

GUJARAT TECHNOLOGICAL UNIVERSITY
BACHELOR OF ENGINEERING – SEMESTER 7 – EXAMINATION – SUMMER 2026

Subject Code: 3174604

Date: 05/06/2026

Subject Name: R PROGRAMMING FOR DATA ANALYTICS

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. Simple and non-programmable scientific calculators are allowed.**

- Q.1**
- (a)** Differentiate the functionality of R programming and Python programming. **03**
 - (b)** Explain the cat() and Print() functions with examples. **04**
 - (c)** Briefly explain the while loop and repeat loop in R programming. Also, write appropriate R programs for both loops. **07**

- Q.2**
- (a)** Define matrices in R and write a code snippet to create a 4×4 matrix. **03**
 - (b)** Describe merging and accessing list elements in R with suitable example. **04**
 - (c)** Explain the factor data structure in R and its operations with suitable examples. **07**

OR

- Q.2**
- (c)** Explain the following functions in R with proper syntax and suitable examples: vector(), as.vector(), seq(), and rep() **07**

- Q.3**
- (a)** Define the melt() and cast() functions in R and provide their syntax. **03**
 - (b)** Write an R script to compute and display the mean and median of the following values: 9, 5, 2, 3, 4, 6, 7. **04**
 - (c)** Write an R program to create a data frame using two given vectors. Perform the following operations: **07**
 - a. Display the first and last few rows of the data frame.
 - b. Identify and display rows that contain duplicate values in any column.
 - c. Identify and display the missing (NA) values in the data frame.

OR

- Q.3**
- (a)** State the steps to read from and write to an CSV file in R. **03**
 - (b)** Explain the merge () function and its use with an example. **04**
 - (c)** Write a R program to create a data frame using two given vectors and display the duplicated elements and unique rows of the data frame. Explain the same with a syntax. **07**

- Q.4**
- (a)** Define a Normal Probability Plot in R using ggplot2. **03**
 - (b)** Explain the significance of standard deviation and correlation measures in understanding the data. **04**
 - (c)** Write an R program to illustrate the plot(), list(), and pie() functions. **07**

OR

- Q.4**
- (a)** Define a line chart in R and explain its properties. **03**

- (b) Explain the following functions with proper example: IQR(), summary(), labs () and range () **04**
- (c) Create a sample dataset in R containing student names and their marks in two subjects. Also, generate a bar chart to visualize the marks distribution for one subject. **07**

- Q.5** (a) Explain the following terms: ls(), rm() and search() **03**
- (b) Write an R program to perform the following tasks: **04**
- Check the available R packages
 - Display the list of all installed packages
 - Install a new package
 - Manually install a package
- (c) Write a R program to create table for fast food sales using MYSQL and perform various CRUD operations on it along with data visualization. **07**

OR

- Q.5** (a) Define the Grid package and list out its applications in R. **03**
- (b) Differentiate between a package and a library in R. **04**
- (c) Write a brief note on tidyr Package in R and its various function using one appropriate example. **07**
