

(PAGES: 2)

D6BEC2302

Reg. No.....

Name:

SIXTH SEMESTER BA DEGREE EXAMINATION, APRIL 2026

(Regular/Improvement/Supplementary)

ECONOMICS

GE06B12T: MATHEMATICAL ECONOMICS

Time: 2 ½ Hours

Maximum Marks: 80

SECTION A: Answer the following questions. Each carries two marks.

1. Comment on supply function.
2. Find marginal revenue when $TR = 80q - 2q^2 - 15$.
3. If $C = 50 + .75 Y$, what is MPS?
4. Comment on cross elasticity of demand.
5. What is the significance of Lagrange Multiplier?
6. What is meant by Marginal rate of substitution?
7. Comment on utility function.
8. Define Investment function?
9. What is meant by duality in linear programming?
10. Define Price discrimination.
11. Find elasticity of demand, μ , if $P=5$, and $MR = 10$.
12. Define Optimum feasible solution.
13. Comment on production possibility curve.
14. Define linearly homogeneous function.
15. Comment on Leontief matrix.

SECTION B: Answer the following questions. Each carries five marks.

(Ceiling 35 marks)

16. Illustrate the meaning and importance of Mathematical Economics.
17. State how a perfectly competitive firm maximizes profit.
18. Check if the following function is linearly homogeneous. $Q = 200 L^{0.25} K^{0.75}$.

(PTO)

19. Solve the linear programming problem graphically:

$$\text{Maximize } \pi = 2.5X_1 + 2x_x$$

$$\text{Subject to } x_1 + 2x_2 \leq 8000$$

$$3x_1 + 2x_2 \leq 9000$$

$$x_1, x_2 \geq 0$$

20. Maximize $U = Q_1 Q_2$ subject to $P_1 = 10$ and $P_2 = 2$ and $B = 240$.

21. If $AC = (160/Q) + 5 - 3Q + 2Q^2$; find function for marginal cost.

22. Find price elasticity of demand at $P=5$ and $P = 15$. for $Q = -5P + 100$.

23. What is the significance of Lagrange Multiplier?

SECTION C Answer any two questions. Each carries ten marks.

24. What is Cobb Douglas production function? Prove its properties.

25. Explain the basic idea of the Leontief input-output model. Examine how the model is used to analyze the interdependencies between different sectors in an economy.

26. Maximize $U = Q_1 Q_2$ subject to $P_1 = 10$ and $P_2 = 2$ and $B = 240$.

27. Illustrate mathematically, how a discriminating monopolist firm archives maximum profit.

(2 x 10 = 20 Marks)