K – 4787

Reg. No. : ....

Name : ....

Third Semester M.A. Degree Examination, February 2021

Economics

Optional

EC 205 : MATHEMATICAL ECONOMICS

(2018 Admission Onwards)

Time : 3 Hours   Max. Marks : 75

PART – A

Answer **all** questions. Each carries **1** mark.

1. Given the demand function $Q = -5p + 140$, find the point elasticity of demand when $p = 20$.

2. Define elasticity of substitution.

3. State Euler's Theorem.

4. What is the importance of slack and surplus variable in the linear programming?

5. What do you mean by utility function? State its non-satiation property?

6. $P = 260 - 0.2q$, find revenue maximising level of output.

7. Distinguish maximin and minimax strategy.

8. What do you mean by price discrimination?

9. What do you mean by compensated demand?

10. Define producer's equilibrium.

(10 × 1 = 10 Marks)

P.T.O.

PART – B

Answer **any seven** questions. Each carries **5** marks.

11. State and prove the properties of linear homogeneous production function.

12. Given $AC = 2q^2 - 15q + 30\dfrac{48}{q}$, find AVC and MC when output $q = 5$.

13. $Q = x^2 + 2xy + y^2$, is this function homogenous? If so, what degree?

14. Distinguish between primal and dual in linear programming. Find the dual problem of the following :

    Maximise $Z = 6x + 8y$

    subject to $2x + 2y \le 20$
    $$2x + 4y \le 24$$
    $$x,\ y \ge 0.$$

15. Write a short note on Linear Expenditure System

16. Briefly explain price leadership model.

17. Briefly explain Williamsons model.

18. Distinguish between zero sum game and non-zero sum game. Give examples

19. $Q = 5500 - 6p_1 + 2p_2 + 0.6y$, where $y = 750$, $P1 = 500$ and $P2 = 300$ find own price elasticity, income elasticity and cross elasticity.

20. What do you mean by linear programming? Discuss its uses.

(7 × 5 = 35 Marks)

PART – C

Answer **any three** questions. Each carries **10** marks.

21. Explain Cournot's duopoly model.

22. Explain and prove the properties of Cobb-Douglas production function.

23. Derive slutsky equation.

24. Maximize $Z = 6X_1 + 8X_2$

    Subject to $2X_1 + 2X_2 \leq 20$
    $2X_1 + 4X_2 \leq 24$
    $X_1, \ X_2 \geq 0.$

25. Explain Baumol's static model of revenue maximisation.

(3 × 10 = 30 Marks)

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