

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)

B.Tech. III Year II Semester Regular & Supplementary Examinations June-2025

R PROGRAMMING FOR DATA SCIENCE

CSE(Artificial Intelligence & DataScience)

Time: 3 Hours

Max. Marks: 60

(Answer all Five Units 5 x 12 = 60 Marks)

UNIT-I

- 1 a Demonstrate basic math operations with program, such as addition, subtraction, multiplication, and division. CO1 L2 6M
- b Illustrate how to declare and assign values to variables in R with a program? CO1 L3 6M

OR

- 2 a Classify different data types in R with example. CO1 L4 6M
- b Determine Vector and its functions with examples. CO1 L3 6M

UNIT-II

- 3 a Describe how to iterate over a list or a data frame using a loop. CO2 L2 6M
- b Write a program that demonstrates the use of various arithmetic and Boolean operators. CO2 L2 6M

OR

- 4 a Describe the return() function in R and its purpose. CO2 L2 6M
- b Illustrate the concept of implicit return in R functions. CO2 L3 6M

UNIT-III

- 5 a Categorize the different methods for calculating minimum, maximum, and cumulative sum statistics on vectors in R. CO3 L4 6M
- b Differentiate between cumulative sums and products in the context of numerical analysis within R. CO3 L4 6M

OR

- 6 a Explain reading and writing files in R. CO3 L2 6M
- b Classify set operations (union, intersection, difference) and their implementation for data manipulation in R. CO3 L4 6M

UNIT-IV

- 7 a How do you customize the appearance of a graph using the plot() function in R? CO4 L2 6M
- b Illustrate the concept of data visualization and its importance in data analysis. CO4 L3 6M

OR

- 8 a How do you add labels to the axes of a graph created with the plot() function? CO4 L2 6M
- b Describe the process of changing the color and line type of a plot in R. CO4 L2 6M

UNIT-V

- 9 Explain the logistic regression model and provide an example of its use. CO5 L3 12M
- Apply the regression models:

| | | | | | | | | | | |
|----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Height | 176 | 154 | 138 | 196 | 132 | 176 | 181 | 169 | 150 | 175 |
| bodymass | 82 | 79 | 53 | 112 | 47 | 69 | 77 | 71 | 62 | 78 |

For the above data:

- Perform linear regression and display the result.
- Create a Regression plot with the following specifications.
- Display the title of the graph as "Height Vs. Bodymass"
- Set the color of the plot as blue

OR

- 10 a Discuss the advantages of random forests over traditional statistical models. CO5 L2 6M
- b Give examples of real-world scenarios where random forests are used for predictive modeling. CO5 L2 6M

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