K22U 0012

Reg. No. : ....

Name : ....

VI Semester B.A. Degree (CBCSS-Supple./Improv.) Examination, April 2022
(2016 – 2018 Admissions)
CORE COURSE IN ECONOMICS/DEVELOPMENT ECONOMICS
6B 12ECO : Basic Tools For Economic Analysis – II

Time : 3 Hours

Max. Marks : 40

PART – A

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

1. Define limit of a function.

2. What is meant by Base shifting ?

3. Define Scatter Diagram.

4. What is a row matrix ?

(4×1=4)

PART – B

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

5. If $A = \begin{bmatrix} 1 & 2 & 3 \\ 2 & 0 & 1 \\ 1 & -1 & 2 \end{bmatrix}$, $B = \begin{bmatrix} 1 & 0 & 5 \\ 2 & -1 & 2 \\ 1 & 0 & 1 \end{bmatrix}$, $C = \begin{bmatrix} 1 & 0 & 1 \\ 2 & -1 & 1 \\ 1 & -1 & 0 \end{bmatrix}$. Find 2A + 3B – 4C.

6. Find $\dfrac{dy}{dx}$ if $y = \dfrac{x^2 - 1}{x^2 + 1}$.

7. Differentiate between a Diagonal matrix and a Scalar matrix and give an example for each.

8. If the total cost function is given by $TC = 60 - 12x + 2x^2$, find the marginal cost.

9. Explain the semi average method of measuring trend in time series analysis.

10. Define the line of best fit.

11. Distinguish between Minor and Co-factor.

12. What is splicing ?

13. Explain the conditions for Maxima and Minima of a function.

14. What is linear regression ? How it differs from non-linear regression ?   **(7×2=14)**

PART – C

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

15. If $A = \begin{bmatrix} 1 & 2 & 3 \\ 2 & 3 & 4 \\ -1 & 1 & 2 \end{bmatrix}$, $B = \begin{bmatrix} 0 & 2 & -1 \\ 1 & 3 & 4 \\ 0 & -2 & -3 \end{bmatrix}$. Find AB and BA.

16. Find the first order and second order partial derivatives of $Z = 12 - x^2 - y^2 + xy$.

17. Explain marginal cost, marginal revenue, marginal productivity and marginal utility.

18. From the data given below, find the regression equation of y on x :

x	2	3	4	5	6
y	3	5	4	8	9

19. Explain the components of time series.

20. Discuss about rank correlation.   **(4×3=12)**

PART – D

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

21. Solve the following equations using Cramer's Rule :
    2x + 3y + 4z = 20
    3x + 5y + 7z = 34
    x + 2y + 4z = 17

22. If the cost function C(x) = 4x + 6 and the revenue function is R(x) = 9x – x², where x is the number of units produced. Find (1) Marginal revenue (2) Marginal cost (3) Fixed cost (4) Variable cost at x = 5, (5) Profit function.

23. Explain the different methods for measuring trend.

24. Explain the various steps in the construction of Index Numbers.   **(2×5=10)**

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