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Week 4 Quiz

10 questions

1.

What is produced at the end of this snippet of R code?

```
set.seed(1)
rpois(5, 2)
```

○ A vector with the numbers 3.3, 2.5, 0.5, 1.1, 1.7

○ A vector with the numbers 1, 4, 1, 1, 5

○ It is impossible to tell because the result is random

○ A vector with the numbers 1, 1, 2, 4, 1

2.

What R function can be used to generate standard Normal random variables?

○ qnorm

○ dnorm

○ rnorm

○ pnorm

3.

When simulating data, why is using the set.seed() function important? Select all that apply.

☐ It ensures that the sequence of random numbers is truly random.

☐ It ensures that the sequence of random numbers starts in a specific place and is therefore reproducible.

☐ It can be used to generate non-uniform random numbers.

☐ It ensures that the random numbers generated are within specified boundaries.

4.

Which function can be used to evaluate the inverse cumulative distribution function for the Poisson distribution?

○ qpois

○ dpois

○ rpois

○ ppois

5.

What does the following code do?

```
set.seed(10)
x <- rep(0:1, each = 5)
e <- rnorm(10, 0, 20)
y <- 0.5 + 2 * x + e
```

○ Generate data from a Normal linear model

○ Generate random exponentially distributed data

○ Generate data from a Poisson generalized linear model

○ Generate uniformly distributed random data

6.

What R function can be used to generate Binomial random variables?

○ pbinom

○ dbinom

○ rbinom

○ qbinom

7.

What aspect of the R runtime does the profiler keep track of when an R expression is evaluated?

○ the global environment

○ the working directory

○ the function call stack

○ the package search list

8.

Consider the following R code

```
library(datasets)
Rprof()
fit <- lm(y ~ x1 + x2)
Rprof(NULL)
```

(Assume that y, x1, and x2 are present in the workspace.) Without running the code, what percentage of the run time is spent in the 'lm' function, based on the 'by.total' method of normalization shown in 'summaryRprof()'?

○ It is not possible to tell

○ 23%

○ 100%

○ 50%

9.

When using 'system.time()', what is the user time?

○   It is the time spent by the CPU waiting for other tasks to finish

○   It is a measure of network latency

○   It is the "wall-clock" time it takes to evaluate an expression

○   It is the time spent by the CPU evaluating an expression

10.

If a computer has more than one available processor and R is able to take advantage of that, then which of the following is true when using 'system.time()'?

○   user time is 0

○   elapsed time is 0

○   user time is always smaller than elapsed time

○   elapsed time may be smaller than user time

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9 questions unanswered

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