C 21746 (Pages : 3) Name.....

Reg. No.....

SIXTH SEMESTER B.A. DEGREE (SUPPLEMENTARY/IMPROVEMENT) EXAMINATION, MARCH 2017

(UG–CCSS)

Economics

EC 6B 11—MATHEMATICAL ECONOMICS

(2013 Admissions)

Time : Three Hours Maximum : 30 Weightage

Part A

Answer **all** *questions.*
Each question carries ¼ weightage.

1. If the percentage increase in the quantity of a commodity demanded is smaller than the percentage fall in its price, the coefficient of price elasticity of demand is :

   (a) Greater than one. (b) Equal to one.

   (c) Smaller than one. (d) Zero.

2. Empirical demand curves refers to demand curves estimated from :

   (a) Utility theory.

   (b) The new approach to consumer theory.

   (c) Actual market price quantity observations.

   (d) None of these.

3. In a Linear programming problem, a feasible set of solution is one which satisfy :

   (a) Constraints. (b) Objective function.

   (c) Both of the Above. (d) Any of the above.

4. If the $MRTS_{LK}$ equals 2, then the MP_K / MP_L is :

   (a) 2. (b) 1.

   (c) ½. (d) 4.

5. Given the Cobb-Douglas Production function $Q = A K^{\alpha} L^{\beta}$, A refers to :

   (a) Managerial efficiency. (b) Marginal Productivity.

   (c) Marginal profit. (d) Marginal revenue.

6. The output elasticity of labour measures :

   (a) $(\Delta Q)/(\Delta L)$. (b) $(\%\Delta Q)/(\%\Delta L)$.

   (c) $(\Delta L)/(\Delta Q)$. (d) $(\%\Delta L)/(\Delta L)$.

Turn over

7. If P = 10, at the point on the demand curve where $e = 0.5$, MR is :

   (a) 5. (b) 0.

   (c) – 1. (d) – 10.

8. When the Marginal cost is less than average cost, the average cost is :

   (a) Rises. (b) Falls.

   (c) Constant. (d) None of these.

9. When the perfectly competitive firm but not the industry is in long run equilibrium :

   (a) P = MR = SMC = SAC.

   (b) P = MR = LMC = LAC.

   (c) P = MR = SMC = LMC ≠ SAC = LAC.

   (d) P = MR = SMC = LMC ≠ SAC = lowest point on the LAC.

10. When the demand curve is elastic, MR is :

    (a) 1. (b) 0.

    (c) Positive. (d) Negative.

11. At the point of Consumer equilibrium :

    (a) The Indifference curve is tangent to the Budget line.

    (b) The MRS_{XY} equals P_X / P_Y.

    (c) $MU_X/P_X = MU_Y/P_Y$.

    (d) All the above.

12. When the Total Product reached at its maximum, Marginal product is :

    (a) Zero. (b) Negative.

    (c) Positive. (d) One.

(12 × ¼ = 3 weightage)

Part B (Short Answer Type Questions)

Answer **all** *questions.*
Each question carries 1 *weightage.*

13. Define MRS_{xy}.
14. What is Price Discrimination ?
15. Mention two properties of Isoquant.
16. Define Elasticity of Substitution.
17. Shadow Price.
18. Cross elasticity of Demand.
19. State mathematically Engel's law.
20. Fixed coefficient Production function.
21. What is Dual Problem ?

(9 × 1 = 9 weightage)

Part C (Short Essay Questions)

Answer any **five** *questions.*
Each question carries 2 weightage.

22. A Monopolist uses an input X which he purchases at Rs. 5 to produce output Q. His Demand and Production function are $P = 85 - 3Q$, $Q = \sqrt[2]{X}$ respectively. Determine the value of P, Q and X at which monopolist maximizes the profit.
23. Find the AP, MP and output elasticity of capital and labour for the production function $Q = 10\ K^{0.7}L^{0.1}$.
24. Show the first and second order condition for consumer equilibrium for a given utility Function $U = f(Q_1, Q_2)$ and the budget constraint $M = P_1Q_1 + P_2Q_2$.
25. Establish the relationship between Average product and Marginal product.
26. Explain the Euler's Theorem.
27. Explain constrained output maximization for a give production function $Q = f(X_1, X_2)$. Subject to cost constraint $C = r_1X_1 + r_2X_2 + b$.
28. Elucidate the features of Perfect Competition.

(5 × 2 = 10 weightage)

Part D (Essay Questions)

Answer any **two** *questions.*
Each question carries 4 weightage.

29. Examine the properties of Cobb- Douglas Production Function.
30. Find the optimal solution for a given linear programming problem by using Simplex method :

    Maximize Profit $Z = 2.5\ X_1 + 2X_2$

    Subject to the Constraint

    $$X_1 + 2X_2 \leq 8000$$
    $$3X_1 + 2X_2 \leq 9000$$
31. Explain equilibrium price and output of a firm under Monopoly in the Short and long run.

(2 × 4 = 8 weightage)