QP Code: R22A32AI062F

R22

Anurag University

B Tech III Year II -Semester End Examinations, April-2025

Course: R Programming

(Common to AI & AIML)

Time: 10 :30 AM to 1:00 PM **Max Marks: 50**

Section – A (Short answer type questions)

- **Answer all questions:** **(5 x 2 =10 Marks)**

1. What does subsetting a vector mean?
2. Define a data frame. How do you access a column in a data frame?
3. What is function scoping?
4. Differentiate between lapply() and sapply().
5. What is a Chi-Squared Goodness of Fit Test?

Section—B (Essay answer type questions)

- **Answer all questions** **(5 x 8 =40 Marks)**

6. A) i) Discuss the different basic data types in R with examples.
   ii) Explain vector arithmetic in R. Illustrate with at least three operations.

   OR

   B) Differentiate between matrices and arrays in R. Provide code to demonstrate creation and usage.

7. A) Compare ordered and unordered factors with appropriate R examples.

   OR

   B) Describe the use of relational and logical operators in R. Provide code that compares vectors using these operators.

8. A) You are working as a data analyst for a retail company. You have a data frame that contains sales data for five products across different regions. Write an R script that uses different types of loops (for, while, and repeat) to:
   - Calculate total sales for each product
   - Count how many regions have sales above a certain threshold
   - Print product names with sales below average

   OR

   B) What is the role of recursion in R? Compare it with loops using a problem-solving example. Find the factorial of a number using the Recursive function.

9. A) Write an R program to visualize data using a pie chart, bar chart, and histogram. Use appropriate labels, legends, and colors.

   OR

   B) Demonstrate how to use the split() and tapply() functions to a sample data and compare its usage.

10. A) How can time series data be analyzed in R? Write a program to load a dataset and perform linear regression and plot it.

    OR

    B) Explain various data interfaces supported by R with syntax: CSV, Excel, Binary, XML, and web data. Include example code for each.