VIT
Vellore Institute of Technology
(Deemed to be University under section 3 of UGC Act, 1956)

School of Computer Science and Engineering

Fall Semester 2023-2024

Continuous Assessment Test – 2 **SLOT:E1**

Programme Name & Branch : MID

Course Name & code: Data Science Programming (CSI3004)

Class Number (s):VL2023240104182 / VL2023240104180

Faculty Name (s): E.S. Madhan /Dr. Sayan Sikder

Exam Duration: 90 Mins. **Maximum Marks: 50**

Q.No.	Question	Max Marks
1.	How R related objects are differing from python objects? List out all R objects in detail with an example program	10
2.	Define Bayes Theorem? Apply Bayes Probability for following scenario. A catalyst producer produces a device for testing defects in a certain electrocatalyst (EC). The catalyst producer claims that the test is 97% reliable if the EC is defective and 99% reliable when it is flawless. However, 4% of said EC may be expected to be defective upon delivery.	10
3.	Relate the following terms in R programming as Matrices, Array and Vectors in terms of Complexity, Write a R program (a) To access the element at 3rd column and 2nd row, only the 3rd row and only the 4th column of a given matrix. (6 Marks) (b) Extract the submatrix whose rows have column value > 7 from a given matrix . (4 Marks) **Input Matrix**: col1 col2 col3 col4 row1 1 2 3 4 row2 5 6 7 8 row3 9 10 11 12 row4 13 14 15 16	10
4.	Select any six important functions with example used in R Dataframes? Construct R program to change more than one odd column name of a given data frame. "Original dataframe:" **name score attempts qualify** 1 Anastasia 12.5 1 yes 2 Dima 9.0 NA no 3 Katherine 16.5 2 yes 4 James 12.0 NA no 5 Emily 9.0 2 no 6 Michael 20.0 NA yes 7 Matthew 14.5 1 yes	10
5.	a) Explain ggplot graphs with bivariate, multivariate with create own sample dataset as Sales Data for company product as an example (6 Marks) b.) Compare and Contrast of Gaussian Distribution and Inference of Gaussian (4 Marks)	10