



K21U 2011

Reg. No. :

Name :

**III Semester B.A. Degree (CBCSS – Sup./Imp.) Examination, November 2021
(2015 – '18 Admissions)
COMPLEMENTARY COURSE IN ECONOMICS/DEVELOPMENT ECONOMICS
3C03ECO – Mathematical Economics – I**

Time : 3 Hours

Max. Marks : 40

PART – A

Answer **all** questions (**Each** question carries **1** mark).

1. If the total revenue function is given as $R = 2x^2 + 10x$, MR is
2. Profit is the difference between
3. The marginal revenue for the demand function $P = 30 - 2x^2$ is
4. The goods which do not obey the law of demand is called

(4×1=4)

PART – B

Answer **any 7** questions (**Each** question carries **2** marks).

5. How will you explain average product of labour ?
6. What do you know about compensated demand curves ?
7. Calculate the marginal productivity of labour and capital from the production function $X = L^2 + 2L + 10$.
8. What is a Cobb-Douglas production function ?
9. Write a note on Average Total Cost.
10. Given the total cost function $C = 50 - 2Q + 7Q^2 + Q^3$, find the marginal cost when $Q = 5$.
11. What is a homothetic utility function ?

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12. For the Total Utility Function $U = 20x^4 + 7x^3 + 13x^2 + 12x + 9$, Compute Marginal Utility.
13. Define elasticity of substitution.
14. Distinguish between Monopoly and Monopsony. **(7×2=14)**

PART – C

Answer **any 4** questions (**Each** question carries **3** marks).

15. Given the Demand function and supply function for a market as $P = 80 - 3x$ and $P = 2x + 20$, determine the market equilibrium.
16. Given the following Revenue (R) and Cost (C) functions for a firm, $R = 20q - q^2$ and $C = q^2 + 8q + 2$, find the equilibrium level of output and price .
17. Explain the relationship between Average and Marginal cost Curves.
18. What is cross elasticity of demand ?
19. Given the Revenue Function $R = 30 + 15q - 17q^2$, calculate Marginal and Average Revenue functions.
20. What is an isoquant ? What are their properties ?
21. Find the elasticity of demand, if price of a commodity is Rs. 8 and MR is Rs. 6.
22. Write a note on Indirect utility function. **(4×3=12)**

PART – D

Answer **any 2** questions (**Each** question carries **5** marks).

23. What is price elasticity of demand ? What are the five types of price elasticity ?
24. Give the mathematical derivation of profit maximization of a firm under perfect competition.
25. What is Linear Expenditure System ?
26. Explain Duality in consumer theory. **(2×5=10)**