R20

QP Code: R20A32CS05A

Anurag University

B Tech III Year II-Semester Supplementary Examinations, April-2025
Course: R Programming
(Common to CSE, AI & AIML)

Time: 1:15 PM to 4:15 PM **Max Marks: 60**

Section –A (Short answer type questions)

- **Answer all questions:** **(10 x 2 =20Marks)**

1. Discuss Various Applications of R Programming?
2. How do you bind vectors as rows or columns to form a matrix?
3. List the differences between Vectors and List in R
4. Explain the term “factor levels” with an example.
5. Write syntax of “repeat” control structure in R
6. Write a loop that calculates the length of each element in a list of character vectors.?
7. Write the syntax of the apply () function?
8. How do you add a legend to a pie chart in R?
9. What are data interfaces in R?
10. How can you access web data in R??

Section—B (Essay answer type questions)

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

11. A) Define a matrix in R. How can you create a matrix using functions like matrix(), cbind(), and rbind()? Explain how to assign row and column names.

OR

B) What are vectors in R? Explain the different methods to create vectors in R? Explain with examples how to name elements in a vector and how naming helps in data referencing.

12. A) i) Analyze the difference between [,[[,$ when applied to a list with example?
ii) Explain how element-wise logical comparisons are used for filtering or sub setting data in R.

OR

B) i) Define Data Frame in R? Explain various operations on data frames.
ii) Create a factor variable of branches of engineering
Dept <- c("cse", "it" , "civil", "mech", "ece"), and display the levels of factor and write an R expressions that will replace the third element in dept with "EEE".

13. A) i) What are cumulative sum and product functions in R? Describe how cumsum() and cumprod() work with vectors
ii) What is function scoping in R? Explain the difference between local and global environments with suitable examples

OR

B) Explain the concept of for loop in R. How it is used to iterate over different types of data such as numeric sequences, vectors, and character elements with examples?

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14. A) i) Explain the differences between apply(), lapply(), sapply(), tapply(), and mapply()

ii) Describe how to use Split() function In R with sample data?

OR

B) Discuss the significance of data visualization in R. What types of graphical tools does base R offer for visualizing both categorical and numerical data. Describe at least five commonly used chart types along with their primary purposes.

15. A) What are binary files in R, and how do they differ from text-based files such as CSV? Explain how R handles saving and loading objects using the functions save() and load().

OR

B) i) What is time series analysis in R? Explain how to create and analyze time series data using the ts() function.

ii) Write a program to load a data set and perform Multiple Regression and plot it?