



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

SLOT: B1

Programme Name & Branch : B. Tech CSE including Specializations  
Course Code and Course Name : BCSE207L, Programming for Data Science  
Faculty Name(s) : Dr. Anisha M. Lal, Dr. Rajesh Kannan, Dr. Prabakaran N, Dr. RAK Saravanaguru, Dr. Viswanathan P, Dr. Delhibabu  
Class Number(s) : VL2024250502047, 2060, 2067, 2039, 2056, 2079  
Date of Examination : 17-03-25  
Exam Duration : 90 minutes  
Maximum Marks: 50

**General instruction(s):**

- Input table data and Expected Output must be there for all the questions.

| Q. No | Question                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | M  | CO | BL |
|-------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|----|----|
| 1.    | <p><b>Data:</b> Create a Dataset with the following features (Assume 10 Rows)<br/>Table1 [City name, temperature, population, Month, State].</p> <p>Note: Construct the suitable R queries using DPLYR.</p> <p><b>Challenge:</b></p> <ol style="list-style-type: none"> <li>Identify the highest temperature recorded city name, whose Population is below 10Lakh.</li> <li>Print the month wise lowest and highest temperature.</li> <li>Add the new column 'status' as Hot (if temperature &gt;35) and Normal otherwise.</li> <li>Display the results based on population between 5Lakh and 7Lakh then write it as a separate table named Table2.csv</li> </ol>                                                    | 10 | 2  | 3  |
| 2.    | <p><b>Scenario:</b><br/>Create three tables for student marks namely CAT1,CAT2 and Quiz1 using register number. They can have few common register numbers across all the tables.</p> <p>Note: The solution includes the package used and connection and disconnection of databases.</p> <p><b>Challenge to solve:</b> Show step by step procedure for the following</p> <ol style="list-style-type: none"> <li>Create a database which has all the three tables and store them as T1,T2 and T3.</li> <li>Connect to the RSQLite and retrieve the data of student whose register number is 18BCE0567 in Quiz.</li> <li>retrieve the student details who scored above 40 in both CAT exams using SQL query.</li> </ol> | 10 | 3  | 5  |
| 3.    | <p><b>a) Structure:</b><br/>D1 &lt;- data.frame(<br/>City= c("Vellore", "Chennai", "Vellore", "Bangalore", "Shimoga"),<br/>Places = c("Fort", "Beach", "Temple", "Zoo", "Falls),<br/>Price=c(700,3500,1000,2000,5000))</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 5  | 2  | 4  |



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|    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |    |   |   |
|----|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|---|---|
|    | <p><b>Query:</b><br/>Create, display and Reshape the above dataframe D1 From Columns to Rows using appropriate packages and syntaxes.</p> <p><b>b) Structure:</b><br/>D2 &lt;- data.frame( .<br/>Name= c("Mango","Orange",Pineapple"),<br/>Vellore = c(120,75,100),<br/>Chennai=c(145,99,120),<br/>Banglore =c(100,40,60))</p> <p><b>Query:</b><br/>Create, display and Reshape the above dataframe D2 From Rows to Columns using appropriate packages and syntaxes.</p>                                                                                                      | 5  |   |   |
| 4. | <p>From <b>Question No.2</b>, on Database including all 3 Tables, apply the following tasks,</p> <p>Hint: You can choose either DPLYR or SQL to execute these tasks.</p> <p><b>Task:</b></p> <ul style="list-style-type: none"><li>i) Implement the left join using right join.</li><li>ii) Identify the CAT mark details of register number present in both tables.</li><li>iii) Sort the quiz table in descending order based on marks.</li><li>iv) Display all the rows from CAT2 and quiz tables including NA.</li></ul>                                                  | 10 | 3 | 4 |
| 5. | <p><b>Data:</b><br/>Assume you have weather API which displays the temperature information of Vellore in JSON format. The solution should be a step-by-step, from package installation, query and expected output.</p> <p><b>Challenge:</b></p> <ul style="list-style-type: none"><li>i) Connect to the API and verify the GET request with status code.</li><li>ii) Read the Raw Content of the Page</li><li>iii) Present the retrieved raw data into a user-friendly format using JSON. Additionally, filter the data to identify above a user-defined threshold.</li></ul> | 10 | 3 | 3 |

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