

Enrolment No. /Seat No.: \_\_\_\_\_

**GUJARAT TECHNOLOGICAL UNIVERSITY**  
**MCA INTEGRATED – SEMESTER VIII- EXAMINATION –WINTER-2024**

**Subject Code: 4480602**

**Date: 22/11/2024**

**Subject Name: Data Analytics with R**

**Time:02:30 PM TO 05:00 PM**

**Total Marks: 70**

**Instructions:**

1. Attempt all questions.
2. Make Suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. Use of simple calculators and non-programmable scientific calculators are permitted.

- Q.1** (a) Briefly explain the concept of Data Analytics and its importance. **07**  
(b) Differentiate between structured, semi-structured, and unstructured data. Provide examples of each. **07**

- Q.2** (a) Describe the basic steps in setting up an R programming environment with RStudio. **07**  
(b) Explain the concept of variables and data types in R. Give an example of each data type. **07**

**OR**

- (b) Write a short R code snippet to create a vector containing the names of your favorite fruits. **07**

- Q.3** (a) Explain how to import data into R from a CSV file, XML file, JSON file. **07**  
(b) Describe the functionalities of histograms and boxplots in data visualization. **07**

**OR**

- Q.3** (a) Create a sample dataset in R containing student names and their marks in two subjects. Subsequently, generate a bar chart to visualize the marks distribution for one subject. **07**  
(b) Explain the concept of Normal Distribution and its significance in statistical analysis. **07**

- Q.4** (a) Briefly describe a scenario where Time Series Analysis would be a valuable tool. **07**  
(b) Discuss the applications of Linear Regression in data analysis. **07**

**OR**

- Q.4** (a) Briefly explain the difference between Logistic Regression and Linear Regression. **07**  
(b) Describe the concept of Decision Trees and their role in classification tasks. **07**

- Q.5** (a) Explain the concept of Random Forest and its advantages over a single Decision Tree. **07**  
(b) Provide an example of how Prescriptive Analytics can be applied in a real-world scenario. **07**

**OR**

- Q.5** (a) Briefly explain the concept of Survival Analysis and its applications. **07**  
(b) Discuss the importance of using appropriate statistical references when writing reports based on data analysis. **07**

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