



VIT

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

REG.NO.: 23BDS0204

SLOT: D1

SCHOOL OF COMPUTER SCIENCE AND ENGINEERING
CONTINUOUS ASSESSMENT TEST - I
WINTER SEMESTER 2025-2026

Programme Name & Branch	: B.Tech. (Specialization with Data Science)
Course Code and Course Name	: BCSE207L and Programming for Data Science
Faculty Name(s)	: Prof. Prabakaran N, Prof. Deepika J and Prof. Vijayan S
Class Number(s)	: VL2025260502539, 2542 and 2544
Date of Examination	: 30-Jan-2026 FN
Exam Duration	: 90 minutes

Maximum Marks: 50

General instruction(s):

- Answer All Questions
- M - Max mark; CO - Course Outcome; BL - Blooms Taxonomy Level (1 - Remember, 2 - Understand, 3 - Apply, 4 - Analyse, 5 - Evaluate, 6 - Create)
- CO1: Engrave and use R language to solve problems.
- CO2: Design a suitable form for analysis from real-time data.

Q. No	Question	Module	Marks	CO	BL
1.	Write the output for the following: (5x2=10) 1) 1<- x print(x) 2) x<-c(5L, 2L, 5.5, 7.0) print(typeof(x)) print(class(x)) 3) msg <- paste("Hello", "World") print(nchar(msg)) 4) v <- c(10, 20, 30) print(dim(v)) 5) x <- c(50, NA, 80) ifelse(is.na(x), 0, x) print(x)	1	10	1	3
2.	Write a R program that accepts a numeric vector and performs the following tasks: (4x2.5=10) 1) Remove all missing values (NA) from the vector. 2) Create a user-defined function to find the maximum value without using built-in function. 3) Use a conditional statement to check whether the maximum value is: Greater than 100 → Print "High Value" Less than or equal to 100 → Print "Normal Value" 4) Include comments and display the final result as a character string.	1	10	1	3
3.	a) Consider the below list and answer the following. (5x1=5) student <- list(name = "John", age = 20, major <- "Computer Science", gpa = 3.8, scholarship = TRUE) 1) Explain the difference between using <- and = inside a list.	2	5	1	3



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2) Print the output in both the above cases respectively for the variable "major" 3) Predict the output of student [[2]] and student [[6]]. 4) Give the output for print(student [[2:5]]) 5) Code to retrieve values of 'age' and 'gpa' using strings b) Consider the following numeric vector representing ages of students in a class: ages <- c(15, 18, 20, 22, 17, 19, 21, 16, 23, 18). Write the R program to (2 x 2.5=5) 1) extract all ages that are less than 17 OR greater than 21 2) extract all ages that are between 18 and 22 (inclusive) but exclude numbers.	2	5	
4. A meteorology department has recorded daily temperatures (in °C) for three cities over a week. The data to be stored in a list named temperatures with values are as follows: (4x2.5=10) Delhi = 25, 28, 30, 29, 27, 26, 31 Mumbai = 32, 34, 33, 35, 36, 32, 34 Kolkata = 28, 30, 29, 31, 30, 29, 32 Write the R program to perform the following tasks. 1) Define a user-defined function called summary_stats() which takes a vector of temperatures as input and returns a list containing: a) Mean temperature b) Maximum temperature c) Minimum temperature d) Number of days temperature exceeded 30°C 2) Use lapply() to apply your summary_stats() function to the temperatures list. 3) For each city, create a new field in the summary list called HotDaysFlag which contains TRUE if the mean temperature > 30°C, otherwise FALSE. 4) Using indexing, extract the first two elements of the arranged vector to get the two maximum temperatures of the city "Kolkata".	2	10	1 3
5. A CSV file attendance.csv contains StudentID, Name, AttendancePercentage. Write an R program to: (5x2=10) 1) Identify all students whose AttendancePercentage is below 75%. 2) Add a new column Eligibility that contains: "Eligible" if AttendancePercentage ≥ 75% "Not Eligible" if AttendancePercentage < 75% 3) Export the updated data to a new CSV file named export_attendance.csv with row names included. 4) Calculate and display the average AttendancePercentage of all students who are Eligible. 5) Count and print the number of eligible and not eligible students.	3	10	2 3