

06**SIMULATION METHOD**

1. Which of the following statements is most accurate regarding the dataset and samples used in bootstrap resampling?
 - (A) A partial dataset is used, and the samples are different sizes.
 - (B) The full dataset is used, and the samples are all the same size.
 - (C) A partial dataset is used, and the samples are all the same size.

2. Bill Phillips is developing a Monte Carlo simulation to value a complex and thinly traded security. Phillips wants to model one input variable to have negative skewness and a second input variable to have positive excess kurtosis. In a Monte Carlo simulation, Phillips can appropriately use:
 - (A) neither of these variables.
 - (B) both of these variables.
 - (C) only one of these variables.

3. In bootstrap resampling, a single observation from a full dataset:
 - (A) may appear in multiple samples.
 - (B) may appear either in exactly one sample or in no samples.
 - (C) must appear in one and only one sample.

4. Which of the following statements describes a limitation of Monte Carlo simulation?
 - (A) Outcomes of a simulation can only be as accurate as the inputs to the model.
 - (B) Simulations do not consider possible input values that lie outside historical experience.
 - (C) Variables are assumed to be normally distributed but may actually have non-normal distributions.

5. Which of the following statements regarding the distribution of returns used for asset pricing models is most accurate?
 - (A) Lognormal distribution returns are used because this will allow for negative Returns on the assets.
 - (B) Normal distribution returns are used for asset pricing models because they will Only allow the asset price to fall to zero.
 - (C) Lognormal distribution returns are used for asset pricing models because they will not result in an asset return of less than -100%.

6. If random variable Y follows a lognormal distribution then the natural log of Y must be:
- (A) denoted as e^x
 - (B) normally distributed.
 - (C) lognormally distributed.
7. One of the major limitations of Monte Carlo simulation is that it:
- (A) cannot provide the insight that analytic methods can.
 - (B) does not lend itself to performing “what if” scenarios.
 - (C) requires that variables be modelled using the normal distribution
8. A lognormal distribution is least likely to be:
- (A) bounded below by zero.
 - (B) used to model stock prices.
 - (C) negatively skewed.
9. When resampling is done, the subsamples that are repeatedly drawn from the original observed samples will:
- (A) progressively get larger.
 - (B) progressively get smaller.
 - (C) remain the same size.
10. The goal of resampling and the use of subsamples is to estimate parameters for the:
- (A) various subsamples.
 - (B) overall population.
 - (C) original sample.
11. If a random variable x is lognormally distributed then $\ln x$ is:
- (A) abnormally distributed.
 - (B) defined as e^x
 - (C) normally distributed.
12. Monte Carlo simulation is necessary to:
- (A) reduce sampling error.
 - (B) compute continuously compounded returns.
 - (C) approximate solutions to complex problems.

