

Reg. No. :

Name :

Fourth Semester B.A. Degree Examination, May 2021

First Degree Programme under CBCSS

Economics

Core Course IV

EC 1441 : BASIC TOOLS FOR ECONOMICS I

(2015-2018 Admission)

Time : 3 Hours

Max. Marks : 80

SECTION – I

Answer in **one** or **two** sentences. Attempt **all** questions.

1. Elasticity of Demand.
2. Rank of a matrix.
3. Definite integrals.
4. Cubic equation.
5. Algebraic function.
6. Partial differentiation.
7. Parameter.
8. Endogenous variable.
9. Transpose of a matrix.
10. Slope.

(10 × 1 = 10 Marks)

SECTION – II

Answer **any eight** questions not exceeding one paragraph.

Each question carries **2** marks.

11. Define continuity of a function.
12. Distinguish between discrete and continuous variable.
13. Solve $4x + 7 = 3x + 12$
14. Solve $5x^2 - 125 = 0$
15. Find the limit $x \rightarrow 2 ; x^3 + 2x + 1$
16. Find the differential coefficient of $4x^3 + 3x^2 - 2x + 7$
17. Define an exponential function.
18. What is meant by differentiation?
19. What are the types of algebraic functions?
20. Define the marginal concepts MC, MR, Marginal productivity and Equilibrium situation.
21. Explain implicit and explicit function.
22. Explain different types of matrices.

SECTION – III

(8 × 2 = 16 Marks)

Answer **any six** questions not exceeding 120 words.

Each question carries **4** marks.

23. Find the equilibrium price and the quantity exchanged at the equilibrium price if supply and demand function are given by $S = 20 + 3P$ and $D = 160 - 2P$ when P is the price Charged.
24. State the rules of integration.
25. Explain various types of matrices.
26. Write a note on economic function.

27. What are the role of mathematics in economic theory.

28. What are the properties of matrix addition.

29. Explain the properties of limits.

30. Find A.B if $A = \begin{pmatrix} 3 & 1 & 2 \\ 4 & 5 & 0 \\ 0 & 0 & 8 \end{pmatrix}$ $B = \begin{pmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{pmatrix}$

31. $A = \begin{pmatrix} -5 & 9 & 0 \\ 4 & 3 & -4 \\ -8 & 7 & 5 \end{pmatrix}$ $B = \begin{pmatrix} 8 & -10 & 4 \\ 3 & -6 & 5 \\ 1 & 4 & 0 \end{pmatrix}$

Find A+B and A-B

(6 × 4 = 24 Marks)

SECTION – IV

Answer **any two** questions not exceeding four pages.

Each question carries **15** marks.

32. Solve the following system of equations applying Cramer's rule.

$$2x + 3y + 4z = 20$$

$$3x + 5y + 7z = 34$$

$$x + 2y + 4z = 17$$

33. Explain the role of mathematics in economic theory.

34. What are the economic applications of integral calculus.

35. Determine the maximum and minimum values of

(a) $x^3 - 6x^2 + 9x - 5$

(b) $4x^3 + 9x^2 - 12x + 13$

(2 × 15 = 30 Marks)