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| **Time Series Class Assessment** | **[Time: 3 hrs] [Total Marks: 100]** |

**Forecasting Stock Price**

For the given “SBI\_Historical\_Data”. Below is the data description:

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| **Column** | **Description** |
| Date | date on which data is recorded |
| Price | Unique number assigned to each category of the video |
| Open | current day open point |
| High | current day highest point |
| Low | current day lowest point |
| Vol | the amount of a security that was traded during a given period of time. For every buyer, there is a seller, and each transaction contributes to the count of total volume. |
| Change % | % change in the current value and the previous day's market close |

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|  | Perform the following tasks: | Marks |
| Q. 1 | As part of EDA, perform the following tasks:   1. Print dimensions of the data 2. Dimensions of Dataset 3. Statistical Summary 4. Converting Date 5. Check Data Type and Missing Values 6. Index the dataset with Date | [30] |
| Q. 2 | Perform time series analysis:   1. Visualize time series data 2. Check Stationarity with:    * ADF Test    * KPSS Test 3. Perform decomposing | [30] |
| Q. 3 | Forecast about the stock price using ARIMA. Steps to be performed:   * + 1. Parameter Selection using gridsearch     2. Fit ARIMA model as per the selected optimum value of parameters     3. Validate forecast     4. Calculate the MSE and RMSE     5. Visualize the forecast | [40] |