



VIT

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

REG.NO.: 220CE0512

SCHOOL OF COMPUTER SCIENCE AND ENGINEERING
CONTINUOUS ASSESSMENT TEST - I
WINTER SEMESTER 2024-2025

SLOT: B1

Programme Name & Branch : B. Tech (Computer Science and Engineering)
Course Code and Course Name : BCSE207L, Programming for Data Science
Faculty Name(s) : Dr. Anisha M. Lal, Dr. Rajesh Kannan, Dr. Prabhakaran,
Dr. RAK Saravanaguru, Dr. Viswanathan P, Dr. Delhibabu
Class Number(s) : VL2024250502047, 2060, 2067, 2039, 2056, 2079
Date of Examination : 28-01-2025
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 - Analyze, 5 - Evaluate, 6 - Create)
- Course Outcomes
 1. Engrave and use R language to solve problems.
 2. Design a suitable form for analysis from real-time data.

Q. No	Question	M	CO	BL
1.	Assume that you are analysing the sales performance of a product named "Hard Disk." The product is priced at 3500 with a discount of 15%, and 50 units have been sold. a) Populate the product details into a dataset using a data frame with relevant column names. b) Inscribe a user-defined function in R named <code>calculate_total_revenue</code> that takes the price, discount percentage, and units sold as arguments. The function should calculate the discounted price and use it to determine the total revenue generated for the product. c) Print the result in the following format: "Total Revenue for product Hard Disk is: ____". <u>Hint:</u> Total Revenue is the money generated from sales after applying the discount to the price for units sold.	10	CO2	BL4
2.	Using the dataset used in Question 1 a) Classify Sales Performance: Create a new column <code>Sales_Status</code> and label as: "High" if the total revenue is greater than 150,000. "Low" if the total revenue is less than or equal to 150,000. b) Assign Product Category Based on Price: Create another column <code>Product_Category</code> and label as: "Premium" if the price is greater than 3000. "Standard" if the price is between 2000 and 3000. "Budget" if the price is below 2000. c) Discuss which conditional statement is best suited for this task and justify your choice based on factors like readability, flexibility, and performance.	10	CO1	BL4



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3. •	Develop a R code for the following using the dataset from Question 1 a) Create more product details like "PC", "Mobile", "TV" with price, discount, units_sold and revenue. b) Extract only prices of product and revenue as vectors. c) Find total units_sold and average price of all products. d) Apply a logical vector for revenue > 100000. e) Detect highest and lowest price among all products. f) Display the results of the above.	10	C01	BL3
4. •	Differentiate lists from vectors and data frames. Analyse the methods available for accessing individual elements and sublist. Demonstrate with examples the procedure of adding, updating, and deleting elements within a list.	10	C01	BL2
5. •	Identify whether the following examples represent Nominal, Ordinal, Interval, or Ratio scales of measurement. Provide your reasoning for first five classification. a) Temperature in Celsius b) Product categories (e.g., Laptop, Smartphone) c) Sales performance ratings (High, Medium, Low) d) Revenue generated for a product e) Customer satisfaction scores (1 to 5, where 1 = very dissatisfied and 5 = very satisfied) f) Weight of a product g) Date of purchase (e.g., January 15, 2024) h) Ranking of products based on popularity (e.g., 1st, 2nd, 3rd) i) Number of items in stock for each product j) Time of delivery (e.g., 3:30 PM)	10	C02	BL3
