B.Sc. (Statistics) Semester—III (C.B.S.) Examination

STATISTICS (Economic Statistics)

Compulsory Paper—2

Time : Three Hours] [Maximum Marks : 50

N.B. :— ALL questions are compulsory and carry equal marks.

1. (A) Define an index number. State its purpose. Explain the various steps in the construction of an index number. 10

OR

(E) Discuss the following tests to be satisfied by the index number formula :

(1) Time Reversal Test

(2) Factor Reversal Test

(3) Circular Test.

Show that Fisher's Index Satisfies T.R.T. and F.R.T. 10

2. (A) Explain the three methods of estimation of National Income.

(B) Distinguish between :

(1) Inflation and deflation

(2) Wholesale Price Index and Consumer Price Index. 5+5

OR

(E) What is meant by Index of Industrial Production ? How is it calculated ? State its uses.

(F) Explain the technique of base shifting stating its purpose. What is splicing of index number series ? Explain forward splicing method. 5+5

3. (A) Define :

(1) Price Elasticity of Demand

(2) Price Elasticity of Supply.

Interpret these concepts.

Show that a demand curve with constant price elasticity is a hyperbola and converse of the result is also true.

(B) Explain :

(i) Law of Demand and Supply

(ii) Equilibrium Price

(iii) Giffen's Paradox. 5+5

OR

(E) If the demand function of a commodity is $p = 4 - 5x^2$, for what value of x, the elasticity of demand will be unity ? (Here x is the quantity demanded and p is the price).

(F) Define income elasticity of demand, cross and partial elasticities of demand.

(G) How are commodities termed as complementary and substitute ?

(H) Explain Pareto's law of income distribution. 2.5×4=10

4. (A) Define time series with an example. Explain the four components of time series giving an example of each component.

(B) Explain the method of least squares for the measurement of the following types of trend equations

(1) a quadratic trend

(2) an exponential trend

State the merits of this method. 5+5

OR

(E) Write a note on business cycles.

(F) Distinguish between additive and multiplicative model in time series.

(G) Describe the method of ratio to trend for measuring seasonal variation in time series.

(H) Explain the uses of studying time series. 2.5×4=10

5. From the following questions, solve any ***ten*** questions :

(A) Define 'link relative'.

(B) Fill in the blanks :

_____ index has an upward bias and ____ index has a downward bias.

(C) Define price and quantity relatives.

(D) What was the previous base year for all India WPI ? What is the revised base year for this index from May 2017 ?

(E) Inflation is calculated on the basis of WPI/CPI/IIP (Choose the correct alternative).

(F) What is meant by disinflation ?

(G) If the demand curve is of the form $p = ae^{-kx}$; where p is the price and x is the demand, obtain the price elasticity of demand.

(H) State whether demand for necessities is elastic or inelastic.

(I) What is meant by curves of concentration ?

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

(K) Differentiate between seasonal and cyclic variation in time series.

(L) What is the purpose of deseasonalization of time series data ? 1×10=10