MID TERM TEST – R PROGRAMMING FUNDAMENTALS

Time: 2 Hours   **Total Marks: 100**

Instructions:

- Attempt all questions from all sections.

- Write clear and concise answers.

- RStudio may be used for the practical section.

- Marks will be deducted for incorrect syntax in practical questions.

Section A: Theory / Explanation Questions   (40 Marks)

Attempt all questions. Each question carries 8 marks.

Q1. What is R programming? Explain its importance in data analysis and statistics.

Q2. Define variables and data types in R. Explain any four data types with suitable examples.

Q3. What are conditional statements? Explain the structure and working of the `if--else` statement with a real-life example.

Q4. What are loops in R? Compare the `for` loop and `while` loop with examples.

Q5. What is data visualization in R? Explain the importance of graphs in data analysis and give some graph as example.

Section B: Multiple Choice Questions (MCQs)   (30 Marks)

Attempt all questions. Each MCQ carries 2 marks.

Q5. What is the main purpose of R programming?

(a) Web development

(b) Game development

(c) Data analysis

(d) Mobile applications

Q6. Which operator is used to assign values to variables in R?

(a) =

(b) <-

(c) ==

(d) =¿

Q7. In the statement `x <- 10`, what is `x`?

(a) Value

(b) Variable

(c) Operator

(d) Function

Q8. Which of the following represents logical values in R?

(a) Yes / No

(b) 1 / 0

(c) TRUE / FALSE

(d) On / Off

Q9. What is the purpose of the `if` statement?

(a) Repeat code

(b) Make decisions

(c) Print output

(d) Store data

Q10. Why are loops used in programming?

(a) To delete variables

(b) To repeat code

(c) To stop execution

(d) To generate errors

Q11. Which loop is NOT available in R?

    (a) for

    (b) while

    (c) repeat

    (d) do-while

Q12. What does the `print()` function do?

    (a) Saves data

    (b) Displays output

    (c) Reads files

    (d) Stops loops

Q13. The expression `x > 5` returns:

    (a) Numeric value

    (b) Character value

    (c) Logical value

    (d) Vector

Q14. Which symbol is used for comments in R?

    (a) //

    (b) #

    (c) /* */

    (d) –

Q15. Is R a case-sensitive language?

    (a) Yes

    (b) No

Q16. What is the data type of `x <- "5"`?

    (a) Numeric

    (b) Character

    (c) Logical

    (d) Integer

Q17. What will `for(i in 1:3)` print?

    (a) Error

    (b) Infinite loop

    (c) 1, 2, 3

    (d) Only 3

Q18. A `while` loop runs:

    (a) Once only

    (b) While condition is TRUE

    (c) While condition is FALSE

    (d) Never

Q19. A variable name in R can start with:

    (a) A number

    (b) A special character

    (c) A letter

    (d) A space

Section C: Practical / Hands-On (R Coding)   (30 Marks)

Attempt all questions. Each question carries 5 marks.

Q20. Create a variable `age` and assign the value 21. Print the variable.

Q21. Create a variable `marks`. If marks are greater than or equal to 50, print `"Pass"`, otherwise print `"Fail"`.

Q22. Create a variable `number <- 15`. If the number is greater than 10, print `"Large Number"`.

Q23. Use a `for` loop to print numbers from 1 to 10.

Q24. Use a `while` loop to print numbers from 1 to 5.

Q25. Create a variable `temperature`. If temperature is greater than 30, print `"Hot"`, otherwise print `"Normal"`.

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