





## II

5. Data relating to different regular period of time is
- Cross-section data
  - Time-series data
  - Pooled data
  - Panel data
6. Two regression lines intersect at
- $(\bar{X}, \bar{Y})$
  - $(X, Y)$
  - $(0, 0)$
  - Any point
7.  $A \cdot A^T = I$  for which type of matrices ?
- Diagonal matrix
  - Orthogonal matrix
  - Symmetric
  - Skew symmetric
8. Fisher's Index number is \_\_\_\_\_ index number.
- Harmonic mean
  - Arithmetic mean
  - Geometric mean
  - 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.



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 two variables ?
18. Define price index number.
19. Define secular trend.
20. Find  $MP_L$  and  $MP_K$  of  $Q = aL^\alpha K^\beta$ .

(Weightage : 10x1=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 : 5x2=10)