

2021
B.A./B.Sc.
Fifth Semester
Discipline Specific Elective – 2
STATISTICS
Course Code: STD 5.21
(Time Series Analysis)

Total Mark: 70

Pass Mark: 28

Time: 3 hours

Answer five questions, taking one from each unit.

UNIT-I

1. (a) Define time series. What are the purposes served by time series analysis? Write down the main drawbacks. 2+2+3=7
(b) Explain the additive and multiplicative models of a time series stating clearly the assumptions. 7
2. Describe the nature of the components of time series with illustrations. 14

UNIT-II

3. (a) Explain any two methods for determining trend in a time series. 7
(b) Write down the fitting of 7
 - (i) straight line by least square
 - (ii) exponential curve
4. Describe the modified exponential curve and its fitting. 14

UNIT-III

5. (a) What methods are generally used for measuring the seasonal variations? Write down the steps involved in measuring the methods of simple average method. 7
(b) Explain in brief the link relative method. 7
6. Explain the term 'cyclical component of a time series'. Write down the common methods of measuring the cyclic variations. 14

UNIT-IV

7. (a) Explain the concept of multicollinearity by Venn diagram. 7
(b) Write down the first order auto-regression series (Markoff's series). 7
8. (a) Explain white noise and strict stationarity. 7
(b) Write the correlogram of moving average. 7

UNIT-V

9. (a) Write a note on irregular component of time series. 4
(b) Discuss about the variate difference method and write down its mathematical form. 6
(c) What do you mean by stationarity in time series? Explain briefly. 4
10. (a) Write a short note on variate difference method. 7
(b) Give the concept of exponential smoothing method. Mention various types of exponential smoothing method and explain about single exponential smoothing. 2+1+4=7