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Thank you. Your submission for this quiz was received.

You submitted this quiz on **Sat 17 May 2014 10:33 PM EDT**. You got a score of **10.00** out of **10.00**.

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**Question 1**

Suppose I define the following function in R

cube <- function(x, n) {

x^3

}

What is the result of running

cube(3)

in R after defining this function?

|  |  |  |  |
| --- | --- | --- | --- |
| **Your Answer** |  | **Score** | **Explanation** |
| A warning is given with no value returned. |  |  |  |
| The users is prompted to specify the value of 'n'. |  |  |  |
| The number 27 is returned | Correct | 1.00 | Because 'n' is not evaluated, it is not needed even though it is a formal argument. |
| An error is returned because 'n' is not specified in the call to 'cube' |  |  |  |
| Total |  | 1.00 / 1.00 |  |

**Question 2**

The following code will produce a warning in R.

x <- 1:10

if(x > 5) {

x <- 0

}

Why?

|  |  |  |  |
| --- | --- | --- | --- |
| **Your Answer** |  | **Score** | **Explanation** |
| There are no elements in 'x' that are greater than 5 |  |  |  |
| The syntax of this R expression is incorrect. |  |  |  |
| The expression uses curly braces. |  |  |  |
| You cannot set 'x' to be 0 because 'x' is a vector and 0 is a scalar. |  |  |  |
| 'x' is a vector of length 10 and 'if' can only test a single logical statement. | Correct | 1.00 |  |
| Total |  | 1.00 / 1.00 |  |

**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?

|  |  |  |  |
| --- | --- | --- | --- |
| **Your Answer** |  | **Score** | **Explanation** |
| 10 | Correct | 1.00 |  |
| 16 |  |  |  |
| 7 |  |  |  |
| 4 |  |  |  |
| Total |  | 1.00 / 1.00 |  |

**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?

|  |  |  |  |
| --- | --- | --- | --- |
| **Your Answer** |  | **Score** | **Explanation** |
| 3 |  |  |  |
| 10 | Correct | 1.00 |  |
| 5 |  |  |  |
| NA |  |  |  |
| Total |  | 1.00 / 1.00 |  |

**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?

|  |  |  |  |
| --- | --- | --- | --- |
| **Your Answer** |  | **Score** | **Explanation** |
| f | Correct | 1.00 |  |
| z |  |  |  |
| d |  |  |  |
| L |  |  |  |
| g |  |  |  |
| Total |  | 1.00 / 1.00 |  |

**Question 6**

What is an environment in R?

|  |  |  |  |
| --- | --- | --- | --- |
| **Your Answer** |  | **Score** | **Explanation** |
| a collection of symbol/value pairs | Correct | 1.00 |  |
| an R package that only contains data |  |  |  |
| a special type of function |  |  |  |
| a list whose elements are all functions |  |  |  |
| Total |  | 1.00 / 1.00 |  |

**Question 7**

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

|  |  |  |  |
| --- | --- | --- | --- |
| **Your Answer** |  | **Score** | **Explanation** |
| dynamic scoping |  |  |  |
| global scoping |  |  |  |
| compilation scoping |  |  |  |
| lexical scoping | Correct | 1.00 |  |
| Total |  | 1.00 / 1.00 |  |

**Question 8**

How are free variables in R functions resolved?

|  |  |  |  |
| --- | --- | --- | --- |
| **Your Answer** |  | **Score** | **Explanation** |
| 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 environment in which the function was defined | Correct | 1.00 |  |
| The values of free variables are searched for in the working directory |  |  |  |
| The values of free variables are searched for in the global environment |  |  |  |
| Total |  | 1.00 / 1.00 |  |

**Question 9**

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

|  |  |  |  |
| --- | --- | --- | --- |
| **Your Answer** |  | **Score** | **Explanation** |
| R objects cannot be larger than 100 MB |  |  |  |
| Functions cannot be nested |  |  |  |
| All objects must be stored in memory | Correct | 1.00 |  |
| All objects can be stored on the disk |  |  |  |
| Total |  | 1.00 / 1.00 |  |

**Question 10**

In R, what is the parent frame?

|  |  |  |  |
| --- | --- | --- | --- |
| **Your Answer** |  | **Score** | **Explanation** |
| It is always the global environment |  |  |  |
| It is the package search list |  |  |  |
| It is the environment in which a function was called | Correct | 1.00 |  |
| It is the environment in which a function was defined |  |  |  |
| Total |  | 1.00 / 1.00 |  |

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