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| **DIT UNIVERSITY, DEHRADUN**   |  |  | | --- | --- | | **B.TECH (IT)** | **: END TERM EXAMINATION, EVEN SEM 2022-23 (SEM VI)** | | | | | | | | | | | | | |
| **Roll No.** |  |  |  |  |  |  |  |  |  |  |  |  |
| **Subject Name: R Programming** | | | | | | | | | | | | |

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| **Time: 3 Hours** | **Total Marks: 100** |
| **Note: All questions are compulsory. No student is allowed to leave the examination hall before the completion of the exam.**  **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**   |  |  |  |  |  | | --- | --- | --- | --- | --- | | **Q.1)** | **Attempt all Parts :** | | **BTL** | **CO** | |  | (a) | Two vectors X and Y are defined as follows:  X <- c(3, 2, 4) and Y <- c(1, 2).  What will be output of vector Z that is defined as Z <- X\*Y. | **L1** | **CO2** | |  | (b) | Write the difference between list and vector with proper program. | **L3** | **CO2** | |  | (c) | What happens if we try to store a different data types in a vector. Explain with example. | **L1** | **CO2** | |  | (d) | Write a program to create a list, name its variable and access them with the help of assigned names. | **L3** | **CO3** | |  |  | **[4 x 5= 20]** |  |  | |  | | |  |  | | **Q.2)** | **Attempt all Parts :** | | **BTL** | **CO** | |  | (a) | How to convert a list into a vector explain with suitable program? | **L1** | **CO1** | |  | (b) | What is the output of the following program:  vec = c(1, 2, 3, 4, 2, 1, 4, 6)  count = 0  x = 4  for(i in vec){  if(vec[i] == x){  count = count + 1  }  }  print(count) | **L1** | **CO2** | |  | (c) | Write about type conversion in R with suitable program. | **L3** | **CO1** | |  | (d) | Write a program to find the mean, median, standard deviation and variance of the following numbers:  5, 7, 6, 9, 11, 10, 7, 6, 12, 9, 3, 6, 1, 11, 14, 10, 2 | **L3** | **CO5** | |  |  | **[4 x 5= 20]** |  |  | |  | | |  |  | | **Q.3)** | **Attempt any two parts:** | | **BTL** | **CO** | |  | (a) | Write a program a read an excel file using xlsx package and write its data to another sheet say “newsheet” of same excel file. | **L3** | **CO4** | |  | (b) | Write a program create a matrix of four rows and three columns and demonstrate use of rbind and cbind operations on created matrix. | **L3** | **CO3** | |  | (c) | Create the following vectors in R: a = (5, 10, 15, 20, … , 100) b = (99, 98, 97, … , 50) Use vector arithmetic to multiply these vectors and call the result ‘c’. Select subsets of c to identify the following:  (i) What are the 10th, 11th, and 12th elements of c? (ii) How many elements of vector c are less than 1000? | **L1** | **CO2** | |  |  | **[2 x 10= 20]** |  |  | |  | | |  |  | | **Q.4)** | **Attempt any two parts :** | | **BTL** | **CO** | |  | (a) | Write a program to find the mode of given dataset using functions. | **L1** | **CO2** | |  | (b) | Write a program to add a row in existing data frame and print the summary and structure. | **L3** | **CO4** | |  | (c) | Create a data frame with attributes Eid, Ename, Esalary, Eclass and Edept. Name its rows and find a subset of data frame who’s department is HR and salary is greater than 500. | **L1** | **CO3** | |  |  | **[2 x 10= 20]** |  |  | |  | | |  |  | | **Q.5)** | **Attempt any two parts :** | | **BTL** | **CO** | |  | (a) | Write short notes on following with suitable syntax.   1. Array 2. List 3. Matrix | **L3** | **CO3** | |  | (b) | Write a program to explain all the aspect of switch cases in R programming. | **L3** | **CO1** | |  | (c) | Write a program a read a CSV file and append its data to an existing “apdem.csv” file. | **L3** | **CO4** | |  |  | **[2 x 10= 20]** |  |  | | -----END OF PAPER ---- | | |  |  | | |