Feedback — Week 4 Quiz

Thank you. Your submission for this quiz was received.

You submitted this quiz on **Fri 27 Jun 2014 12:49 PM PDT**. You got a score of **10.00** out of **10.00**.

Question 1

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

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

Your Answer		Score	Explanation
◯ A vector with the numbers 1, 4, 1, 1, 5			
◯ A vector with the numbers 3.3, 2.5, 0.5, 1.1, 1.7			
◯ It is impossible to tell because the result is random			
◉ A vector with the numbers 1, 1, 2, 4, 1	✔	1.00	Because the `set.seed()` function is used, `rpois()` will always output the same vector in this code.
Total		1.00 / 1.00	

Question 2

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

Your Answer	Score	Explanation
○ dnorm		
○ pnorm		
● rnorm	✔ 1.00	Functions beginning with the `r' prefix are used to simulate random variates.
○ qnorm		
Total	1.00 / 1.00	

Question Explanation

Standard probability distributions in R have a set of four functions that can be used to simulate variates, evaluate the density, evaluate the cumulative density, and evaluate the quantile function.

Question 3

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

Your Answer	Score	Explanation
○ It ensures that the random numbers generated are within specified boundaries.		
○ It ensures that the sequence of random numbers is truly random.		
○ It can be used to generate non-uniform random numbers.		
● It ensures that the sequence of random numbers starts in a specific place and is therefore reproducible.	✔ 1.00	
Total	1.00 / 1.00	

Question 4

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

Your Answer		Score	Explanation
○ rpois			
⦿ qpois	✔	1.00	Probability distribution functions beginning with the `q' prefix are used to evaluate the quantile function.
○ dpois			
○ ppois			
Total		1.00 / 1.00	

Question 5

What does the following code do?

```
set.seed(10)
x <- rbinom(10, 10, 0.5)
e <- rnorm(10, 0, 20)
y <- 0.5 + 2 * x + e
```

Your Answer	Score	Explanation
○ Generate random exponentially distributed data		
⦿ Generate data from a Normal linear model	✔ 1.00	
○ Generate uniformly distributed random data		
○ Generate data from a Poisson generalized linear model		

Total		1.00 / 1.00

Question 6

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

Your Answer		Score	Explanation
◉ rbinom	✔	1.00	
◯ pbinom			
◯ dbinom			
◯ qbinom			
Total		1.00 / 1.00	

Question 7

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

Your Answer		Score	Explanation
◉ the function call stack	✔	1.00	
◯ the working directory			
◯ the global environment			
◯ the package search list			
Total		1.00 / 1.00	

Question 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()'?

Your Answer		Score	Explanation
○ 23%			
⦿ 100%	✔	1.00	When using `by.total' normalization, the top-level function (in this case, `lm()') always takes 100% of the time.
○ 50%			
○ It is not possible to tell			
Total		1.00 / 1.00	

Question 9

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

Your Answer	Score	Explanation
○ It is a measure of network latency		
○ It is the time spent by the CPU waiting for other tasks to finish		
○ It is the "wall-clock" time it takes to evaluate an expression		
⦿ It is the time spent by the CPU evaluating an expression	✔ 1.00	
Total	1.00 /	

1.00

Question 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()'?

Your Answer		Score	Explanation
◉ elapsed time may be smaller than user time	✔	1.00	
○ user time is 0			
○ elapsed time is 0			
○ user time is always smaller than elapsed time			
Total		1.00 / 1.00	