# R Programming Assignment Questions

## 2.1 Arithmetic Operators

1. Addition: What is the result of adding 5 and 3 using the addition operator (+) in R?

2. Subtraction: Subtract 4 from 10. What is the result?

3. Multiplication: Multiply 7 by 6. What is the output?

4. Division: Divide 15 by 3. What is the result?

5. Modulus: Use the modulus operator (%%) to find the remainder when 17 is divided by 5. What do you get?

6. Exponent: Calculate 3 raised to the power of 4 using the exponent operator (^). What is the answer?

7. Integer Division: Perform integer division of 25 by 4 using the integer division operator (%/%). What is the result?

## 2.2 Logical Operators

1. Less than: Is 8 less than 10? Write the expression and its result.

2. Less than or equal to: Check if 15 is less than or equal to 15. What is the result?

3. Greater than: Determine if 20 is greater than 15. Write the expression and the answer.

4. Greater than or equal to: Is 5 greater than or equal to 10? Write the expression and the output.

5. Exactly equal to: Check if the string "Data" is exactly equal to "data". What is the result?

6. Not equal to: Verify if 7 is not equal to 10. What does the output indicate?

7. Negation: What is the result of !TRUE and !FALSE in R?

8. AND: What is the result of TRUE & FALSE?

9. OR: Determine the result of TRUE | FALSE.

## 3 R Object and Assignment

1. Assignment Operators:

   - Assign the value 10 to a variable named x using <-.

   - Use = to assign the value 5 to a variable y.

- Assign 3 to a variable .z using ->.

2. Variable Naming:

- Try to create a variable named var name with a value of 7. What error do you receive?

- Create a variable version_number and assign it the value 4.3.

## 3.1 Data Types

1. Numeric/Double: Assign the value pi to a variable PI. Use class() and typeof() to check the data type of PI.

2. Integer: Declare an integer variable n with the value 100L. Use class() to confirm its type.

3. Complex: Create a complex number z equal to 4 + 2i. Use class() to check the data type of z.

4. Character/String: Create a string variable message with the value "I am learning R". Verify its data type using class().

5. Logical/Boolean: Assign TRUE to a variable flag. Use class() and typeof() to verify its type.

6. Raw: Convert the text "Data Science" to raw using charToRaw(). What is the output?

7. Factors: Create a factor Color with values c("Red", "Blue", "Green"). Display its levels.

## 3.2 R Data Structures

1. Vectors: Create a vector v containing the numbers from 1 to 5. Print the vector.

2. Lists: Create a list my_list that contains a numeric value (10), a string ("Hello"), and a logical value (TRUE). Display the list.

3. Matrices: Create a 2x3 matrix with numbers from 1 to 6. Print the matrix.

4. Arrays: Create a 3-dimensional array containing numbers from 1 to 12 with dimensions (2, 2, 3). Print the array.

5. Factors: Create a factor Status with levels "Good", "Bad", and "Average". Print the factor.

6. Data Frames: Create a data frame students with columns Name (character), Age (numeric), and Grade (character) for three students. Display the data frame.

## Advanced/Optional Questions

1. Combine Operators: What is the result of 3 * (4 + 2) / 3 - 2^2?

2. Logical Evaluation: Evaluate the expression !(TRUE & (FALSE | TRUE)). What is the outcome?

3. Data Type Conversion:

   - Convert a numeric value 5.5 to an integer.

   - Convert the logical value TRUE to a numeric.