

Statistics for Managers Using Microsoft Excel, 7e, Global Edition (Levine)

Chapter 1 Defining and Collecting Data

1) Which of the following is a discrete quantitative (numerical) variable?

- A) the Dow Jones Industrial average
- B) the volume of water released from a dam
- C) the distance you drove yesterday
- D) the number of employees of an insurance company

Answer: D

Difficulty: Easy

Keywords: discrete variable, types of data

2) Which of the following is a continuous quantitative (numerical) variable?

- A) the color of a student's eyes
- B) the number of employees of an insurance company
- C) the amount of milk in a 2-liter carton
- D) the number of gallons of milk sold at the local grocery store yesterday

Answer: C

Difficulty: Easy

Keywords: continuous variable, types of data

3) To monitor campus security, the campus police office is taking a survey of the number of students in a parking lot each 30 minutes of a 24-hour period with the goal of determining when patrols of the lot would serve the most students. If X is the number of students in the lot each period of time, then X is an example of

- A) a categorical variable.
- B) a discrete variable.
- C) a continuous variable.
- D) a statistic.

Answer: B

Difficulty: Moderate

Keywords: discrete variable, types of data

4) Researchers are concerned that the weight of the average American school child is increasing implying, among other things, that children's clothing should be manufactured and marketed in larger sizes. If X is the weight of school children sampled in a nationwide study, then X is an example of

- A) a categorical variable.
- B) a discrete variable.
- C) a continuous variable.
- D) a table of random numbers.

Answer: C

Difficulty: Moderate

Keywords: continuous variable, types of data

- 5) The classification of student class designation (freshman, sophomore, junior, senior) is an example of
- A) a categorical variable.
 - B) a discrete variable.
 - C) a continuous variable.
 - D) a table of random numbers.

Answer: A

Difficulty: Easy

Keywords: categorical variable, types of data

- 6) The classification of student major (accounting, economics, management, marketing, other) is an example of

- A) a categorical variable.
- B) a discrete variable.
- C) a continuous variable.
- D) a table of random numbers.

Answer: A

Difficulty: Easy

Keywords: categorical variable, types of data

- 7) The chancellor of a major university was concerned about alcohol abuse on her campus and wanted to find out the proportion of students at her university who visited campus bars on the weekend before the final exam week. Her assistant took a random sample of 250 students. The answer on "whether you visited campus bars on the weekend before the final exam week" from students in the sample is an example of

- A) a categorical variable.
- B) a discrete variable.
- C) a continuous variable.
- D) a table of random numbers.

Answer: A

Difficulty: Easy

Keywords: categorical variable, types of data

TABLE 1-1

The manager of the customer service division of a major consumer electronics company is interested in determining whether the customers who have purchased a Blu-ray player made by the company over the past 12 months are satisfied with their products.

- 8) Referring to Table 1-1, the possible responses to the question "How many Blu-ray players made by other manufacturers have you used?" are values from a

- A) discrete variable.
- B) continuous variable.
- C) categorical variable.
- D) table of random numbers.

Answer: A

Difficulty: Easy

Keywords: discrete variable, types of data

9) Referring to Table 1-1, the possible responses to the question "Are you happy, indifferent, or unhappy with the performance per dollar spent on the Blu-ray player?" are values from a

- A) discrete numerical variable.
- B) continuous numerical variable.
- C) categorical variable.
- D) table of random numbers.

Answer: C

Difficulty: Easy

Keywords: categorical variable, types of data

10) Referring to Table 1-1, the possible responses to the question "What is your annual income rounded to the nearest thousands?" are values from a

- A) discrete numerical variable.
- B) continuous numerical variable.
- C) categorical variable.
- D) table of random numbers.

Answer: A

Difficulty: Difficult

Keywords: discrete variable, types of data

11) Referring to Table 1-1, the possible responses to the question "How much time do you use the Blu-ray player every week on the average?" are values from a

- A) discrete numerical variable.
- B) continuous numerical variable.
- C) categorical variable.
- D) table of random numbers.

Answer: B

Difficulty: Easy

Keywords: continuous variable, types of data

12) Referring to Table 1-1, the possible responses to the question "How many people are there in your household?" are values from a

- A) discrete numerical variable.
- B) continuous numerical variable.
- C) categorical variable.
- D) table of random numbers.

Answer: A

Difficulty: Easy

Keywords: discrete variable, types of data

13) Referring to Table 1-1, the possible responses to the question "How would you rate the quality of your purchase experience with 1 = excellent, 2 = good, 3 = decent, 4 = poor, 5 = terrible?" are values from a

- A) discrete numerical variable.
- B) continuous numerical variable.
- C) categorical variable.
- D) table of random numbers.

Answer: C

Difficulty: Easy

Keywords: categorical variable, types of data

14) Referring to Table 1-1, the possible responses to the question "What brand of Blu-ray player did you purchase?" are values from a

- A) discrete numerical variable.
- B) continuous numerical variable.
- C) categorical variable.
- D) table of random numbers.

Answer: C

Difficulty: Easy

Keywords: categorical variable, types of data

15) Referring to Table 1-1, the possible responses to the question "Out of a 100 point score with 100 being the highest and 0 being the lowest, what is your satisfaction level on the videocassette recorder that you purchased?" are values from a

- A) discrete numerical variable.
- B) continuous numerical variable.
- C) categorical variable.
- D) table of random numbers.

Answer: A

Difficulty: Moderate

Keywords: discrete variable, types of data

16) Referring to Table 1-1, the possible responses to the question "In which year were you born?" are values from a

- A) discrete numerical variable.
- B) continuous numerical variable.
- C) categorical variable.
- D) table of random numbers.

Answer: A

Difficulty: Moderate

Keywords: discrete variable, types of data

17) Referring to Table 1-1, the possible responses to the question "How many Blu-ray players made by other manufacturers have you used?" result in

- A) a nominal scale variable.
- B) an ordinal scale variable.
- C) an interval scale variable.
- D) a ratio scale variable.

Answer: D

Difficulty: Moderate

Keywords: ratio scale, types of data

18) Referring to Table 1-1, the possible responses to the question "Are you happy, indifferent, or unhappy with the performance per dollar spent on the Blu-ray player?" result in

- A) a nominal scale variable.
- B) an ordinal scale variable.
- C) an interval scale variable.
- D) a ratio scale variable.

Answer: B

Difficulty: Moderate

Keywords: ordinal scale, types of data

19) Referring to Table 1-1, the possible responses to the question "What is your annual income rounded to the nearest thousands?" result in

- A) a nominal scale variable.
- B) an ordinal scale variable.
- C) an interval scale variable.
- D) a ratio scale variable.

Answer: D

Difficulty: Moderate

Keywords: ratio scale, types of data

20) Referring to Table 1-1, the possible responses to the question "How much time do you use the Blu-ray player every week on the average?" result in

- A) a nominal scale variable.
- B) an ordinal scale variable.
- C) an interval scale variable.
- D) a ratio scale variable.

Answer: D

Difficulty: Moderate

Keywords: ratio scale, types of data

21) Referring to Table 1-1, the possible responses to the question "How many people are there in your household?" result in

- A) a nominal scale variable.
- B) an ordinal scale variable.
- C) an interval scale variable.
- D) a ratio scale variable.

Answer: D

Difficulty: Moderate

Keywords: ratio scale, types of data

22) Referring to Table 1-1, the possible responses to the question "How would you rate the quality of your purchase experience with 1 = excellent, 2 = good, 3 = decent, 4 = poor, 5 = terrible?" result in

- A) a nominal scale variable.
- B) an ordinal scale variable.
- C) an interval scale variable.
- D) a ratio scale variable.

Answer: B

Explanation: B) The rating is ordinal scale, not interval scale, because the difference in rating between "excellent" and "good" does not have to be the same as the difference between "poor" and "terrible."

Difficulty: Moderate

Keywords: ordinal scale, types of data

23) Referring to Table 1-1, the possible responses to the question "What brand of Blu-ray player did you purchase?" result in

- A) a nominal scale variable.
- B) an ordinal scale variable.
- C) an interval scale variable.
- D) a ratio scale variable.

Answer: A

Difficulty: Easy

Keywords: nominal scale, types of data

24) Referring to Table 1-1, the possible responses to the question "Out of a 100 point score with 100 being the highest and 0 being the lowest, what is your satisfaction level with the Blu-ray player that you purchased?" result in

- A) a nominal scale variable.
- B) an ordinal scale variable.
- C) an interval scale variable.
- D) a ratio scale variable.

Answer: C

Explanation: C) The rating is interval scale, not ordinal scale, because the difference in rating between "80" and "90" can be treated as the same as the difference between "30" and "40," but a rating of "80" does not imply twice the level of satisfaction level as a rating of "40."

Difficulty: Difficult

Keywords: interval scale, types of data

25) Referring to Table 1-1, the possible responses to the question "What was your age at your last birthday?" result in

- A) a nominal scale variable.
- B) an ordinal scale variable.
- C) an interval scale variable.
- D) a ratio scale variable.

Answer: B

Difficulty: Difficult

Keywords: interval scale, types of data

26) True or False: The possible responses to the question "How long have you been living at your current residence?" are values from a continuous variable.

Answer: TRUE

Difficulty: Moderate

Keywords: continuous variable, types of data

27) True or False: The possible responses to the question "How many times in the past three months have you visited a city park?" are values from a discrete variable.

Answer: TRUE

Difficulty: Moderate

Keywords: discrete variable, types of data

28) True or False: A continuous variable may take on any value within its relevant range even though the measurement device may not be precise enough to record it.

Answer: TRUE

Difficulty: Moderate

Keywords: continuous variable, types of data

29) True or False: Faculty rank (professor to lecturer) is an example of discrete numerical data.

Answer: FALSE

Difficulty: Easy

Keywords: categorical variable, types of data

30) True or False: Student grades (A to F) are an example of continuous numerical data.

Answer: FALSE

Difficulty: Moderate

Keywords: categorical variable, types of data

31) True or False: The amount of coffee consumed by an individual in a day is an example of a discrete numerical variable.

Answer: FALSE

Difficulty: Moderate

Keywords: continuous variable, types of data

32) True or False: The answer to the question "What is your favorite color?" is an example of an ordinal scaled variable.

Answer: FALSE

Difficulty: Easy

Keywords: nominal scale

33) True or False: The answer to the question "How do you rate the quality of your business statistics course?" is an example of an ordinal scaled variable.

Answer: TRUE

Difficulty: Easy

Keywords: ordinal scale

34) True or False: The answer to the question "How many hours on average do you spend watching TV every week?" is an example of a ratio scaled variable.

Answer: TRUE

Difficulty: Easy

Keywords: ratio scale

35) True or False: The answer to the question "What is your sleeping bag temperature rating?" is an example of a ratio scaled variable.

Answer: FALSE

Difficulty: Easy

Keywords: interval scale

36) An insurance company evaluates many numerical variables about a person before deciding on an appropriate rate for automobile insurance. The number of claims a person has made in the last 3 years is an example of a _____ numerical variable.

Answer: discrete

Difficulty: Easy

Keywords: discrete variable, types of data

37) An insurance company evaluates many numerical variables about a person before deciding on an appropriate rate for automobile insurance. The distance a person drives in a year is an example of a _____ variable.

Answer: continuous

Difficulty: Easy

Keywords: continuous variable, types of data

38) An insurance company evaluates many numerical variables about a person before deciding on an appropriate rate for automobile insurance. A person's age is an example of a _____ numerical variable.

Answer: continuous

Difficulty: Easy

Keywords: continuous variable, types of data

39) An insurance company evaluates many numerical variables about a person before deciding on an appropriate rate for automobile insurance. How long a person has been a licensed driver is an example of a _____ numerical variable.

Answer: continuous

Difficulty: Moderate

Keywords: continuous variable, types of data

40) An insurance company evaluates many numerical variables about a person before deciding on an appropriate rate for automobile insurance. The number of tickets a person has received in the last 3 years is an example of a _____ numerical variable.

Answer: discrete

Difficulty: Easy

Keywords: discrete variable, types of data

41) In purchasing an automobile, there are a number of variables to consider. The body style of the car (sedan, coupe, wagon, etc.) is an example of a _____ variable.

Answer: categorical

Difficulty: Easy

Keywords: categorical variable, types of data

42) In purchasing an automobile, there are a number of variables to consider. The classification of the car as a subcompact, compact, standard, or luxury size is an example of a _____ variable.

Answer: categorical

Difficulty: Easy

Keywords: categorical variable, types of data

43) In purchasing an automobile, there are a number of variables to consider. The color of the car is an example of a _____ variable.

Answer: categorical

Difficulty: Easy

Keywords: categorical variable, types of data

44) Most colleges admit students based on their achievements in a number of different areas. Whether a student has taken any advanced placement courses is an example of a _____ variable.

Answer: categorical

Difficulty: Easy

Keywords: categorical variable, types of data

45) Most colleges admit students based on their achievements in a number of different areas. The grade obtained in senior level English (A, B, C, D, or F) is an example of a _____ variable.

Answer: categorical

Difficulty: Moderate

Keywords: categorical variable, types of data

46) Most colleges admit students based on their achievements in a number of different areas. The total SAT score achieved by a student is an example of a _____ numerical variable.

Answer: discrete

Difficulty: Moderate

Keywords: discrete variable, types of data

47) The Dean of Students conducted a survey on campus. The gender of the student is an example of a _____ variable.

Answer: categorical

Difficulty: Easy

Keywords: categorical variable, types of data

48) The Dean of Students conducted a survey on campus. Class designation (Freshman, Sophomore, Junior, Senior) is an example of a _____ variable.

Answer: categorical

Difficulty: Easy

Keywords: categorical variable, types of data

49) The Dean of Students conducted a survey on campus. Major area of study is an example of a _____ variable.

Answer: categorical

Difficulty: Easy

Keywords: categorical variable, types of data

50) The Dean of Students conducted a survey on campus. SAT score in mathematics is an example of a _____ numerical variable.

Answer: discrete

Difficulty: Easy

Keywords: continuous variable, types of data

51) The Dean of Students conducted a survey on campus. Grade point average (GPA) is an example of a _____ numerical variable.

Answer: continuous

Difficulty: Easy

Keywords: continuous variable, types of data

52) The Dean of Students conducted a survey on campus. Number of credits currently enrolled for is an example of a _____ numerical variable.

Answer: discrete

Difficulty: Easy

Keywords: discrete variable, types of data

53) The Dean of Students conducted a survey on campus. Number of clubs, groups, teams, and organizations affiliated with on campus is an example of a _____ numerical variable.

Answer: discrete

Difficulty: Easy

Keywords: discrete variable, types of data

54) A personal computer user survey was conducted. Computer brand primarily used is an example of a _____ variable.

Answer: categorical

Difficulty: Easy

Keywords: categorical variable, types of data

55) A personal computer user survey was conducted. Number of personal computers owned is an example of a _____ numerical variable.

Answer: discrete

Difficulty: Easy

Keywords: discrete variable, types of data

56) A personal computer user survey was conducted. The number of years using a personal computer is an example of a _____ numerical variable.

Answer: continuous

Difficulty: Moderate

Keywords: continuous variable, types of data

57) A personal computer user survey was conducted. Hours of personal computer use per week is an example of a _____ numerical variable.

Answer: continuous

Difficulty: Moderate

Keywords: continuous variable, types of data

58) A personal computer user survey was conducted. Primary word processing package used is an example of a _____ variable.

Answer: categorical

Difficulty: Easy

Keywords: categorical variable, types of data

59) A personal computer user survey was conducted. The number of computer magazine subscriptions is an example of a _____ numerical variable.

Answer: discrete

Difficulty: Moderate

Keywords: discrete variable, types of data

60) True or False: The brand of TV one owns is an example of an ordinal scaled variable.

Answer: FALSE

Difficulty: Easy

Keywords: nominal scale, ordinal scale

61) True or False: The brand of TV one owns is an example of a numerical variable.

Answer: FALSE

Difficulty: Easy

Keywords: categorical variable

62) True or False: Whether the university is private or public is an example of a nominal scaled variable.

Answer: TRUE

Difficulty: Easy

Keywords: nominal scale

63) True or False: Whether the university is private or public is an example of a categorical variable.

Answer: TRUE

Difficulty: Easy

Keywords: categorical variable

64) True or False: Marital status is an example of an ordinal scaled variable.

Answer: FALSE

Difficulty: Easy

Keywords: nominal scale, ordinal scale

65) True or False: Marital status is an example of a numerical variable.

Answer: FALSE

Difficulty: Easy

Keywords: categorical variable

66) True or False: The grade level (K-12) of a student is an example of a nominal scaled variable.

Answer: FALSE

Difficulty: Easy

Keywords: nominal scale, ordinal scale

67) True or False: The grade level (K-12) of a student is an example of a numerical variable.

Answer: FALSE

Difficulty: Easy

Keywords: categorical variable

68) True or False: The level of satisfaction ("Very unsatisfied," "Fairly unsatisfied," "Fairly satisfied," and "Very satisfied") in a class is an example of an ordinal scaled variable.

Answer: TRUE

Difficulty: Easy

Keywords: ordinal scale

69) True or False: The level of satisfaction ("Very unsatisfied," "Fairly unsatisfied," "Fairly satisfied," and "Very satisfied") in a class is an example of a categorical variable.

Answer: TRUE

Difficulty: Easy

Keywords: categorical variable

70) True or False: The quality ("terrible," "poor," "fair," "acceptable," "very good," and "excellent") of a day care center is an example of a nominal scaled variable.

Answer: FALSE

Difficulty: Easy

Keywords: nominal scale, ordinal scale

71) True or False: The quality ("terrible," "poor," "fair", "acceptable," "very good," and "excellent") of a day care center is an example of a numerical variable.

Answer: FALSE

Difficulty: Easy

Keywords: categorical variable

72) True or False: The amount of alcohol consumed by a person per week will be measured on an interval scale.

Answer: FALSE

Difficulty: Easy

Keywords: interval scale, ratio scale

73) True or False: The amount of alcohol consumed by a person per week is an example of a continuous variable.

Answer: TRUE

Difficulty: Easy

Keywords: continuous variable

74) True or False: The number of defective apples in a single box will be measured on an interval scale.

Answer: FALSE

Difficulty: Easy

Keywords: interval scale, ratio scale

75) True or False: The number of defective apples in a single box is an example of a continuous variable.

Answer: FALSE

Difficulty: Easy

Keywords: discrete variable, continuous variable

76) True or False: The amount of calories contained in a 12-ounce package of cheese will be measured on a ratio scale.

Answer: TRUE

Difficulty: Easy

Keywords: ratio scale

77) True or False: The amount of calories contained in a 12-ounce package of cheese is an example of a discrete variable.

Answer: FALSE

Difficulty: Easy

Keywords: discrete variable, continuous variable

78) True or False: The amount of time a student spent studying for an exam will be measured on a ratio scale.

Answer: TRUE

Difficulty: Easy

Keywords: ratio scale

79) True or False: The amount of time a student spent studying for an exam is an example of a continuous variable.

Answer: TRUE

Difficulty: Easy

Keywords: continuous variable

TABLE 1-2

A *Wall Street Journal* poll asked 2,150 adults in the United States a series of questions to find out their view on the U.S. economy.

80) Referring to Table 1-2, the population of interest is

- A) all the males living in the United States when the poll was taken.
- B) all the females living in the United States when the poll was taken.
- C) all the adults living in the United States when the poll was taken.
- D) all the people living in the United States when the poll was taken.

Answer: C

Difficulty: Easy

Keywords: population

81) Referring to Table 1-2, the 2,150 adults make up

- A) the population.
- B) the sample.
- C) the primary data source.
- D) the secondary data source.

Answer: B

Difficulty: Easy

Keywords: sample

82) Referring to Table 1-2, the possible responses to the question "How satisfied are you with the U.S. economy today with 1 = very satisfied, 2 = moderately satisfied, 3 = neutral, 4 = moderately dissatisfied and 5 = very dissatisfied?" are values from a

- A) discrete variable.
- B) continuous variable.
- C) categorical variable.
- D) table of random numbers.

Answer: C

Difficulty: Easy

Keywords: categorical variable, types of data

83) Referring to Table 1-2, the possible responses to the question "How many people in your household are unemployed currently?" are values from a

- A) discrete numerical variable.
- B) continuous numerical variable.
- C) categorical variable.
- D) table of random numbers.

Answer: A

Difficulty: Easy

Keywords: discrete variable, types of data

84) Referring to Table 1-2, the possible responses to the question "What do you think is the current number of people unemployed in the country?" are values from a

- A) discrete numerical variable.
- B) continuous numerical variable.
- C) categorical variable.
- D) table of random numbers.

Answer: A

Difficulty: Moderate

Keywords: discrete variable, types of data

85) Referring to Table 1-2, the possible responses to the question "How many more months do you think the U.S. economy will require to get out of a recession?" are values from a

- A) discrete numerical variable.
- B) continuous numerical variable.
- C) categorical variable.
- D) table of random numbers.

Answer: A

Difficulty: Easy

Keywords: discrete variable, types of data

86) Referring to Table 1-2, the possible responses to the question "How many out of every 10 U.S. voters do you think feel that the U.S. economy is in good shape?" are values from a

- A) discrete numerical variable.
- B) continuous numerical variable.
- C) categorical variable.
- D) table of random numbers.

Answer: A

Explanation: A) The percentage of voters is the ratio of two discrete variables and, hence, the ratio is also a discrete variable.

Difficulty: Easy

Keywords: discrete variable, types of data

87) Referring to Table 1-2, the possible responses to the question "How would you rate the condition of the U.S. economy with 1 = excellent, 2 = good, 3 = decent, 4 = poor, 5 = terrible?" are values from a

- A) discrete numerical variable.
- B) continuous numerical variable.
- C) categorical variable.
- D) table of random numbers.

Answer: C

Difficulty: Easy

Keywords: categorical variable, types of data

88) Referring to Table 1-2, the possible responses to the question "Are you 1. Currently employed, 2. Unemployed but actively looking for job, 3. Unemployed and quit looking for job?" are values from a

- A) discrete numerical variable.
- B) continuous numerical variable.
- C) categorical variable.
- D) table of random numbers.

Answer: C

Difficulty: Easy

Keywords: categorical variable, types of data

89) Referring to Table 1-2, the possible responses to the question "In which year do you think the last recession in the United States started?" are values from a

- A) discrete numerical variable.
- B) continuous numerical variable.
- C) categorical variable.
- D) table of random numbers.

Answer: A

Difficulty: Easy

Keywords: discrete variable, types of data

90) Referring to Table 1-2, the possible responses to the question "On the scale of 1 to 100 with 1 being extremely anxious and 100 being totally not anxious, rate your level of anxiety in this U.S. economy" are values from a

- A) discrete numerical variable.
- B) continuous numerical variable.
- C) categorical variable.
- D) table of random numbers.

Answer: A

Difficulty: Moderate

Keywords: discrete variable, types of data

91) Referring to Table 1-2, the possible responses to the question "How satisfied are you with the U.S. economy today with 1 = very satisfied, 2 = moderately satisfied, 3 = neutral, 4 = moderately dissatisfied, and 5 = very dissatisfied?" result in

- A) a nominal scale variable.
- B) an ordinal scale variable.
- C) an interval scale variable.
- D) a ratio scale variable.

Answer: B

Difficulty: Moderate

Keywords: ratio scale, types of data

92) Referring to Table 1-2, the possible responses to the question "How many people in your household are unemployed currently?" result in

- A) a nominal scale variable.
- B) an ordinal scale variable.
- C) an interval scale variable.
- D) a ratio scale variable.

Answer: D

Difficulty: Moderate

Keywords: ordinal scale, types of data

93) Referring to Table 1-2, the possible responses to the question "What do you think is the current unemployment rate?" result in

- A) a nominal scale variable.
- B) an ordinal scale variable.
- C) an interval scale variable.
- D) a ratio scale variable.

Answer: D

Difficulty: Moderate

Keywords: ratio scale, types of data

94) Referring to Table 1-2, the possible responses to the question "How many out of every 10 U.S. voters do you think feel that the U.S. economy is in good shape?" result in

- A) a nominal scale variable.
- B) an ordinal scale variable.
- C) an interval scale variable.
- D) a ratio scale variable.

Answer: D

Difficulty: Moderate

Keywords: ratio scale, types of data

95) Referring to Table 1-2, the possible responses to the question "How would you rate the condition of the U.S. economy with 1 = excellent, 2 = good, 3 = decent, 4 = poor, 5 = terrible?" result in

- A) a nominal scale variable.
- B) an ordinal scale variable.
- C) an interval scale variable.
- D) a ratio scale variable.

Answer: B

Difficulty: Moderate

Keywords: ordinal scale, types of data

96) Referring to Table 1-2, the possible responses to the question "Are you 1. Currently employed, 2. Unemployed but actively looking for job, 3. Unemployed and quit looking for job?" result in

- A) a nominal scale variable.
- B) an ordinal scale variable.
- C) an interval scale variable.
- D) a ratio scale variable.

Answer: A

Difficulty: Moderate

Keywords: nominal scale, types of data

97) Referring to Table 1-2, the possible responses to the question "In which year do you think the last recession in the United States started?" result in

- A) a nominal scale variable.
- B) an ordinal scale variable.
- C) an interval scale variable.
- D) a ratio scale variable.

Answer: C

Explanation: C) The calendar year does not have a true zero and, hence, is an interval scale variable.

Difficulty: Difficult

Keywords: interval scale, types of data

98) Referring to Table 1-2, the possible responses to the question "On the scale of 1 to 100 with 1 being extremely anxious and 100 being totally not anxious, rate your level of anxiety in this U.S. economy" results in

- A) a nominal scale variable.
- B) an ordinal scale variable.
- C) an interval scale variable.
- D) a ratio scale variable.

Answer: C

Difficulty: Difficult

Keywords: interval scale, types of data

99) The universe or "totality of items or things" under consideration is called

- A) a sample.
- B) a population.
- C) a primary data source.
- D) a secondary data source.

Answer: B

Difficulty: Easy

Keywords: population

100) The portion of the universe that has been selected for analysis is called

- A) a sample.
- B) a frame.
- C) a primary data source.
- D) a secondary data source.

Answer: A

Difficulty: Easy

Keywords: sample

101) Which of the following is most likely a population as opposed to a sample?

- A) respondents to a newspaper survey
- B) the first 5 students completing an assignment
- C) every third person to arrive at the bank
- D) registered voters in a county

Answer: D

Difficulty: Moderate

Keywords: population, sample

102) A study is under way in Yosemite National Forest to determine the adult height of American pine trees. Specifically, the study is attempting to determine what factors aid a tree in reaching heights greater than 60 feet tall. It is estimated that the forest contains 25,000 adult American pines. The study involves collecting heights from 250 randomly selected adult American pine trees and analyzing the results. Identify the population from which the study was sampled.

- A) the 250 randomly selected adult American pine trees
- B) the 25,000 adult American pine trees in the forest
- C) all the adult American pine trees taller than 60 feet
- D) all American pine trees, of any age, in the forest

Answer: B

Difficulty: Moderate

Keywords: population, sample

103) A study is under way in Yosemite National Forest to determine the adult height of American pine trees. Specifically, the study is attempting to determine what factors aid a tree in reaching heights greater than 60 feet tall. It is estimated that the forest contains 25,000 adult American pines. The study involves collecting heights from 250 randomly selected adult American pine trees and analyzing the results.

Identify the sample in the study.

- A) the 250 randomly selected adult American pine trees
- B) the 25,000 adult American pine trees in the forest
- C) all the adult American pine trees taller than 60 feet
- D) all American pine trees, of any age, in the forest

Answer: A

Difficulty: Easy

Keywords: population, sample

104) Most analysts focus on the cost of tuition as the way to measure the cost of a college education. But incidentals, such as textbook costs, are rarely considered. A researcher at Drummand University wishes to estimate the textbook costs of first-year students at Drummand. To do so, she monitored the textbook cost of 250 first-year students and found that their average textbook cost was \$600 per semester. Identify the population of interest to the researcher.

- A) all Drummand University students
- B) all college students
- C) all first-year Drummand University students
- D) the 250 students that were monitored

Answer: C

Difficulty: Easy

Keywords: population, sample

105) Most analysts focus on the cost of tuition as the way to measure the cost of a college education. But incidentals, such as textbook costs, are rarely considered. A researcher at Drummand University wishes to estimate the textbook costs of first-year students at Drummand. To do so, she monitored the textbook cost of 250 first-year students and found that their average textbook cost was \$600 per semester. Identify the sample in the study.

- A) all Drummand University students
- B) all college students
- C) all first-year Drummand University students
- D) the 250 students that were monitored

Answer: D

Difficulty: Easy

Keywords: population, sample

106) Researchers suspect that the average number of units earned per semester by college students is rising. A researcher at Calendula College wishes to estimate the number of units earned by students during the spring semester at Calendula. To do so, he randomly selects 100 student transcripts and records the number of units each student earned in the spring term. He found that the average number of semester units completed was 12.96 units per student. Identify the population of interest to the researcher.

- A) all Calendula College students
- B) all college students
- C) all Calendula College students enrolled in the spring
- D) all college students enrolled in the spring

Answer: C

Difficulty: Moderate

Keywords: population, sample

107) The manager of the customer service division of a major consumer electronics company is interested in determining whether the customers who have purchased a Blu-ray player made by the company over the past 12 months are satisfied with their products. The population of interest is

- A) all the customers who have bought a Blu-ray player made by the company over the past 12 months.
- B) all the customers who have bought a Blu-ray player made by the company and brought it in for repair over the past 12 months.
- C) all the customers who have used a Blu-ray player over the past 12 months.
- D) all the customers who have ever bought a Blu-ray player made by the company.

Answer: A

Difficulty: Difficult

Keywords: population

108) True or False: A population is the totality of items or things under consideration.

Answer: TRUE

Difficulty: Easy

Keywords: population

109) True or False: A sample is the portion of the universe that is selected for analysis.

Answer: TRUE

Difficulty: Easy

Keywords: sample

110) The Human Resources Director of a large corporation wishes to develop an employee benefits package and decides to select 500 employees from a list of all ($N = 40,000$) workers in order to study their preferences for the various components of a potential package. All the employees in the corporation constitute the _____.

Answer: population

Difficulty: Easy

Keywords: population

111) The Human Resources Director of a large corporation wishes to develop an employee benefits package and decides to select 500 employees from a list of all ($N = 40,000$) workers in order to study their preferences for the various components of a potential package. The 500 employees who will participate in this study constitute the _____.

Answer: sample

Difficulty: Easy

Keywords: sample

112) Jared was working on a project to look at global warming and accessed an Internet site where he captured average global surface temperatures from 1866. Which of the four methods of data collection was he using?

A) published sources

B) experimentation

C) surveying

D) observation

Answer: A

Difficulty: Easy

Keywords: sources of data

113) The British Airways Internet site provides a questionnaire instrument that can be answered electronically. Which of the 4 methods of data collection is involved when people complete the questionnaire?

A) published sources

B) experimentation

C) surveying

D) observation

Answer: C

Difficulty: Easy

Keywords: sources of data

114) A marketing research firm, in conducting a comparative taste test, provided three types of peanut butter to a sample of households randomly selected within the state. Which of the 4 methods of data collection is involved when people are asked to compare the three types of peanut butter?

A) published sources

B) experimentation

C) surveying

D) observation

Answer: B

Difficulty: Easy

Keywords: sources of data

115) Tim was planning for a meeting with his boss to discuss a raise in his annual salary. In preparation, he wanted to use the Consumer Price Index to determine the percentage increase in his real (inflation-adjusted) salary over the last three years. Which of the 4 methods of data collection was involved when he used the Consumer Price Index?

- A) published sources
- B) experimentation
- C) surveying
- D) observation

Answer: A

Difficulty: Easy

Keywords: sources of data

116) Which of the 4 methods of data collection is involved when a person counts the number of cars passing designated locations on the Los Angeles freeway system?

- A) published sources
- B) experimentation
- C) surveying
- D) observation

Answer: D

Difficulty: Moderate

Keywords: sources of data

117) A statistics student found a reference in the campus library that contained the median family incomes for all 50 states. She would report her data as being collected using

- A) a designed experiment.
- B) observational data.
- C) a random sample.
- D) a published source.

Answer: D

Difficulty: Easy

Keywords: sources of data

118) The personnel director at a large company studied the eating habits of the company's employees. The director noted whether employees brought their own lunches to work, ate at the company cafeteria, or went out to lunch. The goal of the study was to improve the food service at the company cafeteria. This type of data collection would best be considered as

- A) an observational study.
- B) a designed experiment.
- C) a random sample.
- D) a quota sample.

Answer: A

Difficulty: Easy

Keywords: sources of data

119) A study attempted to estimate the proportion of Florida residents who were willing to spend more tax dollars on protecting the beaches from environmental disasters. Twenty-five hundred Florida residents were surveyed. What type of data collection procedure was most likely used to collect the data for this study?

- A) a designed experiment
- B) a published source
- C) a random sample
- D) observational data

Answer: C

Difficulty: Easy

Keywords: sources of data

120) Which of the following is **not** a reason for the need for sampling?

- A) It is usually too costly to study the whole population.
- B) It is usually too time consuming to look at the whole population.
- C) It is sometimes destructive to observe the entire population.
- D) It is always more informative by investigating a sample than the entire population.

Answer: D

Difficulty: Moderate

Keywords: reasons for sampling

121) Which of the following is **not** a reason for selecting a sample?

- A) A sample is less time consuming than a census.
- B) A sample is less costly to administer than a census.
- C) A sample is usually not a good representation of the target population.
- D) A sample is less cumbersome and more practical to administer.

Answer: C

Difficulty: Easy

Keywords: reasons for sampling

122) Which of the following sampling methods is a probability sample?

- A) convenience sample
- B) quota sample
- C) stratified sample
- D) judgment sample

Answer: C

Difficulty: Easy

Keywords: probability sample

123) At US Data Corporation's website, they advertised that "Because of our commitment to quality and our vast amount of industry knowledge and experience, we have grown to be one of America's leading providers of mailing lists, marketing data, sales leads and research data. We maintain databases of information on consumers and businesses nationwide that set industry standards for mission critical currency, reliability and accuracy." Trying to reach 500 potential donors for their annual phone donation campaign, a local fire department purchased a list of donors from the company. This list is an example of a

- A) stratified sample.
- B) systematic sample.
- C) judgment sample.
- D) frame.

Answer: D

Difficulty: Easy

Keywords: frame

124) The manager of the customer service division of a major consumer electronics company is interested in determining whether the customers who have purchased a Blu-ray player made by the company over the past 12 months are satisfied with their products. Which of the following will be a good frame for drawing a sample?

- A) telephone directory
- B) voting registry
- C) the list of customers who returned the registration card
- D) a list of potential customers purchased from a database marketing company

Answer: C

Difficulty: Easy

Keywords: frame

125) A sample of 300 subscribers to a particular magazine is selected from a population frame of 9,000 subscribers. If, upon examining the data, it is determined that no subscriber had been selected in the sample more than once,

- A) the sample could not have been random.
- B) the sample may have been selected without replacement or with replacement.
- C) the sample had to have been selected with replacement.
- D) the sample had to have been selected without replacement.

Answer: B

Difficulty: Moderate

Keywords: sampling method, sampling with replacement, sampling without replacement

126) Which of the following scenarios will yield a nonprobability sample?

- A) The subjects of the sample are chosen on the basis of known probability.
- B) Items or individuals are chosen without regard to their probability of occurrence.
- C) Every individual or item from the frame has an equal chance of being selected. Selection may be with replacement or without replacement.
- D) Decide on a sample size, n ; divide the frame of N individuals into groups of k individuals where $k = N/n$; randomly select one individual from the first group; select every k th individual thereafter.

Answer: B

Difficulty: Easy

Keywords: sampling method, nonprobability sample, sampling with replacement, sampling without replacement

127) To obtain a sample of 10 books in the store, the manager walked to the first shelf next to the cash register to pick the first 10 books on that shelf. This is an example of a

- A) systematic sample.
- B) simple random sample.
- C) stratified sample.
- D) convenience sample.

Answer: D

Difficulty: Easy

Keywords: sampling method, nonprobability sample, convenience sample

128) To demonstrate a sampling method, the instructor in a class picked the first 5 students sitting in the last row of the class. This is an example of a

- A) systematic sample.
- B) simple random sample.
- C) stratified sample.
- D) convenience sample.

Answer: D

Difficulty: Easy

Keywords: sampling method, nonprobability sample, convenience sample

129) A company selling apparel online sends out emails every Monday to all its customers who made a purchase. This is an example of a

- A) systematic sample.
- B) convenience sample.
- C) simple random sample.
- D) stratified sample.

Answer: B

Difficulty: Easy

Keywords: sampling method, nonprobability sample, convenience sample

130) To gather information on the preferences of instructors at universities on topics for a business statistics textbook that it will publish, a publishing company invited 10 faculty members who have adopted one of the textbooks that it has published. This is an example of a

- A) systematic sample.
- B) judgment sample.
- C) simple random sample.
- D) stratified sample.

Answer: B

Difficulty: Easy

Keywords: sampling method, nonprobability sample, judgment sample

131) To find out the potential impact of a new zoning law on a neighborhood, the legislators conduct a focus group interview by inviting the members of the housing owners association of that neighborhood. This is an example of a

- A) systematic sample.
- B) simple random sample.
- C) judgment sample.
- D) cluster sample.

Answer: C

Difficulty: Easy

Keywords: sampling method, nonprobability sample, judgment sample

132) Which of the following yields a systematic sample?

- A) All students in a class are divided into groups of 15. One student is randomly chosen from the 1st group, the remaining observations are every 15th student thereafter.
- B) The best 15 students, according to the opinion of the instructor, in a class are selected.
- C) All students in a class are grouped according to their gender. A random sample of 8 is selected from the males and a separate random sample of 7 is drawn from the females.
- D) A random sample of 15 students is selected from a class without replacement.

Answer: A

Difficulty: Easy

Keywords: sampling method, probability sample, systematic sample

133) Which of the following yields a stratified sample?

- A) All students in a class are divided into groups of 15. One student is randomly chosen from the 1st group, the remaining observations are every 15th student thereafter.
- B) The best 15 students, according to the opinion of the instructor, in a class are selected.
- C) All students in a class are grouped according to their gender. A random sample of 8 is selected from the males and a separate random sample of 7 is drawn from the females.
- D) The first 15 students in a class are selected without replacement.

Answer: C

Difficulty: Easy

Keywords: sampling method, probability sample, stratified sample

134) Which of the following yields a cluster sample?

- A) All students in a class are divided into groups of 15. One student is randomly chosen from the 1st group, the remaining observations are every 15th student thereafter.
- B) The best 15 students, according to the opinion of the instructor, in a class are selected.
- C) All students in a class are grouped according to their gender. A random sample of 8 is selected from the males and a separate random sample of 7 is selected from the females.
- D) All students in a class are divided into groups according to the rows that they are seated. One of the groups is randomly selected.

Answer: D

Difficulty: Easy

Keywords: sampling method, probability sample, cluster sample

135) Which of the following yields a simple random sample?

- A) All students in a class are divided into groups of 15. One student is randomly chosen from the 1st group, the remaining observations are every 15th student thereafter.
- B) The best 15 students, according to the opinion of the instructor, in a class are selected.
- C) The names of 50 students in a class are written on 50 different pieces of paper and put in a hat. The first 15 pieces of paper are selected blindly one at a time without replacing them back in the hat after shuffling the papers thoroughly.
- D) All students in a class are divided into groups according to the rows that they are seated. One of the groups is randomly selected.

Answer: C

Difficulty: Easy

Keywords: sampling method, probability sample, simple random sample

136) Which of the following yields a simple random sample?

- A) All students in a class are grouped according to their gender. A random sample of 8 is selected from the males and a separate random sample of 7 is drawn from the females.
- B) The best 15 students, according to the opinion of the instructor, in a class are selected.
- C) The names of 50 students in a class are written on 50 different pieces of paper and put in a hat. The first 15 pieces of paper are selected blindly one at a time after shuffling the papers thoroughly and each of the selected pieces is placed back into the hat before the next piece is selected.
- D) All students in a class are divided into groups according to the rows that they are seated. One of the groups is randomly selected.

Answer: C

Difficulty: Easy

Keywords: sampling method, probability sample, simple random sample

137) For a population frame containing $N = 1,007$ individuals, what code number should you assign to the first person on the list in order to use a table of random numbers?

- A) 0
- B) 1
- C) 01
- D) 0001

Answer: D

Difficulty: Easy

Keywords: random number

138) Which of the following types of samples can you use if you want to make valid statistical inferences from a sample to a population?

- A) a judgment sample
- B) a quota sample
- C) a convenience sample
- D) a probability sample

Answer: D

Difficulty: Easy

Keywords: probability sample, sampling method

139) The evening host of a dinner dance reached into a bowl, mixed all the tickets around, and selected the ticket to award the grand door prize. What sampling method was used?

- A) simple random sample
- B) systematic sample
- C) stratified sample
- D) cluster sample

Answer: A

Difficulty: Easy

Keywords: simple random sample, probability sample, sampling method

140) The Dean of Students mailed a survey to a total of 400 students. The sample included 100 students randomly selected from each of the freshman, sophomore, junior, and senior classes on campus last term. What sampling method was used?

- A) simple random sample
- B) systematic sample
- C) stratified sample
- D) cluster sample

Answer: C

Difficulty: Easy

Keywords: stratified sample, probability sample, sampling method

141) A telemarketer set the company's computerized dialing system to contact every 25th person listed in the local telephone directory. What sampling method was used?

- A) simple random sample
- B) systematic sample
- C) stratified sample
- D) cluster sample

Answer: B

Difficulty: Easy

Keywords: systematic sample, probability sample, sampling method

142) Since a _____ is not a randomly selected probability sample, there is no way to know how well it represents the overall population.

- A) simple random sample
- B) convenience sample
- C) stratified sample
- D) cluster sample

Answer: B

Difficulty: Easy

Keywords: convenience sample, nonprobability sample, sampling method

143) A population frame for a survey contains a listing of 72,345 names. Using a table of random numbers, how many digits will the code numbers for each member of your population contain?

- A) 3
- B) 4
- C) 5
- D) 6

Answer: C

Difficulty: Easy

Keywords: random number

144) A population frame for a survey contains a listing of 6,179 names. Using a table of random numbers, which of the following code numbers will appear on your list?

- A) 06
- B) 0694
- C) 6946
- D) 61790

Answer: B

Difficulty: Easy

Keywords: random number

145) Which of the following can be reduced by proper interviewer training?

- A) sampling error
- B) measurement error
- C) Both of the above
- D) None of the above

Answer: B

Difficulty: Difficult

Keywords: measurement error, survey worthiness

146) Which of the following sampling methods will more likely be susceptible to ethical violation?

- A) simple random sample
- B) cluster sample
- C) convenience sample
- D) stratified sample

Answer: C

Difficulty: Easy

Keywords: ethical issues, sampling method

147) Which of the following sampling methods will more likely be susceptible to ethical violation when used to form conclusions about the entire population?

- A) simple random sample
- B) cluster sample
- C) judgment sample
- D) stratified sample

Answer: C

Difficulty: Easy

Keywords: judgment sample, ethical issues, sampling method

148) Which of the following sampling methods will more likely be susceptible to ethical violation when used to form conclusions about the entire population?

- A) simple random sample
- B) cluster sample
- C) systematic sample
- D) convenience sample

Answer: D

Difficulty: Easy

Keywords: convenience sample, ethical issues, sampling method

149) True or False: As a population becomes large, it is usually better to obtain statistical information from the entire population.

Answer: FALSE

Difficulty: Easy

Keywords: population, sample, reasons for samplings

150) True or False: If a simple random sample is chosen with replacement, each individual has the same chance of selection on every selection.

Answer: TRUE

Difficulty: Easy

Keywords: simple random sample, probability sample, sampling method, sampling with replacement, sampling without replacement

151) True or False: When dealing with human surveys, we are usually interested in sampling with replacement.

Answer: FALSE

Difficulty: Moderate

Keywords: sampling with replacement, sampling method, survey worthiness

152) True or False: The only reliable way a researcher can make statistical inferences from a sample to a population is to use nonprobability sampling methods.

Answer: FALSE

Difficulty: Easy

Keywords: nonprobability, probability sample, sampling method

153) True or False: A sample is always a good representation of the target population.

Answer: FALSE

Difficulty: Easy

Keywords: sample, population, sampling method

154) True or False: There can be only one sample selected from a population.

Answer: FALSE

Difficulty: Easy

Keywords: sample, sampling method

155) True or False: Using different frames to generate data can lead to totally different conclusions.

Answer: TRUE

Difficulty: Easy

Keywords: frame, sampling method

156) True or False: Sampling error can be completely eliminated by taking larger sample sizes.

Answer: FALSE

Difficulty: Difficult

Keywords: sampling error

157) True or False: Sampling error can be reduced by taking larger sample sizes.

Answer: TRUE

Difficulty: Easy

Keywords: sampling error

158) True or False: A convenience sample is a type of probability sample.

Answer: FALSE

Difficulty: Easy

Keywords: chunk sample

159) True or False: Items or individuals in a judgment sample are chosen according to their probability of occurrence.

Answer: FALSE

Difficulty: Easy

Keywords: judgment sample, nonprobability sample

160) True or False: When participants are allowed to self-select into the sample, you have a nonprobability sample.

Answer: TRUE

Difficulty: Easy

Keywords: nonprobability sample

161) True or False: Systematic samples are less efficient than a stratified sample.

Answer: TRUE

Difficulty: Easy

Keywords: systematic sample, stratified sample

162) True or False: The professor of a business statistics class wanted to find out the mean amount of time per week her students spent studying for the class. Among the 50 students in her class, 20% were freshmen, 50% were sophomores and 30% were juniors. She decided to select 2 students randomly from the freshmen, 5 randomly from the sophomores and 3 randomly from the juniors. This is an example of a systematic sample.

Answer: FALSE

Difficulty: Moderate

Keywords: stratified sample

163) To estimate the mean number of hours a student at a major university spent in the library, a researcher obtained the list of students from the registrar's office, from which she can select a random sample of 200 students. This list is a _____.

Answer: frame

Difficulty: Easy

Keywords: frame

164) _____ results from the exclusion of certain groups of subjects from a population frame.

Answer: Coverage error

Difficulty: Difficult

Keywords: coverage error, survey worthiness, frame

165) Coverage error results in a _____.

Answer: selection bias

Difficulty: Difficult

Keywords: selection bias, survey worthiness

166) _____ results from the failure to collect data on all subjects in the sample.

Answer: Nonresponse error or bias

Difficulty: Moderate

Keywords: nonresponse error, survey worthiness

167) The sampling process begins by locating appropriate data sources called _____.

Answer: frames

Difficulty: Easy

Keywords: frame, sampling method

168) True or False: If you randomly select a student from the first row of a business statistics class and then every other fifth student thereafter until you get a sample of 20 students, this is an example of a convenience sample.

Answer: FALSE

Difficulty: Easy

Keywords: chunk sample

169) True or False: You stand at the main entrance to a departmental store and pick the first 20 customers that enter the store after it has opened its door for business on a single day. This is an example of a systematic sample.

Answer: FALSE

Difficulty: Easy

Keywords: systematic sample

170) True or False: An electronic appliance chain gathered customer opinions on their services using the customer feedback forms that are attached to the product registration forms. This is an example of a convenience sample.

Answer: TRUE

Difficulty: Easy

Keywords: convenience sample

171) True or False: To gather opinions on the efficacy of U.S. foreign policies, a sample of 50 faculty members is selected from the pool of university professors who have taught political science at the graduate level. This is an example of a judgment sample.

Answer: TRUE

Difficulty: Easy

Keywords: judgment sample

172) True or False: In a business statistics class students sit randomly without particular preferences. A sample is selected by including everybody who sits in the first row. This is an example of a cluster sample.

Answer: TRUE

Difficulty: Easy

Keywords: cluster sample

173) True or False: The question "How many times have you abused illicit drugs in the last 6 months?" will most likely result in nonresponse error.

Answer: TRUE

Difficulty: Easy

Keywords: nonresponse error, survey worthiness

174) True or False: The question "Is your household income last year somewhere between \$50,000 and \$100,000?" will most likely result in coverage error.

Answer: FALSE

Difficulty: Easy

Keywords: coverage error, survey worthiness

175) True or False: The only way one can eliminate sampling error is to take the whole population as the sample.

Answer: TRUE

Difficulty: Moderate

Keywords: sampling error, survey worthiness

176) True or False: Coverage error can become an ethical issue if a particular group is intentionally excluded from the frame.

Answer: TRUE

Difficulty: Easy

Keywords: ethical issue, coverage error, survey worthiness, frame

177) True or False: Measurement error will become an ethical issue when the findings are presented without reference to sample size and margin of error.

Answer: FALSE

Difficulty: Easy

Keywords: ethical issue, measurement error, sampling error, survey worthiness

178) True or False: Measurement error can become an ethical issue when a survey sponsor chooses leading questions that guide the responses in a particular direction.

Answer: TRUE

Difficulty: Easy

Keywords: ethical issue, measurement error, survey worthiness

179) True or False: Measurement error can become an ethical issue when an interviewer purposely guides the responses in a particular direction.

Answer: TRUE

Difficulty: Easy

Keywords: ethical issue, measurement error, survey worthiness

180) True or False: Sampling error becomes an ethical issue if the findings are purposely presented without reference to sample size and margin of error so that the sponsor can promote a viewpoint that might otherwise be truly insignificant.

Answer: TRUE

Difficulty: Easy

Keywords: ethical issue, sampling error, survey worthiness

181) True or False: The professor of a business statistics class wanted to find out the mean amount of time per week her students spent studying for the class. She divided the students into the left, right and center groups according to the location they sat in the class that day. One of these 3 groups was randomly selected and everyone in the group was asked the mean amount of time per week he/she spent studying for the class. This is an example of a cluster sample.

Answer: TRUE

Difficulty: Moderate

Keywords: cluster sample

182) True or False: The professor of a business statistics class wanted to find out the mean amount of time per week her students spent studying for the class. She divided the fifty students on her roster into ten groups starting from the first student on the roster. The first student was randomly selected from the first group. Then every tenth student was selected from the remaining students. This is an example of a cluster sample.

Answer: FALSE

Difficulty: Moderate

Keywords: systematic sample

183) True or False: Selection bias occurs more frequently in systematic samples than in simple random samples.

Answer: TRUE

Difficulty: Easy

Keywords: simple random sample, systematic sample

184) True or False: The question: "Have you used any form of illicit drugs over the past 2 months?" will most likely result in measurement error if the question is answered.

Answer: TRUE

Difficulty: Moderate

Keywords: measurement error, survey worthiness

185) True or False: The question: "How much did you earn last year rounded to the nearest hundreds of dollars?" will most likely result in measurement error.

Answer: TRUE

Difficulty: Moderate

Keywords: measurement error, survey worthiness

TABLE 1-3

The manager of the customer service division of a major consumer electronics company is interested in determining whether the customers who have purchased a Blu-ray player made by the company over the past 12 months are satisfied with their products.

186) Referring to Table 1-3, the manager decides to ask a sample of customers, who have bought a Blu-ray player made by the company and filed a complaint over the past year, to fill in a survey about whether they are satisfied with the product. This method will most likely suffer from

A) nonresponse error.

B) measurement error.

C) coverage error.

D) non-probability sampling.

Answer: C

Difficulty: Difficult

Keywords: coverage error, survey worthiness

187) Referring to Table 1-3, if there are 4 different brands of Blu-ray players made by the company, the best sampling strategy would be to use

A) a simple random sample.

B) a stratified sample.

C) a cluster sample.

D) a systematic sample.

Answer: B

Difficulty: Difficult

Keywords: stratified sample, probability sample, sampling method

188) Referring to Table 1-3, which of the following questions in the survey will **not** likely induce a measurement error?

- A) How many times have you illegally copied copyrighted sporting events?
- B) What is your exact annual income?
- C) How many times have you brought the Blu-ray player back for service?
- D) How many times have you failed to set the time on the Blu-ray player?

Answer: C

Difficulty: Difficult

Keywords: measurement error, survey worthiness

189) Referring to Table 1-3, if a customer survey questionnaire is included in all the Blu-ray players made and sold by the company over the past 12 months, this method of collecting data will most like suffer from

- A) nonresponse error.
- B) measurement error.
- C) coverage error.
- D) nonprobability sampling.

Answer: A

Difficulty: Difficult

Keywords: nonresponse error, survey worthiness