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Chapter 2 Test



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DIRECTIONS: For this multiple-choice test, select the most appropriate answer for each statement or question.

1. Can a new online tutoring program help improve retention rates? To answer this question, a school principal decided to perform a study. After 3 months, data was gathered from 100 students who participated in the online tutoring program. Retention rates were then compared to the previous year when the program was not implemented. What is the research question?
 - a) Can a new online tutoring program help improve retention rates?
 - b) 100 students who participated in the online tutoring program
 - c) Retention rates
 - d) The school principal

2. A school administrator would like to determine if a summer program would help improve graduation rates of at-risk students at a local high school. Twenty at-risk students at the local high school are selected to participate in the program. Twenty other at-risk students are analyzed as a control group. At the end of the school year, the number of students who graduated is recorded. Identify the population.
 - a) All school administrators
 - b) All high schools
 - c) All students who graduate high school
 - d) All at-risk students at the local high school



3. What percentage of adult Americans prefer to drive an electric car? 1000 adult Americans are randomly selected. 34% of them stated they would prefer to drive an electric car. Identify the sample.
 - a) All adult Americans
 - b) 1000 adult Americans
 - c) All adult Americans who drive electric cars
 - d) 34% of adult Americans who drive electric cars

4. A fitness instructor would like to determine the average number of minutes her clients spend exercising each day. She samples 10 of her clients and determines the average time spent exercising each day is 45 minutes. Identify the variable of interest.
 - a) 45 minutes
 - b) The fitness instructor
 - c) The number of minutes her clients spend exercising each day
 - d) 10 of her clients

5. Samples should be both _____.
 - a) random and representative
 - b) random and non-representative
 - c) representative and typical
 - d) representative and emblematic



6. A nursing instructor has a list of names on her roster. She randomly selects 20 names from the list to participate in a group activity. Identify the sampling technique used.
- a) Systematic sampling
 - b) Simple random sampling
 - c) Stratified sampling
 - d) Cluster sampling
7. Researchers would like to determine whether socioeconomic status is related to supporting stricter gun laws. They divide the population into lower, middle and upper-class groups. A random sample of subjects from each group is gathered to participate in the study. Identify the sampling technique used.
- a) Cluster sampling
 - b) Systematic sampling
 - c) Logical sampling
 - d) Stratified sampling
8. A cluster sample is a sample in which _____.
- a) subjects are randomly selected from groups
 - b) subjects are selected conveniently
 - c) clusters of subjects are randomly selected from the population
 - d) subjects are randomly selected from strata



9. A systematic sample is a sample in which _____.
- a) subjects are randomly selected in no particular order
 - b) every x^{th} subject of the population is randomly selected
 - c) a random number generator is used to select subjects
 - d) only the 3rd, 5th and 9th subjects are selected
10. A mall employee would like to determine the opinions of customers regarding customer service at the mall. He selects the first 100 people who enter the mall and asks their opinion. Identify the sampling technique used.
- a) Convenience sampling
 - b) Systematic sampling
 - c) Simple random sampling
 - d) Non-bias sampling
11. Which of the following variables is considered qualitative?
- a) Number of customers in a grocery store
 - b) Salary
 - c) Occupation
 - d) Number of runners in a marathon
12. Which of the following variables is considered quantitative?
- a) Birthplace
 - b) Eye color
 - c) Hair color
 - d) Height



13. A teacher would like to determine the average number of computers in computer labs. Determine whether the variable is discrete or continuous.
- Discrete
 - Continuous
14. A researcher wishes to analyze the time it takes for customers to check into a hotel. Determine whether the variable is discrete or continuous.
- Discrete
 - Continuous
15. Which of the following is not a data collection technique?
- A personal interview
 - A mailed questionnaire
 - Direct observation
 - Nonresponse bias
16. A nutritionist wanted to determine whether an all-fruit diet would be helpful in reducing weight. Subjects were divided into two groups. One group received a regular diet. Another group received the all-fruit diet. After 3 months, the results were recorded. Was an experiment or observational study performed?
- Experiment
 - Observational study



17. Researchers wanted to determine which gender was more likely to perform a full, complete stop at a stop sign. They randomly observed 10 intersections and documented the results. Was an experiment or observational study performed?
- Experiment
 - Observational study
18. Which of the following is the definition of an experiment?
- A study in which a researcher merely observes the subjects and documents the data.
 - A technique where the subjects do not know whether they received the treatment or placebo.
 - A study in which treatment is applied to the subjects and the conditions are manipulated before responses are recorded.
 - A technique where neither the subjects nor the experimenter(s) know which subjects received the treatment or placebo.
19. A homeowner wanted to determine whether a new flower and plant food was effective in helping the flowers and plants grow. Randomly selected flowers and plants were given the new flower and plant food. After two months, she measured the amount of growth and compared it to the flowers and plants that did not receive the new flower and plant food. What was the treatment?
- The homeowner
 - The flowers and plants
 - The growth of the flowers and plants
 - The flower and plant food



20. What is a placebo?
- a) An unmedicated drug designed to resemble the real drug
 - b) A favorable response to a drug if subjects are aware that they are receiving the drug
 - c) A group of subjects who do not receive the treatment
 - d) A group of subjects who receive the treatment



Answers

1. Can a new online tutoring program help improve retention rates?
2. All at-risk students at the local high school
3. 1000 adult Americans
4. The number of minutes her clients spend exercising each day
5. Random and representative
6. Simple random sampling
7. Stratified sampling
8. Clusters of subjects are randomly selected from the population
9. Every x^{th} subject is selected
10. Convenience sampling
11. Occupation
12. Height
13. Discrete
14. Continuous
15. Nonresponse bias
16. Experiment
17. Observational study
18. A study in which treatment is applied to the subjects and the conditions are manipulated before responses are recorded
19. The flower and plant food
20. An unmedicated drug designed to resemble the real drug

