Reg. No. : ....

Name : ....

IV Semester B.A. Degree CBCSS (OBE) Regular/Supplementary/ Improvement Examination, April 2022
(2019 Admission Onwards)
COMPLEMENTARY ELECTIVE COURSE IN ECONOMICS/DEV. ECONOMICS
4C04ECO/DEV. ECO : Mathematical Economics – II

Time : 3 Hours

Max. Marks : 40

PART – A

Answer **all** questions. **Each** carries **one** mark.

1. What is LPP ?

2. What is closed input output model ?

3. What is pay off matrix ?

4. What is objective function in LPP ?

5. What is dynamic input output model ?

6. What is decision variable in LPP ?

(1×6=6)

PART – B

Answer **any six** questions. **Each** carries **two** marks.

7. State any four limitations of Linear programming.

8. Explain slack and surplus variable.

9. Explain the various characteristics of LPP.

10. Distinguish between Maximax and Minimax principle in game theory.

11. Explain saddle point in game theory.

12. Explain two person zero sum game with an example.

13. Explain any four applications of input output model.

14. Explain input coefficient matrix.

(6×2=12)

PART – C

Answer any four questions. Each carries three marks.

15. Solve the following linear programming problem via dual.

$$C = 4x_1 + 6x_2$$

Subjected to

Minimise $x_1 + 2x_2 \geq 4$

$$x_1 + x_2 \geq 3$$

$$x_1 \geq 0, x_2 \geq 0$$

16. Determine the solution of the following game.

		Player B		
		I	II	III
Player A	I	– 2	15	– 2
	II	– 5	– 6	– 4
	III	– 5	20	– 8

17. Explain Nash equilibrium with an example.

18. Use dominance property to solve the following games.

		Player B		
		B_1	B_2	B_3
Player A	A_1	6	8	6
	A_2	4	12	2

19. Write down the input matrix, the Leontief matrix and the specific input output matrix equation for the following case.

In a two industry economy, it is known that industry I uses 10 cents of its own product and 60 cents of commodity II to produce a dollar's worth of commodity I. Industry II uses none of its own product but uses 50 cents of commodity I in producing a dollar's worth of commodity II and the open sector demands $ 1000 billion of commodity and $ 2,000 billion of commodity II.

20. Explain the concept of prisoners dilemma.

(4×3=12)

PART – D

Answer **any two** questions. **Each** carries **five** marks.

21. Solve the following linear programming problem by graphic method.
Maximise, $Z = x_1 + x_2$
Subject to $x_1 + x_2 \leq 1$
$-3x_1 + x_2 \geq 3$
$x_1 \geq 0$
$x_2 \geq 0$

22. Solve the following LPP by the Simplex method:
Maximise $Z = 100x_1 + 60x_2 + 40x_3$
Subject to the constraints
$x_1 + x_2 + x_3 \leq 100$
$10x_1 + 4x_2 + 5x_3 \leq 500$
$x_1 + x_2 + 3x_3 \leq 150$
$x_1, x_2, x_3 \geq 0$

23. Given the technology matrix A and final demand vector F, find the gross output of the three sectors.

A =
0.05	0.25	0.12
0.15	0.12	0.20
0.10	0.15	0.15

F =
393
479
320

24. Solve the following games graphically and find the value of the game.

Player B

		B_1	B_2	B_3	B_4
Player A	A_1	70	25	45	40
	A_2	10	60	30	50

(5×2=10)