

Reg. No. :

Name :

VI Semester B.A. Degree (CCSS – Reg./Supple./Improv.)

Examination, May 2015

(2012 Admn.)

CORE COURSE IN ECONOMICS/DEVELOPMENT ECONOMICS

6B12 ECO : Basic Tools for Economic Analysis – II

Time : 3 Hours

Max. Weightage : 30

PART – A

Choose the correct answer.

- I. 1) A matrix obtained from any given matrix A by interchanging its rows and columns are called
 - a) Symmetric
 - b) Skew symmetric
 - c) Transpose
 - d) Inverse
- 2) A square matrix in which all the elements except those in leading diagonal are zero is called _____
 - a) Diagonal matrix
 - b) Zero matrix
 - c) Unit matrix
 - d) Triangular matrix
- 3) When $TR = 100x - x^2$, the MR is _____
 - a) 100
 - b) $-2x$
 - c) $100 - 2x$
 - d) $-x^2$
- 4) Mathematical measure of the average relationship between two or more variables in terms of original units of data is called
 - a) Regression
 - b) Correlation
 - c) Prediction
 - d) None of these

(Weightage 1)

II. 5) If MR is 7 and the elasticity of demand is 2, then AR is

- a) 7
- b) 14
- c) $\frac{14}{13}$
- d) $\frac{7}{2}$

6) Profit is maximum when

- a) $\frac{dp}{dx} = 0$
- b) $\frac{d^2p}{dx^2}$ is negative
- c) Both
- d) Any one

- 7) When data are arranged in chronological order it is called
 a) Cross section b) Pooled c) Time series d) Panel

8) $\frac{d}{dx}(a \log x)$ is

- a) $\frac{\log x}{a}$ b) $a \times 2(\log x)^2$
 c) $\frac{a}{x} + \log x$ d) $\frac{a}{x}$

(Weightage 1)

PART - B

Short answer questions. Answer **any 10 each** question carries **1** weightage.

9. Define skew symmetric matrix.
10. Distinguish between idempotent and nil potent matrix.
11. When two matrices will be equal ?
12. Define the condition for maximum of a function.
13. Define the term limit of a function.
14. What does coefficient of determination indicate ?
15. Find the regression coefficient of y on x if $2x + 4y - 5 = 0$ is the equation of y on x.
16. Examine whether $u = 3x^2 + 2xy + y^2$ satisfies Euler's theorem.
17. For the production function $16y^2 - y + 2(k - 4)^2 + 4(L - 5)^2 - 80 = 0$, find marginal productivities.
18. Index numbers.
19. In a perfect competition, the demand curve of a commodity.
 $D = 19 - 5p$ and supply curve is $S = 5p - 1$. Find equilibrium price.

20. Find the value of $\begin{vmatrix} 1 & 5 & 2 \\ 3 & 1 & 2 \\ 6 & 2 & 5 \end{vmatrix}$

(Weightage 10×1=10)

PART - C

Short Essay. Answer **any 5** questions.

21. Examine whether matrix multiplication is commutative or not.

22. Evaluate $\lim_{x \rightarrow 3} \left(\frac{x^3 - 27}{x^2 - 9} \right)$.

23. What is the use of differentiation in economics ?

24. Find the derivative of $y = \sqrt{3x^2 + 4x + 5}$.

25. What are the properties of determinants ?

26. What are the uses of consume price index ?

27. Distinguish between correlation and regression.

(Weightage 5×2=10)

PART - D

Long Essay. Answer **any 2** questions.

28. Using 2008 as the origin obtain a straight line trend equation by the method of least squares :

Year	2005	2006	2007	2008	2009	2010	2011
Values	140	144	160	152	168	176	180

29. Solve the following equations using Crammer's rule.

$$3x + y + z = 8, x + y + z = 6, 2x + y - z = 1$$

30. Find the point where the utility function $u = 48 - (x - 5)^2 - 3(y - 4)^2$ will have maximum or minimum value subject to the condition $x + 3y - 9 = 0$.

31. Explain about the problems in the construction of index numbers and its uses.

(Weightage 2×4=8)