

October 2025
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) What is time series analysis? Discuss its uses. 10
- (b) Discuss the main problems in the analysis of time series. 4
2. (a) Write the method of curve fitting by principle of least squares. 4
- (b) Discuss the two methods of fitting modified exponential curve. 10

UNIT-II

3. (a) What are the limitations of hypothesis of decomposition of a time series? 4
- (b) Discuss the method of iterated averages. 5
- (c) Discuss the drawbacks of the moving average method. 5
4. (a) Explain method of moving average 5
- (b) What is Spencer's formula? 5
- (c) Discuss the merits and demerits of ratio to trend method. 4

UNIT-III

5. (a) Mention the objectives for studying seasonal patterns in a time series. 4
- (b) Explain the method of simple average. 5
- (c) Discuss the ratio to moving average method. 5
6. (a) Explain the term deseasonalisation of data. 5

- (b) What are the methods used to study cyclical variations? Explain in detail any one of them. 9

UNIT-IV

7. (a) What is a correlogram? Give the correlogram of a seasonal data. 7
(b) Explain the concept of multicollinearity by Venn diagram. 7
8. (a) What is autocorrelation? Obtain the correlogram for a simple MA Process. 7
(b) What is stationarity in time series? Explain in detail strongly stationary or first order stationarity. 7

UNIT-V

9. Discuss the method to estimate the variance of the random component in a time series. 14
10. (a) Discuss the Box-Jenkins method of short-term forecasting. 5
(b) Explain the exponential smoothing method. What are the three types of ESM. 9
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