K22U 3358

Reg. No. : .....

Name : .....

I Semester B.A. Degree (C.B.C.S.S. – O.B.E. – Regular/Supplementary/ Improvement) Examination, November 2022
(2019 Admission Onwards)
COMPLEMENTARY ELECTIVE COURSE IN ECONOMICS/DEVELOPMENT ECONOMICS
1C01ECO/DEVECO : Mathematics for Economic Analysis – I

Time : 3 Hours Max. Marks : 40

PART – A

Answer **all** the **6** questions. **Each** carries **one** mark.

1. Distinguish between variables and constants.
2. Define demand function.
3. For a linear consumption function C = 24 + 0.54 Y, where Y is income, find MPC.
4. Find the value of $\lim_{x \to 3}(x+4)$.
5. If total cost, TC = $3Q^3 + 4Q^2 + Q + 2$, find MC.
6. What is total differential ?

PART – B

Answer **any 6** questions. **Each** carries **2** marks.

7. Criterion for maximum value of a function.
8. What do you mean by point of inflection ?
9. Find $\lim_{x \to 2} \frac{x^2 - 4}{x - 2}$.
10. State product rule of differentiation.
11. What do you mean by quadratic function ? Give one example from economics.

P.T.O.

12. Find $\frac{d^2y}{dx^2}$, if $Y = X^4$.

13. The linear demand function $D = 10 - 2P$. Find price elasticity of demand at $P = 2$.

14. What is meant by constraint optimisation ?

PART – C

Answer **any 4** questions. **Each** carries **3** marks.

15. Draw the graph of $y = x^2$.

16. Write a note on continuity of a function. Check whether the function $f(x) = \frac{x-3}{x^2-9}$ is continuous at $x = 3$.

17. When AC is at its minimum, MC = AC. Prove.

18. Find $\frac{dy}{dx}$ if $y = \frac{3x(2x-1)}{5x-2}$.

19. Find concavity of the function $Y = 4X^3 - 2X^2 + X + 2$ at $X = 2$.

20. Given $Q = 700 - 2P + 0.02Y$, where $P = 25$, $Y = 5000$. Find price and income elasticity of demand.

PART – D

Answer **any 2** questions. **Each** carries **5** marks.

21. Explain the application of graphs and functions in economics with suitable examples.

22. What do you mean by homogenous production function ? Check whether Cobb Douglass production function is homogenous or not.

23. Explain the application of derivative in economics.

24. Minimise the cost of a firm $C = 5X^2 + 2XY + 3Y^2 + 800$ subject to the production quota $X + Y = 39$. Find the minimum cost. Also estimate additional cost if the production quota is increased to 40.

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