Exam Date & Time: 30-Sep-2020 (02:00 PM - 05:45 PM)

# PSG COLLEGE OF ARTS AND SCIENCE

**Note: Writing 3hrs: Checking & Inserting Image : 30mins+ Grace Time : 15mins**

**MSc DEGREE EXAMINATION MAY 2020**
**(Fourth Semester)**

**Branch - STATISTICS**

**TIME SERIES AND FORECASTING [18STP22]**

**Marks: 75** **Duration: 225 mins.**

## SECTION A

**Answer all the questions.**

1) The Time Series analysis helps __________.
(i) To compare two or more series
(ii) To Make Predictions
(iii) To know the behaviour of business (1)
(iv) All the above

2) Seasonal Variations are measured by ________.
(i) Semi average Method
(ii) Graphical Method
(iii) Ratio- to trend Method (1)
(iv) Method of least squares

3) ______is used to forecast the future values when all four components are present in the time series data.
(i) Single Exponential Smoothing
(ii) Double Exponential Smoothing (1)
(iii) Triple Exponential Smoothing
(iv) Smoothing Techniques

4) _______ is used when a trend cycle is present but no seasonal variations are present
(i) HOLT's Exponential Smoothing
(ii) Winter – Holt's Exponential Smoothing (1)
(iii) Single Exponential Smoothing
(iv) Weighted Moring average

5) A sequence of uncorrelated random variables with zero mean and variance $\sigma^2$ is called _________.
(i) Moring average (ii) Stationary (1)
(iii) White noise (iv) Non- Stationary

6) Autoregressive model of order 1 is denoted by ARIMA ___ (1)
(i) (1,0,0)
(ii) (0,0,0)

(iii) (0,0,0)
(iv) (0,1,0)

7) ______ tests whether a time series variable is non- stationary.
(i) Random Walk
(ii) White noise
(iii) Unit root test (1)
(iv) Random walk with drift

8) _____ data are unpredictable.
(i) Non- Stationary
(ii) Stationary
(iii) Random Walk (1)
(iv) Time - series

9) ______methods make use of historical data.
(i) Quantitative
(ii) Qualitative
(iii) Time series (1)
(iv) Casual

10) ______ forecasts are important for technologically advanced companies.
(i) Environmental
(ii) Long Range
(iii) Short Range (1)
(iv) Technological

## SECTION B

**Answer all the questions.**

11) a) Explain the method of least squares. (7)

[OR]

b) Briefly discuss about the components of time series. (7)

12) a) Explain about (i) Single Exponential Smoothing (ii) Double Exponential Smoothing. (7)

[OR]

b) Define (i) Double Moring averages. (ii) Stationarity of a stochastic process. (7)

13) a) What is Autoregressive process? (7)

[OR]

b) Explain ARMA (POQ)process. (7)

14) What is unit root test? (7)

a)
[OR] Explain Dickey – Fuller test.
b) (7)

15) Explain about Short, Medium and Long range forecast.

(7)

a)
[OR] Explain in detail about Qualitative forecasting methods.
b) (7)

## SECTION C

**Answer 3 out of 5 questions.**

16) Explain in detail various methods of determining a trend in time series. (10)

17) Elaborate in detail about Triple Exponential Smoothing along with its additive model. (10)

18) Explain the autocovariance function of ARMA(P,Q) process. (10)

19) Discuss in detail about types on Non- stationary processes. (10)

20) Explain detail about model selection techniques. (10)

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