(54)

**K23U 0362**

Reg. No. : .....

Name : .....

**VI Semester B.A. Degree (CBCSS – OBE-Regular/Supplementary/ Improvement) Examination, April 2023**
**(2019 and 2020 Admissions)**
**CORE COURSE IN ECONOMICS/DEVELOPMENT ECONOMICS**
**6B12ECO/DEV ECO : Basic Tools for Economic Analysis – II**

Time : 3 Hours  Max. Marks : 40

PART – A

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

1. Define Index Numbers.
2. Define limit of a function.
3. What is order of a matrix ?
4. Describe elasticity of demand.
5. What is a scatter diagram ?
6. Give a short description on seasonal variations. **(1×6=6)**

PART – B

Answer **any six** questions. **Each** question carries **2** marks.

7. Compare correlation and regression.
8. Given production function, $Q = 36KL - 2K^2 - 3L^2$, find $MP_L$ and $MP_K$.
9. Find the determinant of $\begin{bmatrix} 5 & 2 & 1 \\ 3 & 0 & 2 \\ 8 & 1 & 3 \end{bmatrix}$.

**P.T.O.**



10. Find $\lim_{x \to 3} \left[x^3 (2x + 5)\right]$.
11. Examine consumption function with an example.
12. Explain weighted index numbers.
13. Find the transpose of a matrix $A = \begin{bmatrix} 1 & 3 & 6 \\ 2 & 4 & 7 \\ 3 & 5 & 8 \end{bmatrix}$.
14. Explain positive and negative correlation. **(2×6=12)**

PART – C

Answer **any four** questions. **Each** question carries **3** marks.

15. Find the adjoint of the matrix $A = \begin{bmatrix} 0 & 1 & 2 \\ 1 & 2 & 3 \\ 3 & 1 & 1 \end{bmatrix}$.
16. Calculate Karl Pearson's correlation coefficient for the following data :

| | | | |
|---|---|---|---|
| X : | 6 | 8 | 10 |
| Y : | 12 | 10 | 20 |

17. If $y = 3x^4 + 6x^2 + 2x + 1$, find $\frac{d^2y}{dx^2}$ at $x = 2$.
18. Suppose revenue function of a multi-product firm is $Z = 3x^2 + 2xy + 5y^2$. Calculate the marginal revenues of x and y at $x = 5$ and $y = 3$.
19. Explain the components of time series.
20. Describe the method of OLS. **(3×4=12)**



PART – D

Answer **any two** questions. **Each** question carries **5** marks.

21. Calculate Laspeyre's and Paasche's index numbers for the following data.

| Commodity | Price | | Quantity | |
|---|---|---|---|---|
| | 2000 | 2010 | 2000 | 2010 |
| A | 12 | 14 | 18 | 16 |
| B | 15 | 16 | 20 | 15 |
| C | 14 | 15 | 24 | 20 |
| D | 12 | 12 | 29 | 23 |

22. Solve the following simultaneous equations using Crammer's rule.
$2x + 3y + 4z = 20$
$3x + 5y + 7z = 34$
$x + 2y + 4z = 17$
23. Find the maximum profit that a company can make if the profit function is given by $Z = 41 - 24x - 18x^2$.
24. Explain the various methods for the measurement of trend. **(5×2=10)**

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