Introduction to Data Science

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MODULE 3 QUIZ

Question 1

Let's say you have a vector `x <- 1:4` and `y <- 2:3`. What is produced by the expression x + y?

(a) an error

(b) a numeric vector with the values 3, 5, 3, 4

(c) an integer vector with the values 3, 5, 5, 7

(d) an integer vector with the values 3, 5, 3, 4

Question 2

Suppose we define the following function in R

```
cube <- function(x, n) {
     x^3
}
```

What is the result of running the following function call?

```
cube(3)
```

(a) A warning message is given with no value returned

(b) The user is prompted to specify the value of "n"

(c) An error is returned because "n" is not specified in the call to "cube"

(d) The number 27 is returned

Question 3

The following code will produce a warning in R. Why?

```
x <- 1:10
if(x > 5) {
     x <- 0
```

```
}
```

(a) "x" is a vector of length 10 and "if" can only test a single logical statement

(b) The syntax of this R expression is incorrect

(c) The expression uses curly brackets

(d) You cannot set "x" to 0 because "x" is a vector and 0 is a scalar

(e) There are no elements in "x" that are greater than 5

Question 4

What is the difference between the `sapply()` function and the `lapply()` function?

(a) `lapply()` always returns an atomic vector and `sapply()` always returns a list

(b) `sapply()` always returns a 2-dimensional matrix while `lapply()` returns a list

(c) There is no difference; `sapply()` and `lapply()` are two names for the same function

(d) `lapply()` always returns a list while `sapply()` attempts to simplify the result

Question 5

What is the value of the variable `i` after executing the following `repeat` loop?

```
i <- 1
repeat{
     i <- i+4
     if(i > 10) break
}
i
```

(a) 13

(b) 8

(c) 3

(d) 10