Statistics 13V NAME:_____
Sample Quiz 1 Last six digits of Student ID#:_____

Circle the best answer.

This scenario applies to Questions 1 and 2: A study was done to compare the lung capacity of coal miners to the lung capacity of farm workers. The researcher studied 200 workers of each type. Other factors that might affect lung capacity are smoking habits and exercise habits. The smoking habits of the two worker types are similar, but the coal miners generally exercise less than the farm workers.

1. Which of the following is the explanatory variable in this study?
   a. Exercise
   b. Lung capacity
   c. Smoking or not
   d. Occupation
2. Which of the following is a confounding variable in this study?
   a. Exercise
   b. Lung capacity
   c. Smoking or not
   d. Occupation

This scenario applies to Questions 3 to 5: A randomized experiment was done by randomly assigning each participant either to walk for half an hour three times a week or to sit quietly reading a book for half an hour three times a week. At the end of a year the change in participants' blood pressure over the year was measured, and the change was compared for the two groups.

3. This is a randomized experiment rather than an observational study because:
   a. Blood pressure was measured at the beginning and end of the study.
   b. The two groups were compared at the end of the study.
   c. The participants were randomly assigned to either walk or read, rather than choosing their own activity.
   d. A random sample of participants was used.
4. The two treatments in this study were:
   a. Walking for half an hour three times a week and reading a book for half an hour three times a week.
   b. Having blood pressure measured at the beginning of the study and having blood pressure measured at the end of the study.
   c. Walking or reading a book for half an hour three times a week and having blood pressure measured.
   d. Walking or reading a book for half an hour three times a week and doing nothing.
5. If a statistically significant difference in blood pressure change at the end of a year for the two activities was found, then:
   a. It cannot be concluded that the difference in activity *caused* a difference in the change in blood pressure because in the course of a year there are lots of possible confounding variables.
   b. Whether or not the difference was caused by the difference in activity depends on what else the participants did during the year.
   c. It cannot be concluded that the difference in activity *caused* a difference in the change in blood pressure because it might be the opposite, that people with high blood pressure were more likely to read a book than to walk.
   d. It can be concluded that the difference in activity *caused* a difference in the change in blood pressure because of the way the study was done.

6. What is one of the distinctions between a population parameter and a sample statistic?
   a. A population parameter is only based on conceptual measurements, but a sample statistic is based on a combination of real and conceptual measurements.
   b. A sample statistic changes each time you try to measure it, but a population parameter remains fixed.
   c. A population parameter changes each time you try to measure it, but a sample statistic remains fixed across samples.
   d. The true value of a sample statistic can never be known but the true value of a population parameter can be known.
7. A magazine printed a survey in its monthly issue and asked readers to fill it out and send it in. Over 1000 readers did so. This type of sample is called
   a. a cluster sample.
   b. a self-selected sample.
   c. a stratified sample.
   d. a simple random sample.
8. Which of the following would be most likely to produce selection bias in a survey?
   a. Using questions with biased wording.
   b. Only receiving responses from half of the people in the sample.
   c. Conducting interviews by telephone instead of in person.
   d. Using a random sample of students at a university to estimate the proportion of people who think the legal drinking age should be lowered.
9. A polling agency conducted a survey of 100 doctors on the question "Are you willing to treat women patients with the recently approved pill RU-486"? The conservative margin of error associated with the 95% confidence interval for the percent who say 'yes' is
   a. 50% b. 10% c. 5% d. 2%
10. The following picture is a "screenshot" of the Interactivity in Unit A4, Uses 3, but with a population of 100 UCD students instead of the population shown in Unit A4. If the "Sample" button were pressed again, which of the following would NOT change?
   a. SAMPLE: Mean = 69.6 inches
   b. Percent Female = 30.0%
   c. Percent Female = 55%
   d. The heights next to the 10 stick figures on the right