POORNIMA UNIVERSITY, JAIPUR

END SEMESTER EXAMINATION, 2023-2024 EVEN SEMESTER

Write Roll No Below: _____

BCA (AIDS) II () - IV (Main/Back) End Semester Examination, April 2024

BASCCA4104: R Programming

Time: 3 Hours **Total Marks:** 60 **Min. Passing Marks:** 21/24/27 **Question Paper ID:** 001017

Instructions: Attempt all five questions. There is an internal choice either (a or b) in Q1 to Q5. Marks of each question or its parts are indicated against each question/part. Draw neat sketches wherever necessary to illustrate the answer. Assume missing data suitably (if any) and clearly indicate the same in the answer.

Bloom Level(BL): 1-Remembering, 2-Understanding, 3-Applying, 4-Analysing, 5-Evaluating, 6-Creating

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

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			Marks	BL	CO
Q1.	**(a)**	(i) Explain difference among List and vector. (ii) Explain following operators with suitable example: Integer division operator (ii) Logical operators	**12**	**1**	**1**
		(OR)			
	(b)	(a) Create a (3x3) matrix and write command to (i) Excess elements present in first row one by one. (ii) Excess all elements of second colomn simultaneously. (iii) Excess all elements of second and third rows simultaneously. (b)Explain meaning of following R commands. (i) > number<-1.3:10.2 (ii) >x <-rep(c(1,2,3), times=c(5,5,2)) (iii) >students<-c(“Amit”, “Raja”, “Manav”, “Sumit”, “Pintu”) >students[c(-1)]			
Q2.	**(a)**	(i) Explain different types of Data Types used in R with suitable example. (ii) Write down different ways to create a vector in R with suitable examples.	**12**	**2**	**2**
		(OR)			
	(b)	(i) Explain different types of loops in R with suitable examples. (ii) Write a program in R to print first ten natural numbers using for and while loop.			
Q3.	**(a)**	(i) Write the difference between scan() and readline() function using suitable example. (ii) Differentiate between cat() and print() function using suitable example.	**12**	**2**	**3**
		(OR)			
	(b)	Explain following functions using suitable example (i) sprint() (ii) gregexpr() (iii) sub() (iv) regexpr() (v) grep()			
Q4.	**(a)**	Write a R program to read data given in text file to calculate mean, Median and Mode. If data in text file is (10, 12, 16, 78, 34, 37, 87, 79, 12, 56, 55.6). Find the value of mean, Median and Mode after calculation.	**12**	**3**	**4**
		(OR)			
	(b)	Consider a dataset representing the monthly expenses (in dollars) of a group of individuals: monthly_expenses <- c(1200, 1500, 800, 1100, 950, 1300, 1000, 850, 900, 1200) (i) Compute and print the mean and standard deviation of the monthly expenses. (ii) Calculate and display the first quartile (Q1), median (Q2), and third quartile (Q3) for the expenses. Also, provide the minimum and maximum values.			

Q5. **(a)** (i) Consider a dataset containing information about sales of different products in a store: **Marks** **BL** **CO**
12 **5** **5**

product_names <- c("Product A", "Product B", "Product C", "Product D", "Product E")
sales_data <- data.frame(Month = c("Jan", "Feb", "Mar", "Apr", "May"),

Product_A = c(120, 150, 200, 180, 220),

Product_B = c(80, 100, 120, 90, 110),

Product_C = c(150, 130, 180, 160, 200).

Product_D = c(100, 120, 90, 110, 80),

Product_E = c(180, 200, 220, 190, 240)

Generate a bar plot showing the total sales for each product across all months.

(ii) For data set in section "a" Create a scatter plot comparing the sales of "Product A" and "Product B" over the months.

(OR)

(b) **(i)** What function can be used to generate a pie diagram representing proportions of different categories? Explain with example and proper plot as output?
(ii) How do you create a histogram in R for a given numeric variable to visualize its distribution? Explain with example and proper plot as output?

*****End of Question Paper*****