JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech III Year I Semester Examinations, January/February - 2023
INTRODUCTION TO DATA SCIENCE
(Computer Science and Engineering – Artificial Intelligence and Machine Learning)
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 is data science?	[2]
b)	Explain basic datatypes in R.	[3]
c)	Write any two ordinal attributes with example.	[2]
d)	How to calculate standard deviation for any data?	[3]
e)	What is vector?	[2]
f)	What is List? How does it differ from vector?	[3]
g)	List out Mathematical Functions in R.	[2]
h)	How do you write a function in R?	[3]
i)	Write importance of data reduction strategies.	[2]
j)	Explain Regression mechanism with example.	[3]

PART – B

(50 Marks)

2.a) Demonstrate how to setup R- Environment with example.
  b) What is a Model? Explain how to fitting a model with example.   [5+5]
OR
3. Explain probability distributions with example in data science.   [10]

4.a) What is Mean, Median, and Mode? Explain with example.
  b) Explain Range, Quartiles with example.   [5+5]
OR
5.a) Explain graphic displays of basic statistical descriptions of data.
  b) Describe how to process Attributes by the Number of Values?   [5+5]

6.a) Explain vector arithmetic operations with example.
  b) What is factor Levels? How to summarizing a Factor level.   [5+5]
OR
7.a) What is Data Frame? Explain data frame with example.
  b) Explain how to converting Lists to Vectors process.   [5+5]

8.a) Demonstrate Logical Operators and Vectors with example programs.
  b) Write a Program to display numbers from 1 to 5 using for loop.   [5+5]

OR

9.a) What is Nested function? Write nested functions usage with example.
  b) What is Recursion? Explain recursion with sample program.   [5+5]

10.a) Illustrate the purpose of Principal Component Analysis? Explain with example.
  b) Explain various geometric projection visualization techniques.   [5+5]

OR

11.a) Demonstrate data Cube Aggregation with example.
  b) Explain importance of Icon-Based Visualization Techniques.   [5+5]

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