

2023
B.A./B.Sc.
Fourth Semester
GENERIC ELECTIVE – 4
STATISTICS
Course Code: STG 4.11
(Applied Statistics)

Total Mark: 70
Time: 3 hours

Pass Mark: 28

Answer five questions, taking one from each unit.

UNIT-I

1. (a) What is meant by time series? Explain the importance of time series in business and economics. 1+3=4
(b) What are the components of time series? Describe each of them. 1+5=6
(c) Discuss the ratio to trend method for measuring seasonal variations. 4

2. (a) Describe the mathematical models of time series. 4
(b) What do you mean by trend in time series? Discuss the method of moving averages for measuring trend. 1+5=6
(c) Explain the link relative method for measuring seasonal variations. 4

UNIT-II

3. (a) What is meant by index numbers? Mention the characteristics of index numbers. 1+3=4
(b) Describe briefly the problems involved in the construction of index numbers. 6
(c) Explain with justifications why Fisher's index numbers is called an ideal index number. 4

4. (a) Discuss about classifications of index numbers. 5
(b) Write down any four methods of constructing index numbers. 4

- (c) What is cost of living index number? Explain the main steps in the construction of cost of living index number. 1+4=5

UNIT-III

5. (a) What role does statistical quality control (SQC) play in maintaining the quality of a product. 2+2=4
(b) What is control charts? Explain the basic principles underlying the control charts. 2+3=5
(c) Describe about R-chart mentioning the control limits. 5
6. (a) How can the Shewhart's control chart be interpreted to draw meaningful conclusion. 4
(b) Describe briefly the basis and working of control charts for mean and range. 5
(c) Distinguish between defect and defective. How do you calculate control limits for a c-chart? 2+3=5

UNIT-IV

7. (a) Define the term "vital statistics". Mention some uses of vital statistics. 1+3=4
(b) What is meant by life table? Write the assumptions of life table. 2+3=5
(c) Write notes on standardized death rates. 5
8. (a) Explain briefly the registration method for obtaining data on vital statistics. 3
(b) Define the term fertility. Write down the formulae of CBR, GFR, and TFR. Discuss their relative merits and demerits as measure of fertility. 1+3+3=7
(c) Describe about various columns of a life table. 4

UNIT-V

9. (a) Give the concept of demand and supply with examples in economics. 4
(b) Explain about the law of supply and demand. 5
(c) Discuss about price elasticity of demand. 5

10. (a) Discuss about the laws of supply and demand. 5

(b) The demand functions of two commodities A and B are:

$$D_A = 10 - p_A - 2p_B, D_B = 6 - p_A - p_B$$

and the corresponding supply functions are:

$$S_A = -3 + p_A + p_B, S_B = -2 + p_B$$

where p_A and p_B denotes the prices of A and B respectively. Find

(i) the equilibrium prices

(ii) the equilibrium quantities exchanged in the market

4

(c) Discuss about the general principles regarding elasticity of demand.

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