

Code No: 156FD**JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD****B. Tech III Year II Semester Examinations, March - 2024****INTRODUCTION TO DATA SCIENCE****(Computer Engineering – Software Engineering)****Time: 3 Hours****Max. Marks: 75**

- Note:** i) Question paper consists of Part A, Part B.
ii) Part A is compulsory, which carries 25 marks. In Part A, Answer all questions.
iii) In Part B, Answer any one question from each unit. Each question carries 10 marks and may have a, b as sub questions.

PART – A**(25 Marks)**

- 1.a) What are the applications of big data? Explain. [2]
- b) Explain about Datafication in detail. [3]
- c) What is an attribute? Explain. [2]
- d) Explain about Interquartile Range. [3]
- e) Define Transpose of a matrix. [2]
- f) How to sort data frames? Give example. [3]
- g) Write about basic math in R. [2]
- h) Explain function scoping in R. [3]
- i) Write the purpose of Histograms. [2]
- j) Explain about Wavelet Transforms. [3]

PART – B**(50 Marks)**

- 2.a) Explain the meaning and Philosophy of Exploratory Data Analysis.
- b) What are the different data types in R? Explain with examples. [5+5]

OR

- 3.a) Summarize the advantages and disadvantages of R.
- b) Differentiate between a model and mathematical model. What do you mean by fitting a model? Explain. [5+5]

- 4.a) Explain variance and standard deviation with examples.
- b) With examples, differentiate between Discrete versus Continuous Attributes. [5+5]

OR

- 5.a) What are the measures of central tendency? Explain with examples.
- b) Discuss about the Graphic Displays used for basic Statistical Descriptions of data. [5+5]

- 6.a) Define Factor. How to create a factor and access components of a factor? How to modify a factor? Explain.

- b) Write a R program to create a matrix taking a given vector of numbers as input and define the column and row names. Display the matrix. [5+5]

OR

7.a) Explain the recycling of elements in an R vector? Give an example.
b) Show how to code R program to create a Data frames which contain details of 5 employees and display the details. [5+5]

8.a) Explain the control structures used in R with examples.
b) Write about the functions points(), legend(), text(), locator() with examples. [5+5]

OR

9.a) How to create user defined function in R? How to define default values in R? Write syntax and examples.

b) Describe R functions for Reading a Matrix or Data Frame from a File. [5+5]

10.a) Discuss in detail about Icon-Based Visualization Techniques.

b) Give overview of various data reduction strategies. [5+5]

OR

11.a) Explain about Geometric Projection Visualization Techniques.

b) What is parametric data reduction? Explain with examples. [5+5]

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