

**NTK/KW/15-5840**

**Third Semester B. Sc. Examination**

**STATISTICS**

**Paper – II**

**(Economic Statistics)**

Time : Three Hours ]

[ Max. Marks : 50

**N. B. :** All the five questions are compulsory and carry equal marks.

1. (A) Define an index number. Discuss various problems in the construction of an index number. 10

**OR**

(E) Explain the procedure of constructing chain indices. Compare fixed base indices and chain indices. When are there two equal ?

(F) Explain time reversal test and factor reversal test. Show that Fisher's price index satisfies both the tests. 5 + 5

2. (A) Explain the steps in the construction of consumer price index. Describe the family budget method of calculating it.

(B) What are the different methods of computing national income ? Explain expenditure method of calculating national income. 5 + 5

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Contd.

**OR**

(E) Describe the method of construction of index of industrial production state its uses.

(F) Explain the method of construction of wholesale price index. What are its uses ? 5 + 5

3. (A) State the static laws of demand and supply. Explain how the market equilibrium price is determined. The demand and supply functions for a commodity are given by  
$$d = 19 - 3\phi - p^2$$
 and  $s = 5 p - 1$   
Find the equilibrium price and the quantity exchanged. 5 + 5

(B) Define :—

- (i) Price elasticity of demand.
- (ii) Cross price elasticity of demand.
- (iii) Income elasticity of demand.

Explain the classification of commodities on the basis of these elasticities. 5 + 5

(E) Explain Pareto's law of income distribution. What is Lorenz curve ? Define Gini's coefficient. Derive the expression for Gini's coefficient assuming that Pareto's law of income distribution holds. 10

4. (A) Define a time series. Describe its various components. Explain the method of fitting

mathematical curves for obtaining trend values, when

- (i) The trend is linear.
- (ii) The trend is exponential. 10

**OR**

- (E) Explain the ratio to moving average method of calculating the seasonal indices.
- (F) Explain Pigou's method of estimating price elasticity of demand on the basis of time series data. 5 + 5

5. Solve any **ten** of the following questins :—

- (A) Define Drobish-Bowley's price index
- (B) Write the formula for calculating price index using weighted geometric mean of price relatives
- (C) State true or false
  - (i) Marshall-Edgeworth's index Lies between Laspeyre's and Paashe's index.
  - (ii) Walsch's index satisfies time reversal test.
- (D) State Engel's law.
- (E) What is the value of Gini's coefficient if the Lorenz curve coincides with line of equal distribution ?
- (F) Define price elasticity of supply
- (G) Which index is used to deflate the money wages ?
- (H) Define Gross National product.

- (I) What is meant by splicing of index number series?
- (J) State the assumption mode in average percentage method of calculating seasonal indices.
- (K) State the criterion to decide the time period of moving average, while analyzing a time series.
- (L) Identify the predominant component in the following time series
  - (i) Sale of raincoats
  - (ii) Population of India.