

Multiple Choice

Identify the choice that best completes the statement or answers the question.

- _____ 1. What is the best sampling technique to use for determining the average speed of the cars on a section of highway?
- a. simple random sample
 - b. systematic sample
 - c. convenience sample
 - d. a) or b)
- _____ 2. Which method is most likely to produce a random sample of the members of your class?
- a. listing the first six students that come to mind
 - b. choosing the five oldest students in the class
 - c. writing the name of each student on a separate piece of paper and then drawing these slips from a hat
 - d. selecting the first six students to arrive at class
- _____ 3. A large corporation wants to find out which benefits plan its employees would prefer. Which procedure would be most likely to obtain a statistically unbiased sample?
- a. surveying a random sample of employees from a list of all employees
 - b. inviting all employees to indicate their choices by e-mail
 - c. placing suggestion boxes at random locations in the company's plant and offices
 - d. assembling a group with one member from each department and recording the preferences of these employees
- _____ 4. A college president wants to find out which courses students consider to be of the most benefit to them. Which procedure would be most likely to produce a statistically unbiased sample?
- a. asking students to mail in a questionnaire
 - b. surveying a random sample of students taken from the list of all students
 - c. surveying the first hundred students on an alphabetical list
 - d. having students complete a questionnaire on the college web site
- _____ 5. A pollster wants to find out if citizens are satisfied with the city council. Which procedure would be most appropriate for obtaining a statistically unbiased sample?
- a. interviewing people at a popular local shopping centre
 - b. surveying people whose names have been randomly chosen from the telephone book
 - c. placing an advertisement in the local newspaper asking for mail-in responses
 - d. mailing a questionnaire to people whose names have been chosen randomly from a list of customers of the municipal utility company

Completion

Complete each statement.

6. The group of individuals who actually have a chance of being selected for a survey is called _____.
7. The set of all individuals who belong to the group being studied by a survey is called _____.

Short Answer

8. A television reporter interviewed travellers stranded at an airport during a snowstorm about the efficiency of air travel in Canada. Name the sampling techniques used.

9. A soap company distributed free samples of a new laundry detergent to all households in several randomly selected neighbourhoods. The company requested the recipients to return a postage-paid card indicating whether they thought the sample was better than their usual detergent. What sampling techniques was the company using?

10. Identify the population implied in each statement.
 - a) *Hockey Night in Canada* is watched by 23% of the TV audience.

 - b) A politician has the support of the party.

 - c) Today's teenagers prefer comfort over style.

- d) A survey shows that 60% of adult respondents in Ontario prefer toothbrushes with soft bristles.
11. A psychologist is studying the sleep patterns of the 3960 students at her university. She decides to start by asking a random sample of 30 students how many hours of sleep they get weekday nights. Identify the type of sample in each of the following survey methods.
- The psychologist assigns each student a number from 1 to 3960. She selects the sample by randomly choosing one of the first 132 numbers and every 132nd number thereafter.
 - The psychologist assigns each student a number from 0001 to 3960 and uses a computer to randomly generate a list of 30 numbers to select the students for the sample.
 - Students are listed by the neighbourhood they live in. The psychologist randomly selects six neighbourhoods and then randomly selects five students from each one.
 - An equal proportion of students are randomly selected from each discipline.

Problem

12. A particular school has 550 female students and 590 male students. A random sample of 30 students was surveyed for suggestions about social activities for the following school year.
- Is it possible that the sample included only male students?
 - Would a sample consisting entirely of male students be representative of the school population? Explain your reasoning.

Worksheet: Statistics
Answer Section

MULTIPLE CHOICE

1. ANS: D PTS: 1 REF: Knowledge & Understanding
OBJ: Section 2.3 TOP: Sampling techniques
2. ANS: C PTS: 1 REF: Knowledge & Understanding
OBJ: Section 2.3 TOP: Sampling techniques
3. ANS: A PTS: 1 REF: Knowledge & Understanding
OBJ: Section 2.3 TOP: Sampling techniques
4. ANS: B PTS: 1 REF: Knowledge & Understanding
OBJ: Section 2.3 TOP: Sampling techniques
5. ANS: B PTS: 1 REF: Knowledge & Understanding
OBJ: Section 2.3 TOP: Sampling techniques

COMPLETION

6. ANS: the sampling frame

PTS: 1 REF: Knowledge & Understanding OBJ: Section 2.3
TOP: Sampling techniques
7. ANS: the population

PTS: 1 REF: Knowledge & Understanding OBJ: Section 2.3
TOP: Sampling techniques

MATCHING

SHORT ANSWER

8. ANS:
Convenience sample

PTS: 1 REF: Knowledge & Understanding OBJ: Section 2.3
TOP: Sampling techniques
9. ANS:
voluntary-response within a cluster sample

PTS: 1 REF: Knowledge & Understanding OBJ: Section 2.3
TOP: Sampling techniques
10. ANS:
a) either all people who own TVs or just those who are watching TV at the time the program is on

- b) all members of the party
- c) people who are teenagers now
- d) adult Ontario residents who use toothbrushes

PTS: 1 REF: Knowledge & Understanding OBJ: Section 2.3
TOP: Sampling techniques

11. ANS:
- a) systematic sample
 - b) simple random sample
 - c) cluster sample
 - d) stratified sample

PTS: 1 REF: Knowledge & Understanding OBJ: Section 2.3
TOP: Sampling techniques

PROBLEM

12. ANS:
- a) Yes, although the probability is quite low.
 - b) Answers will vary. Since male students could well have different interests than female students do, such a sample probably would not be representative.

PTS: 1 REF: Thinking/Inquiry/Problem Solving | Communication
OBJ: Section 2.3 TOP: Sampling techniques