## PART-D

Long Essay. Answer any two:

- 28. Given a production function:  $u = x^2y^3 + x^3y^2$ . Find du the total differential. Also work out Marginal products of the function when x and y are the inputs. Hence find out MRTS of the function.
- 29. Explain correlation and distinguish it from regression.
- 30. What are the steps involved in the construction of an index number? What are its uses?
- 31. Obtain straight line trend and forecast the value of 2010. Tabulate the values against each year.

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Value: 380

(Weightage: 2×4=8)

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| Reg. No. :       |                                      |  |
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| Name :           |                                      |  |
| VI Semester B.A. | Degree (CCSS - Reg./Supple./Improv.) |  |

Examination, May 2014 CORE COURSE IN ECONOMICS/DEVELOPMENT ECONOMICS 6B12-ECO: Basic Tools for Economic Analysis - II

Time: 3 Hours

Max. Weightage: 30

Instruction: Answers may be written either in English or in Malayalam.

PART-A

Objective type questions (in bunches of two). Choose the correct answer:

1. Singular matrices possess which of the following?

a) Submatrices

b) | A | ≠ 0

c) Having inverse

d) Square matrices

2. Error sum of squares are minimised in the method of

a) Moving averages

b) Semi moving averages

c) OLS

d) Graphs and diagrams

3. Regression coefficient are not

a) Absolute values

b) Relative values

c) Average values

d) Cause-effect values

4.  $\lim_{x \to 2} (x^2 + 1) (x^3 + 1) = \underline{\hspace{1cm}}$ 

a) 45

b) 5

c) 9

d) 0

(Weightage: 1)

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- 5. Data relating to different regular period of time is
  - a) Cross-section data
- b) Time-series data

c) Pooled data

- d) Panel data
- 6. Two regression lines intersect at
  - a)  $(\overline{X}, \overline{Y})$

b) (X, Y)

c) (0, 0)

- d) Any point
- 7.  $A \cdot A^T = I$  for which type of matrices ?
  - a) Diagonal matrix

b) Orthogonal matrix

c) Symmetric

- d) Skew symmetric
- 8. Fisher's Index number is \_\_\_\_\_\_ index number.
  - a) Harmonic mean

b) Arithmetic mean

c) Geometric mean

d) Simple (Weightage: 1)

PART-B

Short answer questions. Answer any ten.

- 9.  $A = \begin{bmatrix} 1 & 2 & 3 \\ 3 & 6 & 9 \\ 2 & 4 & 6 \end{bmatrix}$ . Test whether A is singular or nonsingular.
- 10. If X + Y = a is the total product function of a firm find its marginal product, which is  $\frac{dy}{dx}$ ?
- 11. Write the relationship among AR, MR and elasticity.
- 12. Define the term 'relative'.
- 13. Define reversal law of transposes.

- -3-
- 14. Explain adjoint of a matrix.
- 15. What is spurious correlation?
- 16. Define regression.
- 17. What are the methods to identify the relationship existing between tow variables?
- 18. Define price index number.
- 19. Define secular trend.
- 20. Find  $MP_L$  and  $MP_K$  of  $Q = aL^{\alpha}K^{\beta}$

(Weightage: 10×1=10)

PART-C

Short essay. Answer any five :

- 21. Explain the Cost of Living Index Number.
- 22. Show that  $A^3 + 4A^2 A 12I = 0$  when  $A = \begin{bmatrix} 0 & 1 & 2 \\ 2 & -3 & 0 \\ 1 & 1 & -1 \end{bmatrix}$
- 23. Explain Inverse of a Matrix.
- 24. Find the elasticity of supply when price = 5 units, supply function is  $q = 25 4p + p^2$  where q is the supply at price p.
- 25. A company has a total revenue R = 3x and total cost  $C = 100 + 0.015x^2$  where x = the no. of units produced. Find the production rate 'x' that will maximise profits of the company? Find that profit.
- 26. Explain the principle of Ordinary Least Squares and how it is useful in line of best fitting.
- 27. Explain Fisher's index number and its importance.

(Weightage: 5×2=10)