U.G. 4th Semester Examination - 2022

STATISTICS

[HONOURS]

Course Code : STAT-H-CC-T-10

(Economic Statistics)

Full Marks : 50(40+10) Time : $2\frac{1}{2}$ Hours

The figures in the right-hand margin indicate marks.

Candidates are required to give their answers in their own words as far as practicable.

Answer all the questions.

1. Answer any **five** questions: 2×5=10

   a) Write down the law of demand.

   b) What is formula error in constructing an index number?

   c) What is a family budget enquiry?

   d) How does moving average method of estimation of trend perform when actual trend is non-linear?

   e) What is income elasticity of demand?

   f) Write down the mathematical form of a Gompertz curve and a Logistic curve.

   g) What is purchasing power of money?

   h) What is autocorrelation function?

2. Answer any **two** questions: 5×2=10

   a) Explain different types of errors in constructing and index number.

   b) If L_p, P_p and L_q denote, respectively Laspeyres' price index, Paasche's price index and Laspeyres' quantity index, show that L_q $(P_p - L_p)$ may be looked upon as the weighted covariance between price relatives and quantity relatives, the weights being the base year values.

   c) Write a note on Moving Average process.

   d) State Engel's law. If e_i denotes the expenditure on the ith item and e_0 the total expenditure, show that the relationship $e_i = \frac{e_0^2}{1+e_0}$ does not follow Engel's law.

3. Answer any **two** questions: 10×2=20

a) Examine the behaviour of income-elasticity of demand for the different forms of the Engel curve where income increases indefinitely in

i) linear form

ii) linear on the doubly logarithmic scale

iii) semi-logarithmic form

iv) the hyperbolic form 10

b) What is a cost of living index number? How is a cost of living index constructed? Compare the effects of Laspeyres' and Paasche's formulae in constructing a cost of living index. 1+4+5

c) Write a short note on least square method. Explain the method of link relatives. 5+5

d) Derive the condition under which an AR(2) process is stationary. Derive the Yule-Walker equations for a stationary AR(2) process and discuss how you would estimate the parameters from them. 4+6

[Internal Assessment: 10]

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