Seat No:_____ Enrollment No:_____

PARUL UNIVERSITY

FACULTY OF MANAGEMENT

MBA, Examination March-2022

Semester: 4 **Date: 25/03/2022**

Subject Code: 06209253 **Time: 10:30 am to 1:00 pm**

Subject Name: Time Series Econometrics **Total Marks: 60**

Instructions

1. All questions are compulsory.
2. Figures to the right indicate full marks.
3. Make suitable assumptions wherever necessary.
4. Start new question on new page.

Q.1 Do as Directed.

A).Multiple choice type questions. (Each of 1 mark) **(05)**

1. Which one (s) of the following can be used for forecasting ?

a) Time series Regression **c)** Time series Decomposition

b) Time series Smoothing **d)** All of these

2. If smoothing constant (alpha) is 0.7, and if for a given period the forecast value = 90 and actual value =100 , then what will be the forecast value for next period using exponential smoothing method?

a) 100 **c)** 93

b) 90 **d)** 97

3. In Time Series Decomposition, that is , T. C. S. I, what does ' T' stand for?

a) Tensor Component **c)** Tertiary Vector Component

b) Training Component **d)** Trend Component

4. In Time Series Decomposition, that is, T.C.S.I, what does 'I' stand for?

a) Irrationality Component **c)** Ir-reversibility Component

b) Incompatibility Component **d)** Irregularity Component

5. What does MLE stand for?

a) Minimum Log Estimation **c)** Maximum Log Estimation

b) Minimum Likelihood Estimation **d)** Maximum Likelihood Estimation

B).Define the following. (Each of 1 mark) **(05)**

1. Cyclicity in Time Series

2. Seasonality in Time Series

3. Exponential Smoothing Method

4. Trend analysis

5. Slope of a regression model

C).Direct questions. (Each of 1 mark) **(05)**

1. Give one example of an econometric model.

2. What is a VAR model ?

3. What is ARIMA model ?

4. How is VARIMAX model different from ARIMA model ?

5. What is AutoCorrelation in Regression ?

Q.2 Answer the following questions.

A). What is Multiple regression ? Discuss its use with any relevant example. **(07)**

B). Discuss time series decomposition with any relevant example. **(08)**

Q.3 Answer the following questions.

A). The following data is about the sales trend in different years of a firm. **Sales:** 25, 32 , 29, 47, 52 and Corresponding **Year:** 2006, 2007, 2008, 2009, 2010. Using Ordinary Least Square – simple linear regression method, what is the forecast value for year 2012 ? **(07)**

B). The following data is about the monthly actual values of interest rate changes of a financial small scale cooperative bank. Using three months weighted moving average with weight of previous period as 0.7, previous to previous period as 0.2 and previous to previous to previous period as 0.1, find out the forecast interest rate for this bank for the month of April, May and June. The actual values are given as follows: **(08)**

Interest Rate: 5.3%, 5.35%, 5.49%, 6.01%, 5.89% , 6.23%, 6.45% for corresponding **Months:** January, February, March, April, May, June, July

Q.4 Attempt any two questions. **(Each of 7.5 mark)** **(15)**

1. What is Likelihood Estimation? Discuss with an example of your own.
2. What is residual analysis in regression? Discuss with an example.
3. What is logit analysis ? Discuss with an example.
4. Write a short note on different smoothing techniques used in time series forecasting.