**POORNIMA UNIVERSITY, JAIPUR.**

**END SEMESTER EXAMINATION, April 2023**

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|  | **2BC4137** | Roll No. | Total Printed Pages: 2 |
| **2BC4137** |  |
| BCA II Year IV- Semester (Back) End Semester Examination, April 2023  **(DS)** | |
| **BCD04102 : R PROGRAMMING** | | | |

# Max. Time: **3** Hours. Max. Marks: **60**

Min. Passing Marks: **21**

Attempt **five** questions selecting one question from each Unit. There is internal choice from Unit I to Unit V. Marks of each question or its parts are indicated against each question / parts. Draw neat sketches wherever necessary to illustrate the answer. Assume missing data suitably (if any) and clearly indicate the same in the answer.

Use of following supporting material is permitted during examination for this subject.

# **1.----------------------------------------------** **2.-----------------------------------------**

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|  |  | **UNIT-I (CO1)** | **Marks** | **Bloom Level** |
| **Q.1** |  | (a) Create a Matrix using function in r with 8 elements in two rows.  (b) Using vector create a matrix using vector of same 8 elements as above.  (c) What rep() function do explain with proper example  (d) What will be the output of x<-matrix(1:6,ncol=2)  X1<-matrix(101:106, ncol=2)  Cbind(x.X1) explain use of cbind function.  (e) On matrix created in (a) extract first row and all column, also extract all rows and third column. | **(12)** | Evaluating  &  Analysing |
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|  |  | **OR** |  |  |
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| **Q.2** |  | Create a Matrix in R and use the given parameters on it with proper explanation and outputs data, nrow, ncol, byrow, dimnames .  Also apply the given functions on matrix with proper explanation and output. Head(), tail(), rbind(), t(), x %\*% y(where x and y are matrix), | **(12)** | Evaluating  &  Analysing |
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|  |  | **UNIT-II (CO2)** |  |  |
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| **Q.3** | **(a)** | Write a R program to count the number of even numbers in a vector | **(6)** | Creating |
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|  | **(b)** | Find the factorial of the number using r programing. Take input by user. | **(6)** | Creating |
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|  |  | **OR** |  |  |
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| **Q.4** |  | Explain the Data type data frame in R . Construct the covariance matrix in R with given data var1=(20,5,23) var2(20,8,10). Also explain the covariance and proper output of covariance matrix generated?  What is difference between lappy and sapply functions on data frame justify your answer by using proper example and output. | **(12)** | Evaluating  &  Analysing |
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|  |  | **UNIT-III (CO3)** |  |  |
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| **Q.5** | **(a)** | Write a R program to demonstrate redline function? differentiate readline and scane function with suitable example and relevant outputs | **(6)** | Creating |
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|  | **(b)** | Create String vector x with following character “Poornima” “University” “in” “Jaipur” “is” “among” “the” “premium” “University” “in” “Jaipur”. What will be the output when following function is called (1) grep(“Jaipur”, x, ignore.case=FALSE) (2) nchar(x) | **(6)** | Creating |
|  |  |  |  |  |
|  |  | **OR** |  |  |
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| **Q.6** | **(a)** | How will you perform the given task install a package to read xls file.  After installing importing the package to use is and then read the file.xls in your R environment. Explain how file.chosse() is used in R . | **(6)** | Creating |
|  |  |  |  |  |
|  | **(b)** | Create a data frame for student detail with student name, contact number, class studying. date of birth. Export the created data frame in myfile.csv on your current working directory. Explain String manipulation function grep(),  Gsub(), also explain the parameter passed in the function. | **(6)** | Creating |
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|  |  | **UNIT-IV (CO4)** |  |  |
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| **Q.7** | **(a)** | Insert the following in vector 11,12,13,9,4,10 and 1 then using R program or build in function calculate (1) Mean (2) median (3) Mode. | **(6)** | Knowing  And  remembering |
|  |  |  |  |  |
|  | **(b)** | What is difference between t test and f test? Explain the algorithm to perform t test and what function is used in R to perform t test in R. | **(6)** | Knowing  And  remembering |
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|  |  | **OR** |  |  |
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| **Q.8** | **(a)** | What are dependent and independent variable in regression analysis? Also define the formula of linear regression and plot a linear regression in R. | **(6)** | Knowing  And  remembering |
|  |  |  |  |  |
|  | **(b)** | What is significance of correlation and what are properties of regression coefficient explain? | **(6)** | Creating |
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|  |  | **UNIT V (CO5)** |  |  |
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| **Q.9** |  | Consider a dummy data set Movies.csv with Rank\_Movie,Rel\_date ,  Gross\_Sale,Ticket\_Sold do the following with clear steps and explanation  (1)Import the data (2) View data (3) do scatter plot of Tickets Sold and Gross (Is the trend expected?) (4) redo scatter plot, adjusting scales, divide by 1000  (5) What is the correlation between tickets sold and sales? Is this expected?  (6)Scatterplots with lines  Each plot must be properly labeled with x axis y axis as well as graph name  Also Explain why scattered plot is used giving its used in real world example | **(12)** | Analysing |
|  |  |  |  |  |
|  |  | **OR** |  |  |
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| **Q.10** |  | Different non parametric test used in R . Compute the ANOVA on group of three x1(85,86,75,94,71,76) , x2(91,92,94,67,87,85), x3(79,78,88,94,92,85) and determine if the mean is different between the each group .construct the Anova Table for same F critical value is 3.3541. | **(12)** | Analysis |