KNT/KW/16/5125

Bachelor of Science (B.Sc.) Semester–III (C.B.S.) Examination

STATISTICS

Paper — II

(Economic Statistics)

Time : Three Hours] [Maximum Marks : 50

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

1. (A) Explain the concept of an index number. Why index number is called an economic barometer ? State its uses.

   (B) Explain the first five steps in the construction of index numbers. 5+5

OR

   (E) What are chain indices ? Explain the construction of chain indices. Distinguish between chain-base indices and fixed-base indices. Show that chain base indices will be equal to corresponding fixed base indices, if the formula used in its construction satisfies a circular test.

   (F) Explain time reversal test and factor reversal test. Show that Fisher's ideal index number satisfies time reversal test and factor reversal test. 5+5

2. (A) What is meant by base shifting ? What is its purpose ? Explain splicing of index numbers.

   (B) Explain the concept of cost of living index number. Describe the two methods of construction of cost of living index number. 5+5

OR

   (E) State any two uses of cost of living index number.

   (F) Define index of industrial production. Write its uses.

   (G) Explain the concepts of purchasing power of money and inflation.

   (H) Explain any two methods of computation of national income. 2.5×4=10

3. (A) What are demand and supply functions ? Explain Laws of demand and supply. Explain the concept of an equilibrium price. Describe the concepts of price elasticity of demand and price elasticity of supply. Interpret these concepts. 10

OR

(E) Explain income and cross elasticity of demand.

(F) State Engel's law. Define Engel's curve.

(G) State Pareto's law of income distribution. Explain the terms used in Pareto's function.

(H) If the demand functions of two commodities A_1 & A_2 are respectively given by :

$x_1 = p_1^{-1.3} p_2^{0.5}$, $x_2 = p_1^{0.3} p_2^{-0.5}$

Check whether the two commodities are complementary or substitutes.

Hence find the two cross price elasticities of demand. 2.5×4=10

4. (A) Define economic time series. State its different components. Explain additive and multiplicative models for time series data. State the uses of time series analysis. Explain the least square method of determination of trend. 10

OR

(E) Explain Leontief's method of estimating price elasticities of demand and supply from time series data stating its assumptions. Explain Pigou's method of estimating elasticity from time series data. State the limitations of these methods. 10

5. Solve any **ten** questions from the following :

(A) Define value index number.

(B) Which measure of central tendency is more appropriate in the construction of index numbers ?

(C) State the formula of an index number which has an upward bias.

(D) The demand and supply curves of a commodity are given by $D = 19 - 3p - p^2$, $S = 5p - 1$ respectively. Find the equilibrium price.

(E) Define Giffen's goods.

(F) State Gini's concentration ratio.

(G) Which organization compiles WPI ?

(H) Differentiate between inflation and deflation.

(I) Choose the correct alternative and rewrite the sentence :

In India, WPI is compiled (a) weekly (b) monthly and (c) yearly.

(J) State the assumption made in the simple average method of obtaining seasonal indices.

(K) Define a moving average of period K in time series data.

(L) Give an example of time series data where irregular component is more prominent. 1×10=10