Review Questions and Answers

Multiple Choice Questions

1. Which of the following are true of a double-blind experimental design?

I. Subjects react differently if they know they are in the treatment group.
II. Researchers react differently if they know who is in the treatment group.
III. Results are more reliable from a double-blind study.

A. I only
B. II only
C. I and III
D. II and III
E. I, II, and III

2. Which of the following statements is true?

A. In an observational study, interaction is required between test subject and researcher.
B. In an experiment, test subjects know whether they are in the control group of the treatment group.
C. Observational studies are more useful in establishing cause-and-effect relationships than experiments.
D. In an experiment, researchers must know which group is the control group.
E. Sample surveys are examples of observational studies.

3. Which of the following would be considered observational studies?

I. A researcher wants to determine whether taking vitamin E supplements can lower blood pressure. The blood pressure of each of 150 randomly selected subjects is measured. A vitamin E supplement is given to each subject. Six months later, the blood pressure of each subject is measured again and compared with the first measurement.
II. A researcher wants to determine whether taking vitamin E supplements can lower blood pressure. The blood pressure of each of 150 randomly selected subjects is measured. Three groups of 50 subjects each are formed. One group is given a certain daily dose of vitamin E. The second group is given twice the daily dosage of the first group. The third is given a pill that contains no vitamin E. Six months later, the blood pressure of each subject is measured again and compared with the first measurement.
III. A researcher wants to determine whether taking vitamin E supplements can lower blood pressure. The blood pressure of each of 150 randomly selected subjects is measured. Each subject is asked whether they take a daily dose of vitamin E supplements. The subjects are placed into two groups depending on whether or not they took vitamin E supplements. Results are tabulated.

A. I only
B. II only
C. III only
D. I and II
E. I, II, and III

4. Which of the following are true statements about cause and effect?

   I. Cause-and-effect relationships should not be drawn from experiments because researchers have an influence over test subjects.
   II. Cause-and-effect relationships are difficult, but not impossible, to draw from observational studies.
   III. Cause-and-effect relationships are better indicated from well-designed experiments than from well-conducted observational studies.

   A. I only
   B. II only
   C. III only
   D. II and III
   E. I, II, and III

5. A researcher wants to determine whether drinking red wine is better at reducing blood pressure than drinking white wine. Two studies are designed. In the first study, 200 people who have not had wine for 6 months are randomly selected. The blood pressures of the 200 subjects are taken. Half of the subjects are asked to drink 1 glass of red wine daily for 6 months, and the other half of the subjects were asked to drink 1 glass of white wine daily for 6 months. The blood pressures of the 200 subjects were taken again after the 6-month study. In a second study, 100 subjects who only drink red wine and 100 subjects who only drink white wine are selected. The blood pressures of the 200 subjects are taken. Results are tabulated. Which of the following is true about these two studies?

   A. The first study is an experiment, and the second study is an observational study.
   B. The first study is an observational study, and the second study in an experiment.
   C. Both studies are experiments.
   D. Both studies are observational studies.
   E. The second study in more likely to show a cause-and-effect relationship than the first study.

6. A researcher wants to determine the average height of students who attend a large college. Which of the following would be the most appropriate technique to use?

   A. An experiment
   B. An observational study
   C. A census
   D. A sample survey
   E. All would be appropriate for determining the answer.

7. Which of the following statements is false?

   A. Existing situations are used in observational studies.
   B. In an experiment, researchers divide subjects into groups, apply a treatment to one of the groups, and observe differences.
   C. Cause-and-effect relationships are more likely to come from experiments than observational studies.
   D. In observational studies, researchers control group composition.
   E. Observational studies are less likely than experiments to cause disruption in a subject's routine.

8. Which of the following statements are true about the process of dividing groups in an experiment?

   I. A researcher divides the subjects into two groups so that the subjects do not know which group they are in.
   II. A researcher divides the subjects into two groups so that the subjects do know which group they are in.
   III. The subjects request which group they want to be in, but the researcher's decision is final.

   A. I only
   B. II only
   C. III only
   D. I and III
   E. II and III

9. As a researcher, you are interested in the effectiveness of traffic school for those people who get tickets for running red lights. You are interested to see whether traffic school is more effective for females than males. You divide traffic school attendees into two groups, males and females, and observe their driving records for the next 3 years. This situation can best be described as which of the following?

A. A census
B. An experiment
C. An observational study
D. A sample survey
E. A double-blind study

10. As a researcher, you are interested to see whether stretching exercises coupled with diet is a more effective weight loss program than diet alone. You randomly select a group of 100 women and 100 men. You give the men the diet without the stretching routines. You give the women the diet with the stretching routines. You monitor their progress for 2 months. Which of the following would best describe this study.

A. Flawed observational study
B. Flawed experiment
C. Controlled observational study
D. Controlled experiment
E. Blind study

11. A teacher is interested to see whether grading homework has an effect on test results. She randomly divides each of her classes into two groups. She grades the homework from one of the groups and simply checks off the homework for the other group. The test scores from each of the two groups were similar. Which of the following study designs was used?

A. An experiment
B. An observational study
C. A random study
D. A survey since the results were similar
E. A placebo

12. You want to assess the ice cream flavor preferences of students at your school. You decide to randomly select 100 female juniors and administer a questionnaire. Which of the following statements are true?

I. By choosing only female juniors, you will have a limited experiment.
II. By choosing only female juniors, your sample is flawed, and the results of the study are suspect.
III. By choosing only female juniors, you have created a limited observational study.

A. I only
B. III only
C. I and II
D. II and III
E. None of the preceding is a true statement.