Week 2 Quiz

TOTAL POINTS 10

1.

Question 1

Suppose I define the following function in R

```
1
2
3
cube <- function(x, n) {
        x^3
}
```

What is the result of running

```
1
cube(3)
```

in R after defining this function?

1 point

An error is returned because 'n' is not specified in the call to 'cube'

The number 27 is returned

The users is prompted to specify the value of 'n'.

A warning is given with no value returned.

2.

Question 2

The following code will produce a warning in R.

```
1
2
3
4
x <- 1:10
if(x > 5) {
        x <- 0
}
```

Why?

1 point

You cannot set 'x' to be 0 because 'x' is a vector and 0 is a scalar.

The syntax of this R expression is incorrect.

There are no elements in 'x' that are greater than 5

'x' is a vector of length 10 and 'if' can only test a single logical statement.

The expression uses curly braces.

3.

Question 3

Consider the following function

```
f <- function(x) {
        g <- function(y) {
                y + z
        }
        z <- 4
        x + g(x)
}
```

If I then run in R

```
z <- 10
f(3)
```

What value is returned?

1 point

10

4

16

7

4.

Question 4

Consider the following expression:

```
x <- 5
y <- if(x < 3) {
        NA
} else {
        10
}
```

What is the value of 'y' after evaluating this expression?

1 point

5

3

10

NA

5.

Question 5

Consider the following R function

```
h <- function(x, y = NULL, d = 3L) {
        z <- cbind(x, d)
        if(!is.null(y))
                z <- z + y
        else
                z <- z + f
        g <- x + y / z
        if(d == 3L)
                return(g)
        g <- g + 10
        g
}
```

Which symbol in the above function is a free variable?

1 point

f

z

d

L

g

6.

Question 6

What is an environment in R?

1 point

a special type of function

an R package that only contains data

a list whose elements are all functions

a collection of symbol/value pairs

7.

Question 7

The R language uses what type of scoping rule for resolving free variables?

1 point

global scoping

compilation scoping

lexical scoping

dynamic scoping

8.

Question 8

How are free variables in R functions resolved?

1 point

The values of free variables are searched for in the environment in which the function was defined

The values of free variables are searched for in the environment in which the function was called

The values of free variables are searched for in the global environment

The values of free variables are searched for in the working directory

9.

Question 9

What is one of the consequences of the scoping rules used in R?

1 point

Functions cannot be nested

All objects must be stored in memory

All objects can be stored on the disk

R objects cannot be larger than 100 MB

10.

Question 10

In R, what is the parent frame?

1 point

It is the environment in which a function was defined

It is the package search list

It is the environment in which a function was called

It is always the global environment