3. Which of the following is an atomic type in R?

A) List

B) Data frame

C) Vector

D) Factor

4. In R, can you assign a value of a different data type to the same variable at any time?

A) Yes, it is allowed in R

B) No, it will result in an error

C) Only if the variable is of type "numeric"

D) Only if the variable is of type "character"

5. What happens when you try to perform the operation `x + y` where `x <- 1L` and `y <- 5.6`?

A) The result is 6.6

B) The result is 6

C) An error occurs because the data types are not compatible

D) An error occurs because the variables are not defined

6. Which of the following statements about R vectors is true?

A) Scalars are considered one-element vectors

B) Vectors can only contain numeric values

C) Vectors can have different data types within the same vector

D) Vectors are always two-dimensional structures

9. Which function can be used to display the internal structure of an R object?

A) `class()`

B) `typeof()`

C) `storage.mode()`

D) `str()`

10. What is the class of the object `x <- c(3, 7, 9)`?

A) "numeric"

B) "integer"

C) "character"

D) "logical"

11. Which function can be used to get or set the mode (type) of an R object?

A) `class()`

B) `typeof()`

C) `storage.mode()`

D) `str()`

12. What does the expression `x \* f2` evaluate to, where `x <- 3:1` and `f2 <- c(4, 2)`?

A) 12 4 4

B) 12 4

C) 9 3

D) An error occurs due to mismatched vector lengths

15. Given x <- 0:10, What is the result of the expression `sum(x < 5)`?

A) 5

B) 6

C) 7

D) 10

1. What does the `rep(9, 5)` function call do?

A) Replicates the number 9 five times.

B) Replicates the number 5 nine times.

C) Replicates the number 9 nine times.

D) Replicates the number 5 five times.

2. What is the result of the expression `rep(1:4, 2)`?

A) 1 2 3 4

B) 1 2 3 4 1 2 3 4

C) 1 1 2 2 3 3 4 4

D) 1 1 1 1 2 2 2 2

3. What is the result of the expression `rep(1:4, each = 2)`?

A) 1 2 3 4

B) 1 2 3 4 1 2 3 4

C) 1 1 2 2 3 3 4 4

D) 1 1 1 1 2 2 2 2

4. What is the result of the expression `rep(1:4, each = 2, times = 3)`?

A) 1 2 3 4

B) 1 2 3 4 1 2 3 4

C) 1 1 2 2 3 3 4 4 1 1 2 2 3 3 4 4 1 1 2 2 3 3 4 4

D) 1 1 1 1 2 2 2 2

5. What is the result of the expression `rep(1:4, 1:4)`?

A) 1 2 2 3 3 3 4 4 4 4

B) 1 2 3 4 1 2 2 3 3 4 4 4

C) 1 1 2 2 2 3 3 3 3 4 4 4 4 4

D) 1 2 2 3 3 3 4 4 4 4

6. What is the result of the expression `rep(c("cat", "dog", "mouse"), c(2, 3, 2))`?

A) "cat" "cat" "dog" "dog" "dog" "mouse" "mouse"

B) "cat" "dog" "mouse" "cat" "dog" "dog" "mouse"

C) "cat" "cat" "dog" "dog" "dog" "dog" "mouse"

D) "cat" "cat" "dog" "dog" "mouse" "mouse" "mouse"

7. What is the default type for all numbers in R?

A) Double

B) Integer

C) Character

D) Logical

8. What does `typeof(n)` return if `n <- c(1, 3, 12)`?

A) "numeric"

B) "double"

C) "integer"

D) "character"

11. What is the class of the variable `k` if `k <- c("one", "two", "three", "one")`?

A) numeric

B) integer

C) character

D) logical

12. What is the result of the expression `is.finite(v1)` if `v1 <- c(-4.5, 0/0, exp(Inf))`?

A) TRUE FALSE FALSE

B) FALSE FALSE TRUE

C) FALSE TRUE FALSE

D) TRUE TRUE TRUE

14. What is the result of the expression `4/0`?

A) Inf

B) -Inf

C) NaN

D) NA

15. What is the result of the expression `exp(-Inf)`?

A) 0

B) Inf

C) NaN

D) NA

16. What is the result of the expression `0/0`?

A) Inf

B) -Inf

C) NaN

D) NA

2. What will be the result of the computation `NA > 0`?

A. NA

B. TRUE

C. FALSE

D. Error

3. What will be the result of the computation `2.7 \* NA`?

A. NA

B. 2.7

C. 0

D. Error

4. What will be the result of the computation `NA ^ 0`?

A. 1

B. NA

C. 0

D. Error

5. What will be the result of the computation `NA | TRUE`?

A. TRUE

B. NA

C. FALSE

D. Error

6. How can you properly check for NA values in a vector `y`?

A. `is.na(y)`

B. `y == NA`

C. `y %in% NA`

D. `isna(y)`

7. What will be the result of the computation `y == "NA"`?

A. FALSE NA FALSE

B. FALSE FALSE FALSE

C. NA NA NA

D. Error

8. How can you remove NA values from a vector `y`?

A. `y[!is.na(y)]`

B. `y[!NA]`

C. `y[-NA]`

D. `removeNA(y)`

9. How are factors stored internally in R?

A. Numbers

B. Characters

C. Vectors

D. Levels

10. What function is used to convert a character vector into a factor?

A. `as.factor()`

B. `factor()`

C. `convert.factor()`

D. `to\_factor()`

11. What will be the class of the variable `gender` after converting it to a factor?

A. "factor"

B. "character"

C. "numeric"

D. "vector"

12. How can you retrieve the levels of a factor variable `gender`?

A. `levels(gender)`

B. `factors(gender)`

C. `get\_levels(gender)`

D. `gender.levels()`

14. What function is used to calculate the median value in a vector `x`?

A. `median(x)`

B. `med(x)`

C. `get\_median(x)`

D. `x$median()`

19. What function is used to calculate the column means of a dataframe or matrix `x`?

A. `colMeans(x)`

B. `mean(x)`

C. `get\_col\_means(x)`

D. `x$col\_means()`

20. What function is used to calculate the row sums of a dataframe or matrix `x`?

A. `rowSums(x)`

B. `sum(x)`

C. `get\_row\_sums(x)`

D. `x$row\_sums()`

2. What will be the class of the vector `v1` after adding the `dim` attribute with `c(4, 5)`?

A. "integer"

B. "matrix"

C. "array"

D. "vector"

4. What is the default filling order when creating a matrix using the `matrix()` function?

A. By row

B. By column

C. Randomly

D. It depends on the input data

5. How can you change the number of rows and columns in a matrix?

A. Using the `dim()` function

B. Using the `reshape()` function

C. Using the `resize()` function

D. Using the `rearrange()` function

6. How can you access a specific element in a matrix?

A. `A(row, col)`

B. `A[row, col]`

C. `A[row][col]`

D. `A(col, row)`

8. How can you access a single row of a matrix `m1`?

A. `m1[row, ]`

B. `m1[, row]`

C. `m1[row, ]`

D. `m1[, col]`

10. How can you access a subset of a matrix `m1` (rows 1-2 and columns 2-3)?

A. `m1[1:2, 2:3]`

B. `m1[2:3, 1:2]`

C. `m1[1:2][2:3]`

D. `m1[2:3][1:2]`

14. How can you compute the inverse of a square matrix `C`?

A. Using `det()`

B. Using `diag()`

C. Using `solve()`

D. Using `inv()`

6. What does the switch() function in R do?

A. Executes a loop for a given range of values

B. Evaluates multiple alternatives based on an expression

C. Converts the input into a character type

D. Tests if a condition is true and executes a block of code

7. What will be the output of the expression `switch(1, "red", "green", "blue", "yellow")`?

A. "red"

B. "green"

C. "blue"

D. "yellow"

8. Which syntax is correct for accessing the "speed" element in the list `l1`?

A. `l1$speed`

B. `l1[["speed"]]`

C. `l1[[4]]`

D. All of the above

3. The result of `typeof(df1)` in the code is:

A. "integer"

B. "character"

C. "list"

D. "double"

11. If any row is modified in a data frame, what happens to the other columns?

A. All other columns are modified as well

B. Only the modified row is affected

C. The modified row is dropped from the data frame

D. The modified row is replaced with a copy of the original row

14. How can columns containing numbers be selected from a data frame `dc`?

A. `dc[, sapply(dc, is.numeric)]`

B. `dc[, is.numeric(dc)]`

C. `dc[is.numeric(dc), ]`

D. `dc[sapply(dc, is.numeric), ]`

3. How are negative integers used in subsetting an atomic vector?

A. Negative integers include elements at specified positions

B. Negative integers exclude elements at specified positions

C. Negative integers reverse the order of elements

D. Negative integers generate an error

4. When subsetting an atomic vector with mixed negative and positive integers, what happens?

A. The positive integers are prioritized, and the negative integers are ignored

B. An error is generated because negative and positive integers cannot be mixed

C. The positive integers are subtracted from the negative integers

D. The negative integers are treated as positive integers

7. What does subsetting an atomic vector with `x[]` return?

A. Elements excluding the first and last positions

B. Elements excluding the specified range

C. The original vector itself

D. An empty vector

8. What does subsetting an atomic vector with `[0]` return?

A. Elements at position 0

B. The first element of the vector

C. The last element of the vector

D. A zero-length vector

9. How can named vectors be accessed during subsetting?

A. By using integers as indices

B. By using logical vectors as indices

C. By using character vectors as indices

D. By using factors as indices

10. What is the consequence of subsetting named vectors with factors?

A. The character levels of the factors are used for subsetting

B. The underlying integer vector of the factors is used for subsetting

C. An error is generated because factors cannot be used for subsetting

D. The named vectors are converted to factors before subsetting

12. What is the common rule for subsetting a matrix or array with multiple dimensions?

A. Each dimension requires a separate vector, separated by a comma

B. Each dimension requires a single vector for all elements

C. Each dimension can be subset independently without following a rule

D. Subsetting a matrix or array with multiple dimensions is not supported

14. What does the `drop = FALSE` argument do when subsetting a matrix?

A. It preserves the original matrix dimension

B. It drops any missing values from the subset

C. It reorders the matrix columns based on the subset

D. It generates an error because `drop` is not a valid argument

1. Which vectors are used to store categorical data as a fixed set of levels?

A. Numeric

B. Complex

C. Logical

D. Factor

7. What does the unique() function do?

A. Counts the frequency of unique values

B. Extracts unique values in a vector

C. Checks if a vector contains duplicated values

D. Computes the union of two sets

9. Which function creates a vector of logical values indicating duplicated values?

A. unique()

B. table()

C. intersect()

D. duplicated()

10. What function gives a set with all elements, counting only once those common to both sets?

A. union()

B. intersect()

C. setdiff()

D. setequal()

11. What function gives the elements common to two sets?

A. union()

B. intersect()

C. setdiff()

D. setequal()

12. Is the difference between two sets order-dependent?

A. Yes

B. No

13. Which function compares if two sets are equal?

A. union()

B. intersect()

C. setdiff()

D. setequal()

15. Which function is used to inspect the frequency of unique values?

A. union()

B. table()

C. intersect()

D. setdiff()

1. How can you save the current R session to be loaded later?

A. save(list = ls(all=TRUE), file = "my-session")

B. savehistory(file = "my-history.R")

C. pdf("my-plot.pdf")

D. q()

2. What does the "savehistory()" function do?

A. Saves the current R session

B. Saves the lines of code typed in an R session

C. Saves graphics in PDF format

D. Saves specific data produced within R

3. Which file format is commonly used to save graphics in R?

A. CSV

B. TXT

C. PDF

D. XLSX

4. How can you save a vector in a file?

A. write.table()

B. save(list = ls(all=TRUE), file = "my-session")

C. read.table()

D. scan()

5. What function is used to read data from a local file and create a data.frame?

A. save()

B. dev.off()

C. read.table()

D. write.table()

6. What does the parameter "header = T" indicate in the "read.table()" function?

A. The file is a header file.

B. The first row of the file contains column names.

C. The file is a binary file.

D. The file is a CSV file.

7. Which function is used to read a comma-separated file?

A. read.csv()

B. read.table()

C. read.delim()

D. read.csv2()

8. How can you read data from a file on the web in R?

A. read.table("https://example.com/data.txt", header = T)

B. read.csv("https://example.com/data.csv")

C. read.delim("https://example.com/data.txt")

D. read.csv2("https://example.com/data.csv")

9. What package can be used to communicate with relational databases in R?

A. RGraphics

B. RData

C. RDBMS

D. RMySQL

10. Which file format is commonly used for binary data files in R?

A. HDF5

B. CSV

C. XLSX

D. TXT

11. What function is used to save graphics in PDF format?

A. save()

B. pdf()

C. read.table()

D. dev.off()

12. What is the purpose of saving the full R workspace?

A. To save graphics in PDF format.

B. To save lines of code typed in an R session.

C. To save the current environment, including user-defined objects.

D. To save specific data produced within R.

13. How can you save a matrix-like data format in R?

A. write.table()

B. save(list = ls(all=TRUE), file = "my-session")

C. read.table()

D. scan()

14. Which function is used to read data from the clipboard in R?

A. read.csv()

B. read.table()

C. read.delim()

D. readClipboard()

15. What function is used to close the device after saving graphics in R?

A. close()

B. dev.off()

C. write.table()

D. read.table()

16. Which package can be used to read data from NASA's HDF5 files in R?

A. RData

B. RMySQL

C. rhdf5

D. RSQLite

17. What is the default field separator character in the "read.table()" function?

A. Comma (,)

B. Semicolon (;)

C. Space

D. Tab (\t)

18. How can you save the lines of code typed in an R session?

A. savehistory(file = "my-history.R")

B. pdf("my-plot.pdf")

C. read.table()

D. write.table()

19. What function is used to save specific data produced within R?

A. save()

B. pdf()

C. write()

D. write.table()

20. What function is used to read data from a tab-delimited file with decimal points as commas?

A. read.csv()

B. read.table()

C. read.delim()

D. read.delim2()