# *Statistics for the Behavioral Sciences 6th edition Nolan Test Bank*

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Statistics for the Behavioral Sciences 6th edition Nolan Test Bank

Name:_____ Class:_____ Date:_____

## Chapter 1 - Essay

1. Schacter and Gross (1968) gathered data from a group of 60 male students for about one hour in the afternoon. At the end of this period of time, a clock on the wall was correct (5:30 p.m.) for 20 participants, slow (5:00 p.m.) for 20 others, and fast (6:00 p.m.) for 20 more. The actual time for all groups was 5:30 p.m., the usual dinnertime for these students. While participants filled out a final questionnaire, the experimenters provided crackers for the students to eat. The weight of the crackers each student consumed was measured. The arithmetic means were 5:00 p.m. group, 20 grams; 5:30 p.m. group, 30 grams; 6:00 p.m. group, 40 grams. Identify for this study the (a) population, (b) sample, (c) independent variable, (d) levels of the independent variable, (e) dependent variable, (f) descriptive statistic, and (g) any inferences warranted by this study.

*ANSWER:* (a) The population is male students; (b) the sample is the 60 male students who participated in the study; (c) the independent variable is the time that appeared on the clock; (d) the levels of the independent variable were correct, slow, and fast; (e) the dependent variable was the amount of crackers eaten by each student in grams; (f) there are three descriptive statistics provided: the means of each group: 20 grams for the slow group, 30 grams for the correct group, and 40 grams for the fast group; (g) one could infer that male students in general eat more when they believe it to be past their dinner hour.

2. Research published by Hsee and Tang (2007) described the results of a study in which 195 college students completed a happiness scale (from 1 to 7) just prior to taking their midterm exam. On this scale, 1 corresponded to *very unhappy* and 7 to *very happy*. On average, the students rated their happiness as 6.18. Identify for this study the (a) population, (b) sample, (c) outcome variable, and (d) descriptive statistic.

*ANSWER:* (a) The population is all college students just about to take a midterm exam; (b) the sample is the 195 college students selected for this study; (c) the outcome variable is the student's rating on the happiness scale; and (d) the descriptive statistic is the average of the happiness ratings, which is 6.18.

3. An article published on April 24, 2007, in the *New York Times*, summarized research conducted by of Dr. Vallortigara, a neuroscientist at the University of Trieste, Italy. In this study, Dr. Vallortigara assessed whether a dog's tail wags in a preferred direction in response to positive as opposed to negative stimuli. Dr. Vallortigara recruited 30 dogs that were family pets. Filming the dog's tail from above, he allowed the dog to view (through a slot in its cage) its owner, an unfamiliar human, a cat, and an unfamiliar dominant dog. The study found that dogs' tails wagged to the right for the owner and to the left for the unfamiliar dominant dog. Identify for this study the (a) population, (b) sample, (c) independent variable, (d) levels of the independent variable, and (e) dependent variable.

*ANSWER:* (a) The population is all dogs that are family pets; (b) the sample is 30 dogs selected for this study; (c) the independent variable is the type of visual stimulus the dog was allowed to see; (d) the levels of the independent variable are owner, unfamiliar human, a cat, and an unfamiliar dominant dog; (e) the dependent variable is the direction in which the dog wagged its tail.

4. A teacher at a local preschool is interested in the association between sugar consumption and activity level in preschool children. The teacher gives 28 preschool children from Peter's Preschool Playland 0 milligrams, 25 milligrams, or 50 milligrams of sucrose (sugar) in a breakfast drink. The teacher then observes the children's behavior for 30 minutes during their morning outdoor play period and codes the different activity levels. Identify for this study the (a) population, (b) sample, (c) independent variable, (d) levels of the independent variable, and (e) dependent variable.

*ANSWER:* (a) The population is all preschool children; (b) the sample is the 30 preschool children who the teacher studied; (c) the independent variable is the amount of sucrose given to the children; (d) the

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levels of the independent variable are 0 milligrams, 20 milligrams, and 50 milligrams; (e) the dependent variable is each child's activity level.

5. A study designed to assess the effects of the disclosure of ingredients on the experience of taste was conducted by Lee, Frederick, and Ariely (2006) who approached patrons at a local pub and asked them to taste and rate a new beer: the MIT Brew. Some participants were told about the secret ingredient in the beer (a few drops of balsamic vinegar) either before tasting (*before* condition) or after tasting but before rating (*after* condition). Other participants were not told anything regarding the secret ingredient (*not told* condition). Identify for this study the (a) population, (b) sample, (c) independent variable, (d) levels of the independent variable, and (e) dependent variable.

*ANSWER:* (a) The population is people who are patrons of pubs; (b) the sample is patrons approached in this study; (c) the independent variable is whether the patron was told about the secret ingredient in the MIT Brew; (d) the levels of the independent variable are told before, told after, or not told; (e) the dependent variable is the patron's taste rating for the beer.

6. Research by Henriques and Davidson (2000) examined the responses of a group of 18 individuals with depression on a verbal memory task. These participants were tested under three different payoff conditions: reward, punishment, and neutral, which were presented in a randomized order. Identify for this study the (a) population, (b) sample, (c) independent variable, (d) levels of the independent variable, and (e) dependent variable.

*ANSWER:* (a) The population is people who are depressed; (b) the sample is the 18 individuals with depression in the study; (c) the independent variable is the payoff; (d) the levels of the independent variable are reward, punishment, and neutral; (e) the dependent variable is the participants' performance on the verbal memory task.

7. Identify at least one confounding variable that undermines the conclusion drawn in the following fictional study: Prof. Schroeder was interested in which of two popular statistics textbooks (*Statistics: It Will Change Your Life* and *Statistics: Bigger, Better, Stronger, Faster*) was better for students. Prof. Schroeder compared the two texts by assigning one text to a section of statistics taught by Prof. Szweda from 10 to 11 a.m. on Monday, Wednesday, and Friday, and the other text to a section of statistics taught by Prof. Strauss from 7 to 10 p.m. on Wednesday evenings. At the end of the term, all students took the same comprehensive test. Students to whom *Statistics: Bigger, Better, Stronger, Faster* was assigned performed better on the test than did students to whom *Statistics: It Will Change Your Life* was assigned. Therefore, Prof. Schroeder concluded that the former textbook was the better one.

*ANSWER:* There are several possible confounding variables that students may identify. One confounding variable is the time at which the sections of the class are taught: one in the evening and the other in the morning. A second confounding variable is the distribution of the class sections: one meets once a week, the other three times a week. A third confounding variable is that different instructors taught each of the courses. A fourth confounding variable is the time of day and length of time which the class is taught at one time: mornings for one hour, evenings for three hours.

8. An operational definition specifies the operations or procedures used to measure or manipulate variables. A researcher is interested in investigating the relationship between intellectual ability and educational success. What are some operational definitions that could be used in this study?

*ANSWER:* Operational definitions are needed for the terms *intellectual ability* and *educational success.* This is because the variables do not have specific definitions. An example of operational definitions that

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could be used in this study can be seen in the following research question: What is the relationship between IQ scores on an intelligence scale (operational definition for intellectual ability) and GPA (operational definition for educational success)? Another example: It is hypothesized that problem-solving scores on a standardized test (operational definition for intellectual ability) will impact grades in an engineering course (operational definition for educational success).

9. How is a within-groups different from a between-groups design? What are the relative advantages and disadvantages of each type of design?

*ANSWER:* In a within-groups design all participants are exposed to all levels of the independent variable, but in a between-groups design each participant experiences only one level of the independent variable. One advantage to the within-groups design is that it requires fewer participants. If all the participants can participate in all conditions of the study, fewer individuals need to be recruited. Another advantage to the within-groups design is that it allows each participant to serve as their own baseline or control, against which we can measure any change across the various levels. One disadvantage to the within-groups study is order effects. By virtue of having participated in one condition of the study, participants may change their response in subsequent conditions. Another disadvantage to the within-groups study is carryover effects. Because the participants are in more than condition, the impact of one condition may carry over into the next condition, either compounding the effect or creating a unique effect. The between-groups design does not have these problems because each participant experiences only one of the conditions.

10. When deciding on a research approach, what are some advantages in using a correlational design over an experimental design?

*ANSWER:* There are situations where random assignment to groups may not be available, which makes the use of a correlational design more practical because it has fewer restrictions. In correlational research, we do not have to manipulate any variables but only measure them and look for relations (correlations) between them. Also, sometimes we cannot conduct experiments because of ethical safeguards.

11. Alina is interested in examining the effect of classical music on mathematical problem solving. Explain what is involved in preregistering her study and how this approach would be beneficial.

*ANSWER:* Preregistration is one recommended open-science practice, and involves the researcher laying out their methods and analysis plans before conducting their research. Alina would specify what variables would be measured, how her data would be collected, and the particular statistical tests that she intended to use to evaluate her hypotheses. Preregistration is helpful because Alina can show that she did everything she intended and that her results are not the consequence of unethical data practices. This approach also allows other researchers to have more confidence in the results of Alina's findings.

12. An instructor is interested in the relation between cell phone usage and student test performance in an undergraduate introductory psychology course. The instructor divides the 60 students in their Introductory Psychology class into different groups with the instructions that they should not use their phones during class; only use their phones when clicker questions were asked in lecture; or use their phones as they normally do in class. He then observes their performance on the class midterm exam. Identify for this study the (a) population, (b) sample, (c) independent variable, (d) levels of the independent variable, and (e) dependent variable, and (f) whether this is a between-groups or within-groups design.

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## Chapter 1 - Essay

*ANSWER:* (a) The population is all college students taking introductory psychology; (b) the sample is the 60 students who the teacher studied; (c) the independent variable is the extent of cell phone usage during class; (d) the levels of the independent variable are no phone usage, limited phone usage, and usual phone usage; (e) the dependent variable is each student's midterm exam grade; (f) this is a between-groups design as students received one of the levels of phone usage variable.

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Name:_____ Class:_____ Date:_____

## Chapter 1 - Multiple Choice

1. A developmental psychologist wanted to determine whether eating sugary cereal for breakfast increased the disruptive behavior of first graders during their morning class period. After feeding a group of 26 students sugary cereal for breakfast, the developmental psychologist observed that, on average, the students exhibited 5.2 disruptive behaviors during their morning class period. In this example, the descriptive statistic is:

a. all first graders.
b. the 26 students the researcher observed.
c. the 5.2 disruptive behaviors.
d. all first graders who ate sugary cereal for breakfast.

*ANSWER:* c

2. A behavioral psychologist wanted to determine whether watching cartoons with animated violence increased the aggression of third graders during afternoon recess. After showing a group of 25 students cartoons containing violence, they observed that, on average, the students committed 4.2 aggressive behaviors during recess. In this example, the descriptive statistic is:

a. the 4.2 aggressive behaviors.
b. the 25 students the researcher observed.
c. all third graders.
d. all third graders who watched cartoon violence.

*ANSWER:* a

3. Cheyenne is a weight-loss group instructor. To get a better idea of how to help those she will be working with to achieve their weight-loss goals, she wishes to know the average weight-loss goal of the individuals in her group. What kind of statistic should Cheyenne use?

a. reliability
b. population
c. inferential
d. descriptive

*ANSWER:* d

4. A behavioral economist wanted to explore the association between the number of bathrooms in a house and the sale price of the house. They studied 1314 home sales in an economically diverse, medium-sized city and found that the average sale price went up by $83,000 for each full bath. What is the descriptive statistic in this study?

a. 1314 home sales
b. houses in economically diverse, medium-sized cities
c. number of bathrooms
d. average increase in sale price of $83,000 per bathroom

*ANSWER:* d

5. The general definition of descriptive statistic is:

a. the entire group of interest about which we want to make conclusions.
b. a single number or group of numbers that organize, summarize, and communicate a group of numerical observations.

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**Chapter 1 - Multiple Choice**

c. a subset, or smaller collection, of observations from the overall group of interest.
d. using data to make general estimates about the overall group of interest.

*ANSWER:* b

6. Statisticians define a descriptive statistic as:
a. the entire group of interest about which we want to make conclusions.
b. data that they use to make general estimates about the overall group of interest.
c. a subset, or smaller collection, of observations from the overall group of interest.
d. a number or group of numbers that organize, summarize, and communicate information about a larger group of numerical observations.

*ANSWER:* d

7. Faced with rapidly changing climate conditions, a group of researchers interested in asthma symptoms wanted to know how symptoms were affected in dry versus humid conditions. The researchers recruited 36 patients with asthma to spend 4 weeks under two conditions: sleeping with a dehumidifier for 2 weeks to create a "dry" environment and sleeping with a humidifier for the remaining 2 weeks to create a "humid" environment. Patients were asked to rate their symptoms at regular intervals using a scale from "0—no symptoms" to "50—maximum asthma symptoms." The change in asthma symptoms from dry to humid conditions was 15.82, showing a reduction of symptoms in humid conditions. What was the descriptive statistic in this study?
a. change in responses on the scale of 15.82 on average
b. 4 weeks, with 2 weeks under each condition
c. 36 asthma patients
d. two sleeping conditions, dry and humid

*ANSWER:* a

8. A developmental psychologist wanted to determine whether eating sugary cereal for breakfast increased the disruptive behavior of first graders during their morning class period. After feeding a group of 26 students sugary cereal for breakfast, they observed that, on average, the students exhibited 5.2 disruptive behaviors during their morning class period. In this example, the sample is:
a. all first graders.
b. the 26 students the researcher observed.
c. the 5.2 disruptive behaviors.
d. all first graders who ate sugary cereal for breakfast.

*ANSWER:* b

9. A study, published by Hsee and Tang in 2007, examined 195 college students who completed a happiness scale (from 1 to 7) just before taking a midterm exam. On this scale, 1 corresponded to *very unhappy* and 7 to *very happy*. On average, the students rated their happiness as 6.18. In this study, which of these would require an inferential statistic?
a. the average rating of happiness at 6.18
b. the conclusion that college students, on average, are rather happy prior to taking midterm exams
c. the conclusion that these 195 college students are rather happy prior to taking this midterm exam
d. the 195 college students who completed the happiness scale

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*ANSWER:* b

10. The purpose of inferential statistics is to allow a researcher to:
    a. summarize numerical observations for a population.
    b. make inferences about a sample of interest given observations taken on a larger population.
    c. make inferences about a population of interest given observations taken on a smaller sample.
    d. summarize numerical observations for a sample.

*ANSWER:* c

11. Research by Dietz and Henrich (2014) examined the impact of texting on student learning. A group of 99 college students were randomly assigned to text ($N = 50$) or not text ($N = 49$) during a pre-recorded lecture. At the end of the 20-minute lecture, students answered a 17-question quiz about the material that had just been presented. On average, the researchers found that students who texted during the lecture answered fewer quiz questions correctly as compared to students who hadn't texted during the lecture. What is the sample in this study?
    a. the 99 college students who participated in the study
    b. all college students, those who text in class and those who don't text in class
    c. the number of questions answered correctly on the post-lecture quiz
    d. the 20-minute duration of the pre-recorded lecture

*ANSWER:* a

12. Research by Dietz and Henrich (2014) examined the impact of texting on student learning. A group of 99 college students were randomly assigned to text ($N = 50$) or not text ($N = 49$) during a pre-recorded lecture. At the end of the 20-minute lecture, students answered a 17 -question quiz about the material that had just been presented. On average, the researchers found that students who texted during the lecture answered fewer quiz questions correctly as compared to students who hadn't texted during the lecture. Which of these requires an inferential statistic?
    a. the random assignment of students into texting and non-texting groups
    b. recruiting the sample of 99 college students
    c. the average performance on the post-lecture quiz
    d. the conclusion that texting interferes with student learning

*ANSWER:* d

13. A developmental psychologist wanted to determine whether eating sugary cereal for breakfast increased the disruptive behavior of first graders during their morning class period. After feeding a group of 26 students sugary cereal for breakfast, they observed that, on average, the students exhibited 5.2 disruptive behaviors during their morning class period. In this example, the population is:
    a. the 5.2 aggressive behaviors.
    b. the 26 students the researcher observed.
    c. all first graders.
    d. all first graders who eat sugary cereal for breakfast.

*ANSWER:* d

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**Chapter 1 - Multiple Choice**

14. A behavioral psychologist wanted to determine whether watching cartoons with animated violence increased the aggression of third graders during afternoon recess. After showing a group of 25 students cartoons containing violence, they observed that, on average, the students committed 4.2 aggressive behaviors during recess. In this example, the population is:

a. the 4.2 aggressive behaviors.
b. the 25 students the researcher observed.
c. all third graders.
d. all third graders who watched cartoon violence.

*ANSWER:* d

15. Research by Dietz and Henrich (2014) examined the impact of texting on student learning. A group of 99 college students were randomly assigned to text ($N = 50$) or not text ($N = 49$) during a pre-recorded lecture. At the end of the 20-minute lecture, students answered a 17-question quiz about the material that had just been presented. On average, the researchers found that students who texted during the lecture answered fewer quiz questions correctly as compared to students who hadn't texted during the lecture. What is the population in this study?

a. the 99 college students who participated in the study
b. all college students, those who text in class and those who don't text in class
c. the number of questions answered correctly on the post-lecture quiz
d. the 20-minute duration of the pre-recorded lecture

*ANSWER:* b

16. Why do psychological researchers typically study samples rather than populations?

a. Entire populations can be too costly to study or impossible to access.
b. Entire populations are too variable to study.
c. Samples are more representative than their respective populations.
d. Studying a sample is more difficult than studying a population.

*ANSWER:* a

17. The statement "105 college-aged young adults participated in a study examining the relationship between gender and depression" is an example of a(n) _____ in research and statistics.

a. population
b. sample
c. descriptive statistic
d. inferential statistic

*ANSWER:* b

18. A behavioral economist wanted to explore the association between the number of bathrooms in a house and the sale price of the house. They studied 1314 home sales in an economically diverse, medium-sized city and found that the average sale price went up by $83,000 for each full bath. What is the sample in this study?

a. 1314 home sales
b. houses in economically diverse, medium-sized cities

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c. number of bathrooms
d. average increase in sale price of $83,000 per bathroom

*ANSWER:* a

19. A behavioral economist wanted to explore the association between the number of bathrooms in a house and the sale price of the house. They studied 1314 home sales in an economically diverse, medium-sized city and found that the average sale price went up by $83,000 for each full bath. Which statement involves a logical inferential statistic based on this research?
a. Adding a bathroom to one's house will cost $83,000.
b. On average, adding a bathroom to your house can increase the sale price.
c. Houses sell for $83,000 on average.
d. Bathrooms are highly desirable features of houses in medium-sized cities.

*ANSWER:* b

20. A behavioral economist wanted to explore the association between the number of bathrooms in a house and the sale price of the house. They studied 1314 home sales in an economically diverse, medium-sized city and found that the average sale price went up by $83,000 for each full bath. What is a logical population to which the researcher would want to extend this finding?
a. the 1314 homes involved in the research
b. home sales across the country in which the research was conducted
c. all home sales in diverse, medium-sized cities
d. home sales in this medium-sized city during the last decade

*ANSWER:* c

21. In research, a sample is generally defined as:
a. the entire group of interest about which we want to make conclusions.
b. a single number or group of numbers that organize, summarize, and communicate a group of numerical observations.
c. a subset, or smaller collection, of observations from the overall group of interest.
d. using data to make general estimates about the overall group of interest.

*ANSWER:* c

22. In research, a population is generally defined as:
a. the entire group of interest about which we want to make conclusions.
b. a single number or group of numbers that organize, summarize, and communicate a group of numerical observations.
c. a subset, or smaller collection, of observations from the overall group of interest.
d. using data to make general estimates about the overall group of interest.

*ANSWER:* a

23. An inferential statistic is generally defined as:
a. the entire group of interest about which we want to make conclusions.

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b. a single number or group of numbers that organize, summarize, and communicate a group of numerical observations.

c. a subset, or smaller collection, of observations from the overall group of interest.

d. using data to make general estimates about the overall group of interest.

*ANSWER:* d

24. Faced with rapidly changing climate conditions, a group of researchers interested in asthma symptoms wanted to know how symptoms were affected in dry versus humid conditions. The researchers recruited 36 patients with asthma to spend 4 weeks under two conditions: sleeping with a dehumidifier for 2 weeks to create a "dry" environment and sleeping with a humidifier for the remaining 2 weeks to create a "humid" environment. Patients were asked to rate their symptoms at regular intervals using a scale from "0—no symptoms" to "50—maximum asthma symptoms." The change in asthma symptoms from dry to humid conditions was 15.82, showing a reduction of symptoms in humid conditions. What was the sample in this study?

a. change in responses on the scale of 15.82 on average

b. 4 weeks, with 2 weeks under each condition

c. 36 patients with asthma

d. two sleeping conditions, dry and humid

*ANSWER:* c

25. Faced with rapidly changing climate conditions, a group of researchers interested in asthma symptoms wanted to know how symptoms were affected in dry versus humid conditions. The researchers recruited 36 patients with asthma to spend 4 weeks under two conditions: sleeping with a dehumidifier for 2 weeks to create a "dry" environment and sleeping with a humidifier for the remaining 2 weeks to create a "humid" environment. Patients were asked to rate their symptoms at regular intervals using a scale from "0—no symptoms" to "50—maximum asthma symptoms." The change in asthma symptoms from dry to humid conditions was 15.82, showing a reduction of symptoms in humid conditions. What is MOST likely the population of interest for these researchers?

a. the patients who participated in the study

b. every person diagnosed with asthma

c. everyone who sleeps

d. patients during the 4 weeks of the study

*ANSWER:* b

26. Research by Henriques and Davidson (2000) examined the responses of a group of 18 individuals diagnosed with depression on a verbal memory task. These participants were tested under three different payoff conditions: reward, punishment, and neutral, which were presented in a randomized order. What is MOST likely the population of interest for these researchers?

a. individuals who have problems with verbal memory

b. all individuals with depression

c. people who experience different types of payoffs

d. the 18 individuals diagnosed with depression in the study

*ANSWER:* b

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27. Faced with rapidly changing climate conditions, a group of researchers interested in asthma symptoms wanted to know how symptoms were affected in dry versus humid conditions. The researchers recruited 36 patients with asthma to spend 4 weeks under two conditions: sleeping with a dehumidifier for 2 weeks to create a "dry" environment and sleeping with a humidifier for the remaining 2 weeks to create a "humid" environment. Patients were asked to rate their symptoms at regular intervals using a scale from "0—no symptoms" to "50—maximum asthma symptoms." The change in asthma symptoms from dry to humid conditions was 15.82, showing a reduction of symptoms in humid conditions. Which statement involves an inferential statistic related to this research finding?

a. Asthma symptoms may be lowered, on average, with humid sleeping conditions.
b. You can expect your asthma symptoms to diminish if you move to a drier climate.
c. Varying your sleeping conditions can affect your health.
d. Asthma symptoms increase when patients sleep with humidifiers.

*ANSWER:* a

28. An instructor at a local preschool is interested in the association between sugar consumption and activity level in preschool children. The teacher gives 28 preschool children from Peter's Preschool Playland 0 milligrams, 25 milligrams, or 50 milligrams of sucrose (sugar) in a breakfast drink. They then observe the students' behavior for 30 minutes during their morning outdoor play period and code their activity level. In this example, the population is:

a. 28 preschool children.
b. the amount of sucrose.
c. all preschool children.
d. activity level.

*ANSWER:* c

29. An instructor at a local preschool is interested in the association between sugar consumption and activity level in preschool children. The teacher gives 28 preschool children from Peter's Preschool Playland 0 milligrams, 25 milligrams, or 50 milligrams of sucrose (sugar) in a breakfast drink. They then observe the students' behavior for 30 minutes during their morning outdoor play period and code their activity level. In this example, the sample is:

a. 30 preschool children.
b. the amount of sucrose.
c. all preschool children.
d. activity level.

*ANSWER:* a

30. Research by Dietz and Henrich (2014) examined the impact of texting on student learning. A group of 99 college students were randomly assigned to text ($N = 50$) or not text ($N = 49$) during a pre-recorded lecture. At the end of the 20-minute lecture, students answered a 17-question quiz about the material that had just been presented. On average, the researchers found that students who texted during the lecture answered fewer quiz questions correctly as compared to students who hadn't texted during the lecture. In this example, the sample is:

a. texting or not texting during the lecture.
b. the number of quiz questions answered correctly.

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c. all college students.
d. the 99 college students who participated.

*ANSWER:* d

31. We define variables as:
a. specific values (in whole numbers) that represent an individual's category membership.
b. the value of physical, attitudinal, or behavioral characteristics for a given individual.
c. hypothetical ideas that have been developed to describe and explain human behavior.
d. observations of physical, attitudinal, or behavioral characteristics that can take on different values.

*ANSWER:* d

32. A variable that consists of separate specific values for which there are no values between categories is:
a. discrete.
b. ratio.
c. continuous.
d. confounding.

*ANSWER:* a

33. Which of these is NOT a variable?
a. students' ages
b. students' scores on a biology exam
c. maximum number of points possible on a 100-point exam
d. students' scores on an attitude scale

*ANSWER:* c

34. A variable for which there is an infinite number of values between any two points on the scale is:
a. discrete.
b. ratio.
c. continuous.
d. confounding.

*ANSWER:* c

35. On which measurement scale are variables always discrete?
a. ratio and ordinal
b. ratio and interval
c. nominal and ordinal
d. nominal and interval

*ANSWER:* c

36. Kareena is a student at a large university. When visiting her professors during their office hours, she has noticed that many have refrigerators in their offices. She decides to survey 40 faculty and count the total

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number of refrigerators they have. What is the variable in this study?

a. the university where the data are collected
b. number of faculty, 40
c. total number of refrigerators
d. location of refrigerators

*ANSWER:* c

37. Kareena is a student at a large university. When visiting professors during their office hours, she has noticed that many have refrigerators in their offices. She decides to survey 40 faculty and count the total number of refrigerators they have. What type of observation is she making?

a. discrete
b. continuous
c. discrete and ordinal
d. continuous and interval

*ANSWER:* a

38. When reading through your college textbooks, you will occasionally find errors in them. If you track the number of errors based on the edition of the textbook, you might find that 1st editions have more errors than 3rd, 5th, and 7th editions. What type of variable is the edition of the text you are assessing?

a. nominal
b. ordinal
c. scale
d. dependent

*ANSWER:* b

39. A four-star rating system for movies is a(n) _____ variable.

a. nominal
b. ordinal
c. interval
d. ratio

*ANSWER:* b

40. A person's political affiliation is a(n) _____ variable.

a. nominal
b. ordinal
c. interval
d. ratio

*ANSWER:* a

41. The United States Forest Service Wildland Fire Assessment System measures fire danger as extreme, very high, high, moderate, or low. In this system, fire danger is:

a. continuous and ratio.

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b. continuous and interval.
c. discrete and interval.
d. discrete and ordinal.

*ANSWER:* d

42. Hair color, assessed as blonde, black, red, brown, and other, as a variable is measured on a(n) _____ scale.
a. nominal
b. ordinal
c. interval
d. ratio

*ANSWER:* a

43. Four people run in an election for student council president. The votes are tallied to create a list of candidates from most to least popular. The number of votes is then removed so that a list of candidates from most to least popular is presented. This is a(n) _____ variable.
a. nominal
b. ordinal
c. interval
d. ratio

*ANSWER:* b

44. The number of times a person orders food from a delivery service, such as DoorDash and Grubhub, each month is:
a. discrete and ratio.
b. continuous and interval.
c. discrete and interval.
d. continuous and ordinal.

*ANSWER:* a

45. A college student's grade point average on a scale from 0 to 4.0 is a(n) _____ variable.
a. nominal
b. ordinal
c. interval
d. ratio

*ANSWER:* d

46. The amount of food a person eats each day (as measured in calories) is:
a. continuous and ratio.
b. continuous and interval.
c. discrete and interval.
d. continuous and ordinal.

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**Chapter 1 - Multiple Choice**

*ANSWER:* a

47. The measurement of the performance of triathletes in a race based on their finishing places is a(n) _____ variable. The measurement of the performance of triathletes in a race based on their times to complete the race is a(n) _____ variable.

a. ratio; interval
b. ordinal; ratio
c. ordinal; nominal
d. nominal; ordinal

*ANSWER:* b

48. Four people run in an election for student council president. The votes are tallied to create a list of candidates from most to least popular. When the number of votes is actually presented, this is a(n) _____ variable.

a. nominal
b. ordinal
c. interval
d. ratio

*ANSWER:* d

49. Imagine that a variable "awareness of others" is measured from 0 (low) to 80 (high). Although it is possible to have low awareness of others, it is not conceptually possible to have no awareness at all. What type of variable is this MOST likely to be?

a. nominal
b. ordinal
c. interval
d. ratio

*ANSWER:* c

50. The musical catalog of 25 multi-platinum recording artists is examined and the number of top ten songs is calculated for each artist. What type of variable is number of top 10 songs?

a. nominal
b. ordinal
c. interval
d. ratio

*ANSWER:* d

51. The difference between an interval and a ratio variable is that:

a. ratio scales indicate only difference, but interval scales indicate difference and order.
b. interval scales indicate only difference, but ratio scales indicate difference and order.
c. on a ratio scale, the number 0 corresponds to an absence of the quality, but this is not true for an interval scale.

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d. there are equal intervals between points on an interval scale, but this is not true for a ratio scale.

*ANSWER:* c

52. Which types of variables are considered scale variables by statistics programs?
a. continuous and ratio
b. continuous and interval
c. discrete and interval
d. ratio and interval

*ANSWER:* d

53. _____ variables are almost always continuous.
a. Ordinal
b. Interval
c. Nominal
d. Ratio

*ANSWER:* d

54. In 2010, there was a news story about an interesting lawsuit regarding bagels. A company claimed to have created a new way to produce "Brooklyn style" bagels and then reported that another bagel manufacturer stole their recipe. A researcher wonders if bagel sales might have been affected simply by the story making the national news, so they track total bagel sales in dollars for 1 year before and after the news story hits. What type of variable is total bagel sales?
a. nominal
b. ordinal
c. scale
d. independent

*ANSWER:* c

55. When reading through your college textbooks, you may occasionally find errors in them. If you track the number of errors based on the edition of the textbook, you might find that 1st editions have more errors than 3rd, 5th, and 7th editions. What type of variable is the number of errors found?
a. nominal
b. ordinal
c. scale
d. independent

*ANSWER:* c

56. An article published on April 24, 2007, in the *New York Times*, summarized research conducted by Dr. Vallortigara, a neuroscientist at the University of Trieste, Italy. In this study, Dr. Vallortigara assessed whether a dog's tail wags in a preferred direction in response to positive as opposed to negative stimuli. Dr. Vallortigara recruited 30 dogs that were family pets. Filming the dog's tail from above, he allowed the dog to view (through a slot in its cage) its owner, an unfamiliar human, a cat, and an unfamiliar dominant dog. The study found that dogs' tails wagged to the right for the owner and to the left for the unfamiliar dominant dog. What type of

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measure was the independent variable in this study?

a. nominal
b. ordinal
c. interval
d. ratio

*ANSWER:* a

57. An article published on April 24, 2007, in the *New York Times*, summarized research conducted by Dr. Vallortigara, a neuroscientist at the University of Trieste, Italy. In this study, Dr. Vallortigara assessed whether a dog's tail wags in a preferred direction in response to positive as opposed to negative stimuli. Dr. Vallortigara recruited 30 dogs that were family pets. Filming the dog's tail from above, he allowed the dog to view (through a slot in its cage) its owner, an unfamiliar human, a cat, and an unfamiliar dominant dog. The study found that dogs' tails wagged to the right for the owner and to the left for the unfamiliar dominant dog. What type of measure was the dependent variable in this study?

a. nominal
b. ordinal
c. interval
d. ratio

*ANSWER:* a

58. When researchers refer to the term *level,* they are referring to:

a. a variable that is manipulated to determine its effects on another variable.
b. the discrete values that a variable can take on.
c. a situation in which two variables have the same value.
d. a situation in which there are no confounding variables.

*ANSWER:* b

59. A variable that is manipulated or observed so as to determine its effects on another variable is the _____ variable.

a. scale
b. predictor
c. dependent
d. confounding

*ANSWER:* b

60. A social psychologist was interested in the effects of gender on attitudes toward women in leadership positions. The researcher surveyed a group of individuals, 22 of whom were men and 22 of whom were women. In this example, *men* is a(n) _____ variable.

a. level of the independent
b. independent
c. dependent
d. confounding

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*ANSWER:* a

61. Research by Henriques and Davidson (2000) examined the responses of a group of 18 individuals with depression on a verbal memory task. These participants were tested under three different payoff conditions: reward, punishment, and neutral, which were presented in a randomized order. What was the independent variable in this study?

a. participants' level of depression
b. payoff condition
c. responses to the memory task
d. order of randomization

*ANSWER:* b

62. Research by Henriques and Davidson (2000) examined the responses of a group of 18 individuals with depression on a verbal memory task. These participants were tested under three different payoff conditions: reward, punishment, and neutral, which were presented in a randomized order. What was the dependent variable in this study?

a. participants' level of depression
b. payoff condition
c. responses to the memory task
d. order of randomization

*ANSWER:* c

63. A social psychologist was interested in the effects of gender on attitudes toward women in leadership positions. The researcher surveyed a group of individuals, 22 of whom were men and 22 of whom were women. In this example, *gender* is the _____ variable.

a. level of the independent
b. predictor
c. outcome
d. confounding

*ANSWER:* b

64. An article published on April 24, 2007, in the *New York Times*, summarized research conducted by Dr. Vallortigara, a neuroscientist at the University of Trieste, Italy. In this study, Dr. Vallortigara assessed whether a dog's tail wags in a preferred direction in response to positive as opposed to negative stimuli. Dr. Vallortigara recruited 30 dogs that were family pets. Filming the dog's tail from above, he allowed the dog to view (through a slot in its cage) its owner, an unfamiliar human, a cat, and an unfamiliar dominant dog. The study found that dogs' tails wagged to the right for the owner and to the left for the unfamiliar dominant dog. What is the independent variable in this study?

a. finding that dogs' tails went rightward for the owner and leftward for an unfamiliar dog
b. the 30 dogs recruited for the study
c. how far each dog wagged its tail to the right or left
d. the type of visual stimulus provided to the dog

*ANSWER:* d

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**Chapter 1 - Multiple Choice**

65. The outcome variable that we expect to change with changes in the independent variable is the _____ variable.

a. confounding
b. noise
c. dependent
d. scale

*ANSWER:* c

66. A social psychologist was interested in the effects of gender on attitudes toward women in leadership positions. The researcher surveyed a group of individuals, 22 of whom were men and 22 of whom were women. In this example, what is the outcome variable?

a. the 22 men in the study
b. the 12 women in the study
c. gender of the participants
d. participants' attitudes toward women in leadership positions

*ANSWER:* d

67. Dr. Wolfers was interested in the effect of Valium on motor performance. She injected 25 rats in the experimental group with a small amount of Valium and 25 rats in the control group with saline solution. Following injection, she measured the rate of bar pressing by both groups of rats. On average, rats in the control group had 800 presses per hour and rats in the experimental group had 526 presses per hour. The same testing box was used for both groups of rats, but different student assistants tested the control and experimental groups. In this example, having two different student assistants test the two groups is a(n) _____ variable.

a. confounding
b. nominal
c. independent
d. dependent

*ANSWER:* a

68. An article published on April 24, 2007, in the *New York Times*, summarized research conducted by Dr. Vallortigara, a neuroscientist at the University of Trieste, Italy. In this study, Dr. Vallortigara assessed whether a dog's tail wags in a preferred direction in response to positive as opposed to negative stimuli. Dr. Vallortigara recruited 30 dogs that were family pets. Filming the dog's tail from above he allowed the dog to view (through a slot in its cage) its owner, an unfamiliar human, a cat, and an unfamiliar dominant dog. The study found that dogs' tails wagged to the right for the owner and to the left for the unfamiliar dominant dog. What is the dependent variable in this study?

a. finding that dogs' tails went rightward for the owner and leftward for an unfamiliar dog
b. the 30 dogs that were recruited for the study
c. whether the dog wagged its tail to the right or left
d. the type of visual stimulus provided to the dog

*ANSWER:* c

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69. An educational psychologist studies length of time in college, first through fourth year, and its relation to academic motivation. To get the most detail out of their measures, they assess each student during both the fall and spring semesters of each year they are in school. They find that students have increasingly higher motivation from their first semester to their seventh semester (the start of their fourth year), with a trailing off in the last semester. What is the predictor variable in this study?

a. year in school
b. semester in school
c. academic motivation
d. time of year in which the assessment was completed

*ANSWER:* b

70. An educational psychologist studies length of time in college, first through fourth year, and its relation to academic motivation. To get the most detail out of their measures, they assess each student during both the fall and spring semesters of each year they are in school. They find that students have increasingly higher motivation from their first to fourth year, with a trailing off in the last semester. What is the outcome variable in this study?

a. year in school
b. semester in school
c. academic motivation
d. time of year in which the assessment was completed

*ANSWER:* c

71. In a variant of the Coke/Pepsi Challenge, tasters try to identify regular and diet versions of these popular beverages under "blind" conditions, where they can't see the two products. How many levels are there to the independent variable?

a. 1
b. 2
c. 4
d. 8

*ANSWER:* b

72. In 2010, there was a news story about an interesting lawsuit regarding bagels. A company claimed to have created a new way to produce "Brooklyn style" bagels and then reported that another bagel manufacturer stole their recipe. A researcher wonders if bagel sales might have been affected simply by the story making the national news, so they track total bagel sales in dollars for 1 year before and after the news story hits. What is the predictor variable in this study?

a. the types of bagels sold
b. total sales
c. the news story
d. the lawsuit

*ANSWER:* c

73. In 2010, there was a news story about an interesting lawsuit regarding bagels. A company claimed to have

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created a new way to produce "Brooklyn style" bagels and then reported that another bagel manufacturer stole their recipe. A researcher wonders if bagel sales might have been affected simply by the story making the national news, so they track total bagel sales in dollars for 1 year before and after the news story hits. What is the outcome variable in this study?

a. the types of bagels sold
b. total sales
c. the news story
d. the lawsuit

*ANSWER:* b

74. A nutritional researcher examined whether the size of breakfast could decrease overall food consumption throughout the rest of the day. They create two breakfast groups, a 350-calorie breakfast and a 700-calorie breakfast, assign nine participants to each group, and track their total calories eaten in 1 day. Because of the detailed attention needed to accurately interview participants about their eating, they work with the high-calorie group and have their assistant interview the low-calorie group. What is the independent variable in this study?

a. total calories consumed
b. the breakfasts
c. weight loss experienced in the day
d. the researcher conducting the interviews

*ANSWER:* b

75. A nutritional researcher examined whether the size of breakfast could decrease overall food consumption throughout the rest of the day. They create two breakfast groups, a 350-calorie breakfast and a 700-calorie breakfast, assign nine participants to each group, and track their total calories eaten in 1 day. Because of the detailed attention needed to accurately interview participants about their eating, they work with the high-calorie group and have their assistant interview the low-calorie group. What is the dependent variable in this study?

a. total calories consumed
b. the breakfasts
c. weight loss experienced in the day
d. the researcher conducting the interviews

*ANSWER:* a

76. A nutritional researcher examined whether the size of breakfast could decrease overall food consumption throughout the rest of the day. They create two breakfast groups, a 350-calorie breakfast and a 700-calorie breakfast, assign nine participants to each group, and track their total calories eaten in 1 day. Because of the detailed attention needed to accurately interview participants about their eating, they work with the high-calorie group and have their assistant interview the low-calorie group. What is the confounding variable in this study?

a. total calories consumed
b. the low- and high-calorie breakfasts
c. weight loss experienced in the day
d. the individual conducting the interviews

*ANSWER:* d

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**Chapter 1 - Multiple Choice**

77. A nutritional researcher examined whether the size of breakfast could decrease overall food consumption throughout the rest of the day. They create two breakfast groups, a 350-calorie breakfast and a 700-calorie breakfast, assign nine participants to each group, and track their total calories eaten in 1 day. Because of the detailed attention needed to accurately interview participants about their eating, they work with the high-calorie group and have their assistant interview the low-calorie group. How many levels does the independent variable have in this study?

a. 1
b. 2
c. 8
d. 16

*ANSWER:* b

78. An instructor at a local preschool is interested in the association between sugar consumption and activity level in preschool children. The teacher gives 28 preschool children from Peter's Preschool Playland 0 milligrams, 25 milligrams, or 50 milligrams of sucrose (sugar) in a breakfast drink. He then observes their behavior for 30 minutes during their morning outdoor play period and codes their activity level. In this example, the independent variable is:

a. 28 preschool children.
b. the amount of sucrose.
c. all preschool children.
d. activity level.

*ANSWER:* b

79. An instructor at a local preschool is interested in the association between sugar consumption and activity level in preschool children. The teacher gives 28 preschool children from Peter's Preschool Playland 0 milligrams, 25 milligrams, or 50 milligrams of sucrose (sugar) in a breakfast drink. He then observes their behavior for 30 minutes during their morning outdoor play period and codes their activity level. In this example, the dependent variable is:

a. 28 preschool children.
b. the amount of sucrose.
c. all preschool children.
d. activity level.

*ANSWER:* d

80. Prof. Schroeder was interested in which of two popular statistics textbooks (*Statistics: It Will Change Your Life* and *Statistics: Bigger, Better, Stronger, Faster*) was better for students. Prof. Schroeder compared the two texts by assigning one text to a section of statistics taught by Prof. Szweda from 10 to 11 a.m. on Monday, Wednesday, and Friday, and the other text to a section of statistics taught by Prof. Strauss from 7 to 10 p.m. on Wednesday evenings. At the end of the term, all students took the same comprehensive test. Students to whom *Statistics: Bigger, Better, Stronger, Faster* was assigned performed better on the test than did students to whom *Statistics: It Will Change Your Life* was assigned. Therefore, Prof. Schroeder concluded that the former textbook was the better one. What was the independent variable in this study?

a. statistics textbooks
b. professors

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c. comprehensive test
d. students

*ANSWER:* a

81. Prof. Schroeder was interested in which of two popular statistics textbooks (*Statistics: It Will Change Your Life* and *Statistics: Bigger, Better, Stronger, Faster*) was better for students. Prof. Schroeder compared the two texts by assigning one text to a section of statistics taught by Prof. Szweda from 10 to 11 a.m. on Monday, Wednesday, and Friday, and the other text to a section of statistics taught by Prof. Strauss from 7 to 10 p.m. on Wednesday evenings. At the end of the term, all students took the same comprehensive test. Students to whom *Statistics: Bigger, Better, Stronger, Faster* was assigned performed better on the test than did students to whom *Statistics: It Will Change Your Life* was assigned. Therefore, Prof. Schroeder concluded that the former textbook was the better one. What was the dependent variable in this study?

a. statistics textbooks
b. professors
c. comprehensive test scores
d. students

*ANSWER:* c

82. Prof. Schroeder was interested in which of two popular statistics textbooks (*Statistics: It Will Change Your Life* and *Statistics: Bigger, Better, Stronger, Faster*) was better for students. Prof. Schroeder compared the two texts by assigning one text to a section of statistics taught by Prof. Szweda from 10 to 11 a.m. on Monday, Wednesday, and Friday, and the other text to a section of statistics taught by Prof. Strauss from 7 to 10 p.m. on Wednesday evenings. At the end of the term, all students took the same comprehensive test. Students to whom *Statistics: Bigger, Better, Stronger, Faster* was assigned performed better on the test than did students to whom *Statistics: It Will Change Your Life* was assigned. Therefore, Prof. Schroeder concluded that the former textbook was the better one. Which of these is NOT a potential confounding variable in this study?

a. number of classes per week
b. professors teaching course
c. comprehensive test scores
d. time of day course is taught

*ANSWER:* c

83. A test or inventory is said to be _____when it measures what it is intended to measure.

a. standardized
b. discriminating
c. reliable
d. valid

*ANSWER:* d

84. Evirm has taken the GRE three times. Every time they take the test, they get a 530 on the math section. This implies that:

a. the GRE is a valid test.
b. the GRE is a reliable test.

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c. the GRE is neither a valid nor a reliable test.
d. Evirm is not motivated to improve their score on the math section.

*ANSWER:* b

85. The Beck Depression Inventory (BDI) is a scale intended to measure depression levels, with higher scores indicating higher levels of depression. If the BDI is a valid measure of depression, we would expect that:
a. the results of the BDI could not be consistently replicated.
b. a person's score on the BDI would not be related to their level of depression.
c. people who get higher scores on the BDI would be more depressed than people who get lower scores.
d. people who get lower scores on the BDI would be more depressed than people who get higher scores.

*ANSWER:* c

86. The Consideration of Future Consequences scale is intended to measure the extent to which an individual considers the future when making immediate choices. If the scale is a reliable measure, we would expect that:
a. a person's score on the scale might change from day to day.
b. a person's score on the scale would be relatively stable from day to day.
c. people with higher scores on the scale would have a greater tendency to consider future consequences.
d. people with lower scores on the scale would have a lower tendency to consider future consequences.

*ANSWER:* b

87. When teachers and administrators debate whether standardized tests, such as the ACT and SAT, are predictors of college performance, they are essentially having a debate about:
a. validity.
b. reliability.
c. confounding variables.
d. hypothesis testing.

*ANSWER:* a

88. Preet has a history of depression. As part of his self-care, he takes a depression assessment every 6 weeks. His results tend to be very consistent, except when he is in a serious depression and his results show elevated levels of depression. The tendency for his results to be consistent supports the _____ of the assessment.
a. validity
b. reliability
c. continuous nature
d. confounding nature

*ANSWER:* b

89. Preet has a history of depression. As part of his self-care, he takes a depression assessment every 6 weeks. His results tend to be very consistent, except when he is in a serious depression and his results show elevated levels of depression. The fact that Preet's results vary with his changes in mood, mirroring his depression levels, supports the _____ of the assessment.

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a. validity
b. reliability
c. continuous nature
d. confounding nature

*ANSWER:* a

90. Hypothesis testing refers to:
a. drawing conclusions about whether a particular relation between variables is supported by the evidence.
b. the direct manipulation of an independent variable in an attempt to assess its effects on a dependent variable.
c. summarizing data using descriptive statistics.
d. measuring a variable of interest using an operational definition.

*ANSWER:* a

91. A study designed to assess the effects of the disclosure of ingredients on the experience of taste was conducted by Lee, Frederick, and Ariely (2006) who approached patrons at a local pub and asked them to taste and rate a new beer: the MIT Brew. Some participants were told about the secret ingredient in the beer (a few drops of balsamic vinegar) either before tasting (*before* condition) or after tasting but before rating (*after* condition). Other participants were not told anything regarding the secret ingredient (*not told* condition). Which aspect of this study is an operational definition of the dependent variable?
a. sample of patrons at the local pub
b. disclosure of the ingredients
c. experience of taste
d. participants' responses on the taste rating scale

*ANSWER:* d

92. An operational definition is one that:
a. can be flexibly implemented by any researcher.
b. defines a variable in terms of observable and measurable behaviors.
c. defines a variable in terms of a hypothetical construct.
d. is used to determine the independent variable of an experiment.

*ANSWER:* b

93. Bartels and Zeki (2000) conducted a study in which they hypothesized that there may be special pathways in the brain that support the feeling of romantic love. To test their hypothesis, they recruited volunteers who reported themselves to be "truly, deeply, and madly in love." They then used brain imaging methods to determine which areas of the volunteers' brains were active when looking at pictures of their loved one. How did these researchers operationally define romantic love?
a. They asked volunteers if they were in a romantic relationship.
b. They gave volunteers a Depth of Love scale.
c. They used self-reports of volunteers who claimed to be "truly, deeply, and madly in love."

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d. These researchers did not operationally define romantic love.

*ANSWER:* c

94. A correlation measures the relationship among _____ or more variables.
a. two
b. three
c. four
d. five

*ANSWER:* a

95. Controlling for _____ variables allows researchers to make statements about cause–effect relationships between variables.
a. discrete
b. reliable
c. scale
d. confounding

*ANSWER:* d

96. Researchers are allowed to make statements about cause–effect relationships between variables when they control for _____ variables.
a. discrete
b. reliable
c. scale
d. confounding

*ANSWER:* d

97. A health researcher is interested in the effectiveness of natural remedies for allergies. The researcher randomly assigns to 45 people who experience allergies a treatment of either herbal tea, homeopathic doses of the allergens, or a traditional antihistamine. What type of research design has the researcher employed?
a. within-groups
b. experimental
c. correlational
d. operational research

*ANSWER:* b

98. Random assignment refers to a situation in which:
a. participants self-select into a particular condition in the study.
b. the experimenter randomly determines whether to use a single-blind or double-blind research design.
c. every person in the population has an equal chance of being selected for participation in the study.
d. every participant in the study has an equal chance of being assigned to any condition or level of the independent variable.

*ANSWER:* d

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99. The purpose of random assignment to groups is to:
a. control confounding variables.
b. ensure that you have a representative sample.
c. control extraneous variables.
d. reduce the noise in your study.

*ANSWER:* a

100. _____ is crucial to drawing the conclusion that the independent variable caused changes in the dependent variable in a research study.
a. Random selection of subjects
b. Random assignment to groups
c. Masking
d. Correlation

*ANSWER:* b

101. Why does random assignment help control for confounding variables?
a. Random assignment ensures that participants in a study are properly motivated to perform the experimental task that will be required of them.
b. Random assignment eliminates individual differences by removing individuals with the same characteristics from the study and only using individuals who have different characteristics.
c. By randomly assigning people to groups, individual differences that may influence the dependent variable are randomly distributed throughout the conditions, rather than being systematically related to the independent variable.
d. By randomly assigning people to groups, all individuals with similar characteristics are grouped together in the same condition.

*ANSWER:* c

102. An article published on April 24, 2007, in the *New York Times*, summarized research conducted by Dr. Vallortigara, a neuroscientist at the University of Trieste, Italy. In this study, Dr. Vallortigara assessed whether a dog's tail wags in a preferred direction in response to positive as opposed to negative stimuli. Dr. Vallortigara recruited 30 dogs that were family pets. Filming the dog's tail from above, he allowed the dog to view (through a slot in its cage) its owner, an unfamiliar human, a cat, and an unfamiliar dominant dog. The study found that dogs' tails wagged to the right for the owner and to the left for the unfamiliar dominant dog. What type of research design did Dr. Vallortigara employ?
a. between-groups
b. within-groups
c. non-experimental
d. quasi-experimental

*ANSWER:* b

103. A social psychologist wants to assess well-being among dog and cat owners. They administer a well-being assessment to 125 dog owners and 163 cat owners. What type of research design is being used?

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a. experimental research
b. random assignment design
c. between-groups
d. within-groups

*ANSWER:* c

104. Research by Henriques and Davidson (2000) examined the responses of a group of 18 people who have clinical depression on a verbal memory task. These participants were tested under three different payoff conditions: reward, punishment, and neutral, which were presented in a randomized order. What type of research design is being used?

a. correlational research
b. random assignment design
c. between-groups
d. within-groups

*ANSWER:* d

105. Reading times are collected for bilingual participants, comparing their reading speed across their two languages. What type of research design would MOST likely be used in this study?

a. correlational research
b. random assignment design
c. between-groups
d. within-groups

*ANSWER:* d

106. A research approach that encourages scientists to collaborate with each other and share their data, methodology, and analyses is known as:

a. data transparency.
b. open science.
c. data ethics.
d. HARKing.

*ANSWER:* b

107. When researchers push for a "severe test" of a hypothesis, they are referring to approaches that:

a. utilize rigorous analyses aimed at identifying flaws in the hypothesis.
b. analyze data repeatedly and in different ways so as to support the research hypothesis.
c. reject any collected data that do not match the stated hypothesis.
d. only report statistically significant results.

*ANSWER:* a

108. The purpose of preregistering a study is to enable the researcher to:

a. obtain research funding before they have collected any data.
b. receive scientific recognition before other researchers can claim credit for the ideas.

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c. demonstrate that they conducted their research study as they originally intended.
d. obtain permission to conduct the proposed research study.

*ANSWER:* c

109. When a researcher reformulates their hypothesis after the data have been collected and analyzed, the researcher has engaged in:
a. data transparency.
b. open science.
c. a severe test of the hypothesis.
d. HARKing.

*ANSWER:* d

110. Which "branch" of statistics uses numerical observations and incorporates them into an organized and informative summary of the data?
a. inferential
b. descriptive
c. population
d. sample

*ANSWER:* b

111. In order to assess the effect of pet ownership on mental health, a social psychologist surveys 40 people who own pets and 40 people who do not own pets. The sample being studied is:
a. all pet owners.
b. the survey being used.
c. 40 pet owners.
d. 80 people.

*ANSWER:* d

112. There are three different types of Olympic medals: gold, silver, and bronze. Which variable describes the different types of Olympic medals?
a. nominal
b. ordinal
c. interval
d. ratio

*ANSWER:* b

113. Variables that can take on only certain numbers such as whole numbers are:
a. ordinal.
b. ratio.
c. continuous.
d. discrete.

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*ANSWER:* d

114. Most teaching evaluations are done on five-point scales ranging from strongly disagree (1) to strongly agree (5), or very unsatisfied (1) to very satisfied (5). These response options are BEST considered to be measured on a(n) _____ scale.

a. nominal
b. ordinal
c. interval
d. ratio

*ANSWER:* b

115. Continuous observations are related to scale variables as _____ observations are related to nominal and ordinal variable(s).

a. discrete
b. ratio
c. valid
d. reliable

*ANSWER:* a

116. In the well-known and controversial Zimbardo prison study, students at Stanford University were assigned the role of either a prisoner or a guard so that the experimenters could examine prison life behaviors and interactions. The experiment was intended to run for 2 weeks but was stopped after only 6 days because of the brutal behavior of the guards and the depression of the prisoners. What was the independent variable in this study?

a. participants' behaviors
b. depression
c. role assigned to student
d. length of the study

*ANSWER:* c

117. Donovan is interested in measuring whether there is a difference in time spent sleeping at night in a given week between elementary school–aged children and middle school–aged students. In this study, the predictor variable is MOST likely to be:

a. time spent sleeping.
b. time of day.
c. age.
d. a given week.

*ANSWER:* c

118. Donovan is interested in measuring whether there is a difference in time spent sleeping at night in a given week between elementary school–aged children and middle school–aged students. In this study, the outcome variable is MOST likely to be:

a. time spent sleeping.

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b. time of day.
c. age.
d. a given week.

*ANSWER:* a

119. A variable that is systematically linked with the factor a researcher believes is causing the overall effect in your research is called the _____ variable. The presence of such a variable can prevent the researcher from knowing what is really causing the effect.
a. independent
b. dependent
c. confounding
d. interfering

*ANSWER:* c

120. A reliable measure:
a. is consistent.
b. measures what it was intended to measure.
c. predicts actual behavior.
d. co-varies with the predictor variable.

*ANSWER:* a

121. Kamal noticed that every time they ate cheese or drank milk, they had an upset stomach afterward. They concluded that they were probably lactose intolerant and decided to stop eating dairy to see if they felt better. This is an example of:
a. hypothesis testing.
b. reliability.
c. operational definitions.
d. validity.

*ANSWER:* a

122. Abimbola wants to know if identical twins raised in different households have different IQ scores. What type of research design is NOT available for Abimbola to use because he cannot randomly assign the participants?
a. non-experimental
b. between-groups
c. correlational
d. experimental

*ANSWER:* d

123. In which type of research design does each participant experience all levels of the independent variable?
a. non-experimental
b. between-groups

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c. correlational
d. within-groups

*ANSWER:* d

124. The term _____ describes studies that specify their data collection methods, hypotheses, and analysis plans prior to conducting the study?
a. preregistration
b. HARKing
c. meta-analysis
d. open science

*ANSWER:* a

125. Students at 24 college campuses around the country were polled to find out how many students owned wireless headphones. The number of owners of wireless headphones at one campus represents a(n) _____ statistic.
a. population
b. descriptive
c. inferential
d. sample

*ANSWER:* b

126. Students at 24 college campuses around the country were polled to find out how many students owned wireless headphones. This small representative group of students is called a:
a. population.
b. median.
c. statistic.
d. sample.

*ANSWER:* d

127. To build a sample, the U.S. Census records the number of people in a household. What type of data is this?
a. construct
b. hypothesis
c. discrete
d. continuous

*ANSWER:* c

128. The make and model of the car one drives is which type of variable?
a. nominal
b. ordinal
c. interval
d. ratio

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*ANSWER:* a

129. The number of Olympic medals won by a country during the last century is an example of which type of variable?

a. nominal
b. ordinal
c. interval
d. ratio

*ANSWER:* d

130. The number of adults per household on the U.S. Census is an example of which type of variable?

a. nominal
b. ordinal
c. interval
d. ratio

*ANSWER:* d

131. Developmental psychologists studying infant memory are interested in determining at what age babies can remember specific events. An experimenter uses several puppets to demonstrate a series of actions while the infant watches. After a delay, the experimenter records how many of the actions the child imitates when playing with the puppets. The outcome variable is the:

a. number of imitated actions.
b. type of puppet used by the experimenter.
c. activity level of the child.
d. length of the experiment.

*ANSWER:* a

132. A popular energy drink company sampled 24 people who drink its product regularly and found that they performed better during a physical test than did those who do not drink the product regularly. What might be a possible confound in the study?

a. The sample size is small.
b. It rained on the day of the physical test.
c. Regular drinkers of energy drinks may be more athletic than those who are not.
d. The company funding the test was biased since it sells energy drinks.

*ANSWER:* c

133. A medical researcher was interested in assessing whether a new medication had side effects on reaction time. They performed an experiment on a group of rats. One group of rats received the medication, and the other group of rats did not. The researcher then measured reaction time differences between the two groups on a series of tasks. In this experiment, the independent variable is:

a. reaction time.
b. tasks.

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c. rats.
d. medication.

*ANSWER:* d

134. A medical researcher was interested in assessing whether a new medication had side effects on reaction time. They performed an experiment on a group of rats. One group of rats received the medication, and the other group of rats did not. The researcher then measured reaction time differences between the two groups on a series of tasks. In this experiment, the dependent variable is:

a. reaction time.
b. tasks.
c. rats.
d. medication.

*ANSWER:* a

135. One reason for doing correlational research is to evaluate the relationship between two variables that are related to each other either positively or negatively. However, a correlation is vulnerable to what variable, which systematically co-varies with the variable of interest?

a. independent
b. confounding
c. dependent
d. interval

*ANSWER:* b

136. When an assessment produces the same results each time it is administered, it is said to be _____, even though it may not be measuring what we are interested in studying.

a. reliable
b. valid
c. confounded
d. experimental

*ANSWER:* a

137. The CDC is testing the effectiveness of a recent campaign promoting a healthy lifestyle. What is the best operational definition for *healthy lifestyle*?

a. Eat right and stay fit.
b. Watch your weight and make efforts to lose weight if you are overweight or obese.
c. Eat 5 servings of fruits/vegetables and be physically active for 30 minutes or more daily.
d. Take care of yourself so you can live to be 100.

*ANSWER:* c

138. Shu Kai is testing a series of new commercials on a sample audience for an advertising company. They want to see which of 10 commercials receives the highest rating from audiences, and they want to use a different audience for each commercial. What design should Shu Kai use?

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a. correlational
b. repeated-measures
c. within-groups
d. between-groups

*ANSWER:* d

139. The push toward open science has been driven by a number of different factors including all but one of these. Which has NOT been identified as an issue with current research approaches?
a. preregistration of studies before data collection actually begins
b. replication failures
c. data collection techniques that allowed for multiple tests of the data
d. HARKing

*ANSWER:* a

140. A type of predictor variable that is manipulated by the researcher is a(n) _____ variable.
a. outcome
b. independent
c. dependent
d. confounding

*ANSWER:* b

141. A type of predictor variable in which the researcher manipulates the levels of that variable is a(n) _____ variable.
a. outcome
b. independent
c. dependent
d. confounding

*ANSWER:* b

142. The _____ variable is a type of outcome variable in which the researcher measures the response to the manipulation of the independent variable.
a. predictor
b. scale
c. dependent
d. confounding

*ANSWER:* c

143. In order to assess the effect of pet ownership on mental health, a social psychologist surveys 40 people who own pets and 40 people who do not own pets. The predictor variable being studied is:
a. participants' mental health.
b. the survey being used.

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c. pet owners.
d. whether people own a pet.

*ANSWER:* d

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