

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.

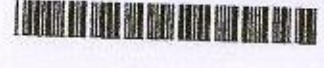
(1×6=6)

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  $\lim_{x \rightarrow 3} [x^3(2x+5)]$ .

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 Cramer's rule.

$$\begin{aligned} 2x + 3y + 4z &= 20 \\ 3x + 5y + 7z &= 34 \\ x + 2y + 4z &= 17 \end{aligned}$$

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)