	7	3	4
II	5	6	4	5
III	7	2	0	3

23. Suppose there are only three industries P, Q and R in an economy, The input coefficient matrix available is shown below ; $A = \begin{bmatrix} 0.2 & 0.6 & 0.2 \\ 0.3 & 0.1 & 0.3 \\ 0.1 & 0.2 & 0.2 \end{bmatrix}$ the final demands are known to be $F = \begin{bmatrix} 50 \\ 60 \\ 40 \end{bmatrix}$, find the Gross output of all the sectors.

24. Solve the following LPP by graphic method,

Maximize $Z = 5x_1 + 3x_2$

Subject to $3x_1 + 2x_2 \geq 12$

$x_1 + 2x_2 \leq 14$

$x_1 + x_2 \leq 8$

$x_1, x_2 \geq 0.$

$(2 \times 5 = 10)$

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