20STP21

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

MSc DEGREE EXAMINATION MAY 2023
(Fourth Semester)

Branch – **STATISTICS**

TIME SERIES & FORECASTING

Time: Three Hours

Maximum: 50 Marks

SECTION-A (5 Marks)
Answer **ALL** questions
ALL questions carry **EQUAL** marks (5 x 1 = 5)

1 Moving average method is used for measurement of trend when trend is _____.
(i) linear (ii) non-linear (iii) parabolic (iv) exponential

2 The sum of weights in exponential smoothing is ______.
(i) <1 (ii) 1 (iii) 0 (iv) >1

3 For the ARMA(p,q) process, there will be _____ autocorrelations.
(i) p (ii) q (iii) pq (iv) q^2

4 If moving average component (q) in an ARIMA model is ___, it means that there is auto-correlation in the series with lag 1.
(i) 1 (ii) 3 (iii) 2 (iv) 4

5 A qualitative forecast techniquie is
(i) Regression (ii) Market research
(iii) moving averages (iv) exponential smooting

SECTION - B (15 Marks)
Answer **ALL** Questions
ALL Questions Carry **EQUAL** Marks (5 x 3 = 15)

6 a. State addition and multiplicative decomposition of time series.
(OR)
b. Define stationarity of time series.

7 a. When do you use centred moving averages?
(OR)
b. What do you mean by double moving averages?

8 a. Define moving average of order one.
(OR)
b. State the properties of ARMA models.

9 a. What do you mean by Random walk with drift?
(OR)
b. Explain the unit root test for stationarity.

10 a. Describe the uses of forecasting.
(OR)
b. What are qualitative methods on forecasting?

Cont...

SECTION -C (30 Marks)

Answer **ALL** questions
ALL questions carry **EQUAL** Marks (5 x 6 = 30)

11 a. Explain components of time series.

(OR)

b. Discuss autocovariance and autocorrelation of time series.

12 a. Elaborate on weighted moving averages.

(OR)

b. Describe the procedure of Holt and Winter's model of exponential smoothing.

13 a. Explain about stationarity of ARMA model.

(OR)

b. Discuss about ACF and PACF.

14 a. Discuss about the tests for nonstationarity.

(OR)

b. Elucidate about Augmented Dickey Fuller test for stationarity.

15 a. Explain the steps involved in stochastic model in forecasting.

(OR)

b. Write in detail about evaluation of forecasting models.

Z-Z-Z END