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

**Co1 Unit 1**

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| **Questions** | **Blooms level** |
| 1. Explain how to plotting smoothing data | **L2** |
| 1. Can you explain use of forecasts and time series? | **L2** |
| 1. Explain Mean Absolute Error (MAE), Root Mean Squared Error (RMSE) | **L2** |
| 1. Explain Time Series Analysis Types and Examples | **L2** |
| 1. What is Evaluating and how Monitoring Forecasting Model Performance methods we can use. | **L2** |
| 1. Explain Auto-covariance and Auto-correlation Functions | **L2** |

**Co2 Unit 2**

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| **Questions** | **Blooms level** |
| 1. Which R commands used in regression analysis | **L2** |
| 1. What is regression and write types of regression | **L2** |
| 1. What is residual? How to use residual plot analysis | **L1** |
| 1. Explain SST,SSR,SSE,R2 | **L2** |
| 1. Explain Steps to conduct hypothesis on regression coefficient . | **L2** |
| 1. Explain variable selection methods in regression. | **L2** |

**Co 3 -Unit 3**

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| **Questions** | **Blooms level** |
| 1. Explain Simple Exponential Smoothing and Holt’s linear exponential smoothing l | **L2** |
| 1. How would you explain Methods for Adaptive Updating | **L2** |
| 1. Explain times series modeling steps -Preprocessing Time Series Data, Modeling Techniques | **L2** |
| 1. What is Exponential smoothing and give details Simple Exponential Smoothing | **L2** |

**Co 3 - Unit 4**

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| **Questions** | **Blooms level** |
| 1. What is autoregressive integrated moving average (arima) models | **L1** |
| 1. Can you illustrate modeling procedure bio-surveillance data using ARIMA) | **L2** |
| 1. Why Use ARIMA Models write its applications | **L1** |
| 1. Can you illustrate Linear Models for Stationary Time Series and describe Autoregressive (AR) Model and Moving Average (MA) Model) | **L2** |

**Co 4 - Unit 5**

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| **Questions** | **Blooms level** |
| 1. What is Intervention Analysis? and Write Transfer Function–Noise Models in R using the tfarima package | **L2** |
| 1. What is transfer function model and write Steps to Build a Transfer Function Model | **L2** |
| 1. Explain Transfer Function–Noise Model Specification with steps | **L2** |
| 1. What is transfer function model and write Steps to Build a Transfer Function Model | **L1** |

**Co 4 - Unit 6**

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| **Questions** | **Blooms level** |
| 1. Classify common multivariate time series models and Performance Evaluation Techniques. | **L2** |
| 1. Explain Aggregation and Disaggregation in details | **L2** |
| 1. Explain Neural networks architecture types and Write steps of Forecasting with Neural Networks. | **L2** |
| 1. Explain Spectral Analysis and write its applications | **L2** |
| 1. Illustrate Practical Implementation and Use of Statistical Forecasting. | **L2** |