School of Liberal Arts
Economics
ETE - May 2023

Time : 3 Hours   **Marks : 50**

Sem IV - ECO6011 - Operations Research in Economics
Your answer should be specific to the question asked
Draw neat labeled diagrams wherever necessary

1.	Define the scope and importance of Linear Programming.	K1 CO1	(2)
2.	Describe diet problem is unique example of linear programming equation.	K2 CO2	(2)
3.	Write the Blending model of linear programming.	K3 CO3	(2)
4.	Analyse the concept of Simplex Method of linear programming.	K4 CO4	(2)
5.	Analyze the Production model	K4 CO5	(2)
6.	After some study, the farmer has decided that 40 units of nutritional element D are also critical for the daily feeding of his stock. One pound of Feeds 1 and 2 contains 4 and 2 units of element D, respectively. How does this change the analysis of the original problem? Calculate.	K3 CO1	(5)
7.	Analyse the Redundant Systems.	K4 CO2	(5)
8.	"Mathematics of Operational Research is mathematics of optimization." Examine	K5 CO5	(6)
9.	Analyse pivot term in linear equation system.	K4 CO3	(8)

10. Reframe the following equation into standard form of linear programming.   K5 CO4 (8)
Maximize $3x_1 - 2x_2$
subject to
$$5x^1 + 2x_2 - 3x_3 + x_4 \leqslant 7$$
$$3x_2 - 4x_3 \leqslant 6$$
$$x_1 + x_3 - x_4 \geqslant 11$$
$$x_1, x_2, x_3, x_4 \geqslant 0$$

11. Using the pivot operation, demonstrate the inconsistency of the following systems. Are either of   K6 CO5 (8)
these models the same as a model in its canonical form?
$$x_1 + 2x_2 = 3$$
$$x_1 + 2x_2 = 4$$