



K22U 3512

Reg. No. :

Name :

Third Semester B.A. Degree (CBCSS – OBE – Regular/Supplementary/
Improvement) Examination, November 2022
(2019 Admission Onwards)
COMPLEMENTARY ELECTIVE COURSE IN ECONOMICS/DEVELOPMENT
ECONOMICS
3C03ECO/DEVECO : Mathematical Economics – I

Time : 3 Hours

Max. Marks : 40

PART – A

Short answer type questions. Answer **all** questions. **Each** carries **one** mark.

1. If total revenue, $TR = 100 + 100Q^2$, then what is the marginal revenue ?
2. The differential co-efficient of $2X^3 + 3X^2 + 4X + 10$ is
3. Define mathematical economics.
4. What is optimisation ?
5. Describe utility.
6. Define monopoly. (6×1=6)

PART – B

Short essay type questions. Answer **any six** questions. **Each** carries **two** marks.

7. What is a dumping ?
8. If the saving function is given by $S = -150 + 0.4Y$, find the values of MPC and MPS.
9. Given the demand function, $P = Q^2 + 2Q + 1$, write down the TR and MR function.
10. Given production function, $Q = 36KL - 2K^2 - 3L^2$, find MP_L and MP_K .

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11. Show that Cobb-Douglas production function is linear homogeneous.
12. If price of a commodity is Rs. 3/- and price elasticity of demand is -3 , find the MR.
13. Establish the relationship between MPS and MPC in a two-sector model.
14. A profit maximising monopoly firm with a demand curve $P = 50 - Q$ and marginal cost is Rs. 10/-. Find out equilibrium quantity. **(6×2=12)**

PART – C

Essay type questions. Answer **any four** questions. **Each** carries **three** marks.

15. Distinguish between cardinal and ordinal utilities.
16. Explain consumer's surplus.
17. Given utility function, $U = xy + 3x + 4y$, find the marginal utilities of good x and y.
18. Compare marginal product and average product.
19. What is constrained optimization ?
20. Explain the various ingredients of a mathematical model with an example. **(4×3=12)**

PART – D

Long essay type questions. Answer **any two** questions. **Each** carries **five** marks.

21. Derive the equilibrium of a firm under perfect competition.
 22. From the demand function $Q = 400 - 6P$, find the price elasticity of demand at prices Rs. 4/-, Rs. 10/- and Rs. 15/-.
 23. Suppose the demand function is represented as, $Q_d = 70000 - 2000P$ and supply function as $Q_s = 5000 + 2000P$. Find the equilibrium price and quantity.
 24. Explain the Lagrange multiplier method of optimisation. **(2×5=10)**
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