K18U 0221

Reg.	No. :				
Name):				
	Semester B.A. Degree (CCSS - (2012-13	Adr	nn.)		
	CORE COURSE IN ECONOMICS 6B12 ECO : Basic Tools fo				
Гіте	: 3 Hours yallio (soignaM (d			Max. Weightage: 30	
	d). Average productivity				
	bas ewo as gripmenosem vd A PART	- A			
I. C	hoose the correct answer:				
1.	A square matrix A is said to be		if $A = A^2$.		
	a) Diagonal		Nilpotent		
	c) Idempotent	d)	Equal		
2.	When we express the value of money giving allowances to the changes in the price level, the process is known as				
	a) Splicing	b)	Deflating		
	c) Base shifting	d)	Shifting		
3.	is defined as the tendency to vary together directly or inversely.	of two	o or more group	os or series of items	
	a) Correlation	b)	Regression		
	c) Residual	d)	None of these		
4.	is a process of finding derivative of a function.				
	a) Differentiation	b)	Integration		
	c) Matrix	d)	Probability	(Weightage: 1)	
I. 5.	Derivative of x is				
	a) X b) 0	c)	x ²	d) 1	

- By _____ we mean combining two or more overlapping series of index numbers with different base.
 - a) Deflating

b) Splicing

c) Base shifting

- d) None of these
- is the change in the total utility for each additional unit of the commodity purchased.
 - a) Average utility

- b) Marginal utility
- c) Marginal productivity
- d) Average productivity
- The matrix obtained from any given matrix A by interchanging its rows and columns is called its ______
 - a) Symmetric

b) Equality

c) Transpose

d) Trace

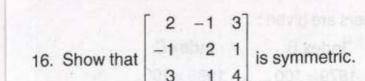
(Weightage: 1)

PART-B

(Short Answer Questions)

Answer any 10 and each question carries 1 weightage.

- 9. Fisher's index number is called ideal, why?
- 10. Distinguish between diagonal matrix and scalar matrix.
- 11. Differentiate $y = (x^2 + 1)(x + 2)$.
- 12. What are the problems in the construction of Index Numbers?
- 13. Find the first order and second order partial derivatives of $Z = 3x^3 2x^2y + 2xy^2 + y^3 + 8.$
- 14. What are the properties of limits?
- 15. Explain the components of time series.



17. What are the uses of correlation?

18. If
$$A = \begin{bmatrix} 3 & 0 & 7 \\ 1 & 4 & 2 \\ 5 & 1 & 4 \end{bmatrix}$$
 then find 4A.

- 19. Calculate weighted index numbers by
 - 1) Bowley-Dorbish method
 - 2) Marshell-Edgeworth method
 - 3) Fisher's method.

Commodity	Pi	rice	Quantity		
	Base year	Current year	Base year	Current year	
Α	4	7	10	8	
В	5	9	8	6	
С	6	8	15	12	
D	2	2	5	6	

20. Explain the rules of differentiation.

(Weightage: 1×10)

PART-C

Short Essay. Answer any five questions. Each question carries 2 weightage.

- 21. Find the inverse of A where A = $\begin{bmatrix} 3 & 5 & 7 \\ 2 & -3 & 1 \\ 1 & 1 & 2 \end{bmatrix}$
- 22. Find $\lim_{x\to 3} \frac{x^3 27}{x^2 9}$.

23. The following three series of Index numbers are given:

Year	Index A 1964 = 100	Index B 1979 = 100	Index C 1985 = 100	
1964	100			
1970	120	_S nollate	mua lo segu on	
1979	200	100	-	
1985	-	-	100	
1995		200	120	

Prepare spliced series of Index number with base 1985 = 100.

- 24. Differentiate $\frac{x+2}{x-1}$ with respect to $\frac{3x+1}{x-1}$.
- 25. Given the data:

		X	Y
Arithmetic Mean		36	85
Standard Deviation	A STATE OF THE REAL PROPERTY.	11	8

Correlation coefficient between x and y = 0.66.

- 1) Find the two Regression Equations.
- 2) Estimate the value of x when y = 75.
- 26. A function (x) is defined as follows:

$$f(x) = \frac{9x}{x+2} \text{ for } x < 1$$

$$= 3 \qquad \text{at } x = 1$$

$$= \frac{x+3}{x} \text{ for } x > 1$$

Examine whether the function is continuous in the interval (-3, 3).

27. Verify that Eulers theorem holds good in the case of

$$U = 8x^3 + 2x^2y + 3x^2y + y^3.$$

(Weightage: 2x5)

PART-D

Long Essay. Answer any two questions. Each question carries 4 weightage.

28. In a partially destroyed record of an analysis of correlation data the following results only are legible

Variance of x = 9

Regression equations:

$$8x - 10y + 66 = 0$$

$$40x - 18y = 214$$

Find:

- 1) The mean values of X and Y
- 2) The coefficient of correlation
- 3) The standard deviation of Y.
- 29. Explain the applications of derivatives in Economics.
- 30. Solve the simultaneous equation using Crammer's rule

$$2x - 3y + 5z = 11$$

$$5x + 2y - 7z = -12$$

$$-4x + 3y + z = 5$$

31. From the following data find Laspeyer's, Paasche's and Fisher's Index number and show that the Time and Factor Reversal Tests are satisfied by it.

Commodity	y Base year		Current year	
	Price	Expenditure	Price	Expenditure
Α .	8	80	10	120
В	10	120	12	96
С	5	40	5	50
D	4	56	3	60
Е	20	100	25	150 (Weightage: 4×2)