**Question Bank – Time Series Analysis and Forecasting**

**Co1 Unit 1**

1. Explain how to plotting smoothing data
2. Can you explain use of forecasts and time series?
3. Explain Mean Absolute Error (MAE), Root Mean Squared Error (RMSE)
4. Explain Time Series Analysis Types and Examples
5. What is Evaluating and how Monitoring Forecasting Model Performance methods we can use.
6. Explain Auto-covariance and Auto-correlation Functions

**Co2 Unit 2**

1. Which R commands used in regression analysis
2. What is regression and write types of regression
3. What is residual? How to use residual plot analysis
4. Explain SST,SSR,SSE,R2
5. Explain Steps to conduct hypothesis on regression coefficient .
6. Explain variable selection methods in regression.

**Co 3 -Unit 3**

1. Explain Simple Exponential Smoothing and Holt’s linear exponential smoothing l
2. How would you explain Methods for Adaptive Updating
3. Explain times series modeling steps -Preprocessing Time Series Data, Modeling Techniques
4. What is Exponential smoothing and give details Simple Exponential Smoothing

**Co 3 - Unit 4**

1. What is autoregressive integrated moving average (arima) models
2. Can you illustrate modeling procedure bio-surveillance data using ARIMA)
3. Why Use ARIMA Models write its applications
4. Can you illustrate Linear Models for Stationary Time Series and describe Autoregressive (AR) Model and Moving Average (MA) Model)

**Co 4 - Unit 5**

1. What is Intervention Analysis? and Write Transfer Function–Noise Models in R using the tfarima package
2. What is transfer function model and write Steps to Build a Transfer Function Model
3. Explain Transfer Function–Noise Model Specification with steps
4. What is transfer function model and write Steps to Build a Transfer Function Model

**Co 4 - Unit 6**

1. Classify common multivariate time series models and Performance Evaluation Techniques.
2. Explain Aggregation and Disaggregation in detailsExplain Neural networks architecture types and Write steps of Forecasting with Neural Networks.
3. Explain Spectral Analysis and write its applications
4. Illustrate Practical Implementation and Use of Statistical Forecasting.