K25U 0203

Reg. No. : .....

Name : .....

Sixth Semester B.A. Degree (C.B.C.S.S.-OBE – Regular/Supplementary/ Improvement) Examination, April 2025
(2019 to 2022 Admissions)
CORE COURSE IN ECONOMICS/DEVELOPMENT ECONOMICS
6B12ECO/DEVECO : Basic Tools for Economic Analysis – II

Time : 3 Hours Max. Marks : 40

PART – A

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

1. Why index numbers are called 'Economic Barometers' ?
2. Conceptualize derivative of a function.
3. What is marginal revenue ?
4. Define determinant.
5. Suppose AR = $6Q^2 + 4$, find MR.
6. What is a scatter diagram ? **(6×1=6)**

PART – B

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

7. Give a short description on seasonal variations.
8. Compare correlation and regression.
9. Given production function, $Q = 36KL - 2K^2 - 3L^2$, find MP_L and MP_K.
10. Find $\lim_{x \to 3}[x^3(2x+5)]$.
11. Explain weighted index numbers.
12. Explain positive and negative correlation.
13. What is splicing ?
14. Define minors. **(6×2=12)**

P.T.O.

PART – C

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

15. 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.

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. Define the determinant and explain its properties.

19. Find the determinant of i) $\begin{bmatrix} 5 & 2 & 1 \\ 3 & 0 & 2 \\ 8 & 1 & 3 \end{bmatrix}$ ii) $\begin{bmatrix} 1 & 2 & 3 \\ 0 & 1 & 2 \\ -1 & 0 & 3 \end{bmatrix}$

20. Describe the method of OLS. **(4×3=12)**

PART – D

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

21. Calculate Fischer's ideal index number for the following data.

Commodity	Price		Quantity	
	Base Year	Current Year	Base Year	Current Year
A	6	10	500	56
B	2	2	100	120
C	4	6	60	60
D	10	12	50	24
E	8	12	40	36

22. What is correlation ? Explain different degrees of correlation coefficient.

23. If $A = \begin{bmatrix} 1 & 2 & 2 \\ 2 & 1 & 2 \\ 2 & 2 & 1 \end{bmatrix}$, show that $A^2 - 4A - 5I = 0$.

24. Explain the applications of differential calculus in economics. **(2×5=10)**

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