Test Bank for Applied Statistics in Business and Economics 7th Edition by Doane
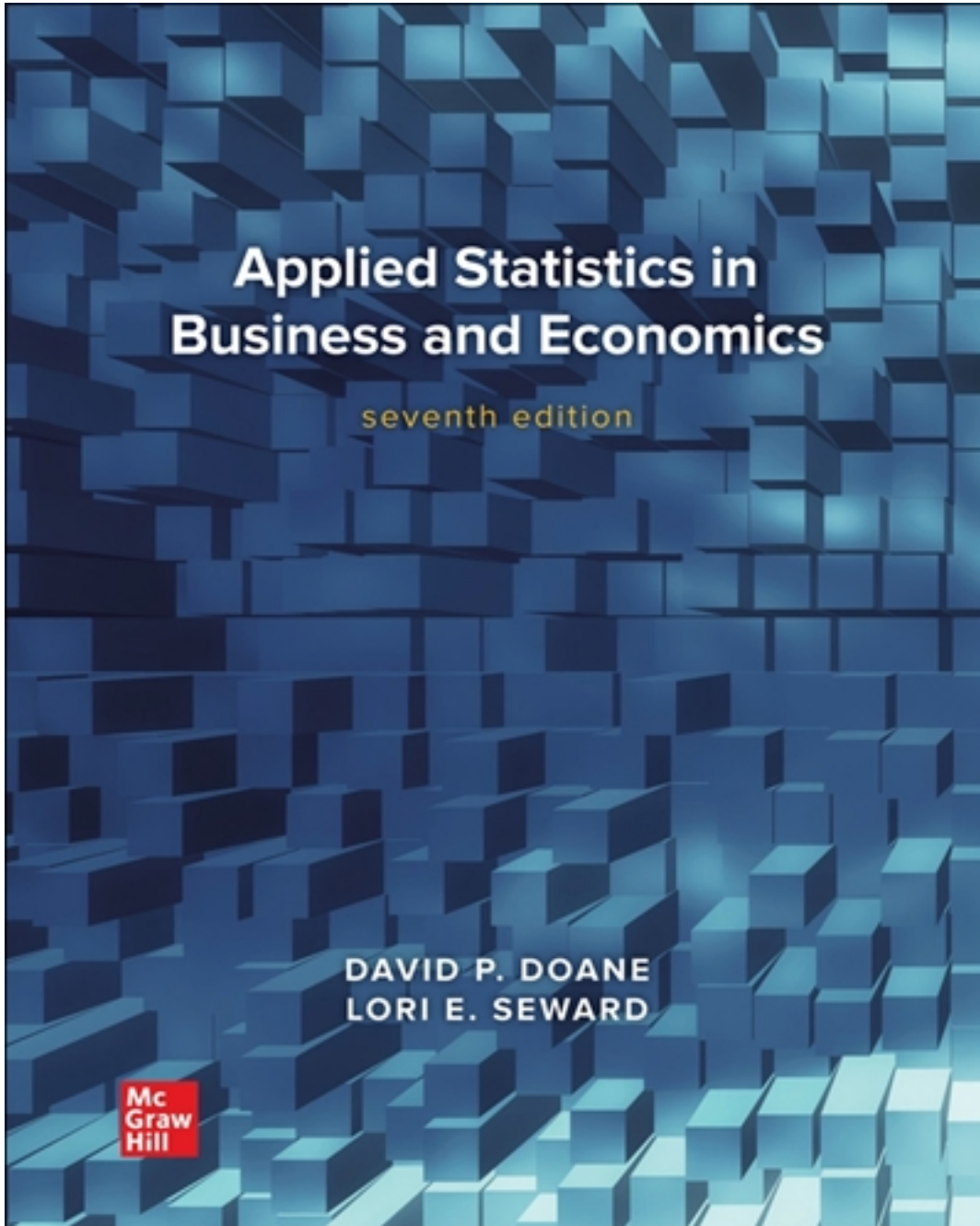
Test Bank

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CORRECT ANSWERS ARE LOCATED IN THE 2ND HALF OF THIS DOC.

TRUE/FALSE - Write 'T' if the statement is true and 'F' if the statement is false.

1) Categorical data have values that are described by words rather than numbers.
   - ⊙ true
   - ⊙ false

2) Numerical data can be either discrete or continuous.
   - ⊙ true
   - ⊙ false

3) Categorical data are also referred to as qualitative data.
   - ⊙ true
   - ⊙ false

4) The number of checks processed at a bank in a day is an example of categorical data.
   - ⊙ true
   - ⊙ false

5) The number of planes per day that land at an airport is an example of discrete data.
   - ⊙ true
   - ⊙ false

6) The weight of a bag of dog food is an example of discrete data.
   - ⊙ true
   - ⊙ false

7) In last year's annual report, Thompson Distributors indicated that it had 12 regional warehouses. This is an example of ordinal level data.
   - ⊙ true
   - ⊙ false

8) Nominal data refer to data that can be ordered in a natural way.
   - ⊙ true
   - ⊙ false

9) This year, Oxnard University produced two football All-Americans. This is an example of continuous data.
   - ⊙ true
   - ⊙ false

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10) The type of statistical test that we can perform is independent of the level of measurement of the variable of interest.

   ⊙ true
   ⊙ false

11) Your weight recorded at your annual physical would *not* be ratio data, because you cannot have zero weight.

   ⊙ true
   ⊙ false

12) The level of measurement for categorical data is nominal.

   ⊙ true
   ⊙ false

13) Temperature measured in degrees Fahrenheit is an example of interval data.

   ⊙ true
   ⊙ false

14) A Likert scale on a survey is often treated as interval data.

   ⊙ true
   ⊙ false

15) The closing price of a stock is an example of ratio data.

   ⊙ true
   ⊙ false

16) The *Statistical Abstract of the United States* is a huge annual compendium of data for the United States, and it is available free of charge.

   ⊙ true
   ⊙ false

17) Ordinal data can be treated as if it were nominal data but not vice versa.

   ⊙ true
   ⊙ false

18) Responses on a seven-point Likert scale are usually treated as ratio data.

   ⊙ true
   ⊙ false

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19) Likert scales are especially important in opinion polls and marketing surveys.
- ⊙ true
- ⊙ false

20) Ordinal data are data that can be ranked based on some natural characteristic of the items.
- ⊙ true
- ⊙ false

21) Ratio data have a zero reference point which distinguishes them from interval data.
- ⊙ true
- ⊙ false

22) It is better to attempt a census of a large population instead of relying on a sample.
- ⊙ true
- ⊙ false

23) Judgment sampling and convenience sampling are nonrandom sampling techniques.
- ⊙ true
- ⊙ false

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24) A problem with judgment sampling is that the sample may not reflect the population.
- ⊙ true
- ⊙ false

25) When the population is large, a sample is often preferable to a census.
- ⊙ true
- ⊙ false

26) Sampling error is avoidable by choosing the sample scientifically.
- ⊙ true
- ⊙ false

27) If we want to estimate the percentage of drivers under the age of 25 who own a vehicle then our target population should include drivers between the ages of 20–30.
- ⊙ true
- ⊙ false

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28) A sampling frame is the group from which the sample is drawn.
- ⊙ true
- ⊙ false

29) A parameter is a measure that describes a sample.
- ⊙ true
- ⊙ false

30) A statistic is a measure that summarizes a sample.
- ⊙ true
- ⊙ false

31) By taking a systematic sample, in which we select every 50th shopper arriving at a specific store, we are approximating a random sample of shoppers at that store.
- ⊙ true
- ⊙ false

32) A worker collecting data from every other shopper who leaves a store is taking a simple random sample of customer opinion.
- ⊙ true
- ⊙ false

33) Creating a list of people by taking the third name listed on every 10th page of the phone book is an example of convenience sampling.
- ⊙ true
- ⊙ false

34) Internet surveys posted on popular websites have no bias because anyone can reply.
- ⊙ true
- ⊙ false

35) Analysis of month-by-month changes in stock market prices during the most recent recession would require the use of time series data.
- ⊙ true
- ⊙ false

36) A cluster sample is a type of stratified sample that is based on geographical location.
- ⊙ true
- ⊙ false

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37) An advantage of a systematic sample is that no list of enumerated data items is required.
- ◉ true
- ◉ false

38) Telephone surveys often have a low response rate and fail to reach the desired population.
- ◉ true
- ◉ false

39) Mail surveys are attractive because of their high response rates.
- ◉ true
- ◉ false

40) A problem with convenience sampling is that the target population is not well-defined.
- ◉ true
- ◉ false

41) If you randomly sample 50 students about their favorite places to eat, the data collected would be referred to as cross-sectional data.
- ◉ true
- ◉ false

42) The number of FedEx shipping centers in each of 50 cities would be ordinal level data.
- ◉ true
- ◉ false

43) Internet surveys posted on popular websites suffer from nonresponse bias.
- ◉ true
- ◉ false

44) Different variables are usually shown as *columns* of a multivariate data set.
- ◉ true
- ◉ false

45) Each *row* in a multivariate data matrix is an observation (e.g., an individual response).
- ◉ true
- ◉ false

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46) A bivariate data set has only two observations on a variable.
- ⊙ true
- ⊙ false

47) Running times for 3,000 runners in a 5k race would be a multivariate data set.
- ⊙ true
- ⊙ false

48) Running times for 500 runners in a 5k race would be a univariate data set.
- ⊙ true
- ⊙ false

49) A list of the salaries, ages, and years of experience for 50 CEOs is a multivariate data set.
- ⊙ true
- ⊙ false

50) The daily closing price of Apple stock over the past month would be a time series.
- ⊙ true
- ⊙ false

51) The number of words on 50 randomly chosen textbook pages would be cross-sectional data.
- ⊙ true
- ⊙ false

52) A Likert scale with an even number of scale points between "Strongly Agree" and "Strongly Disagree" is intended to prevent "neutral" choices.
- ⊙ true
- ⊙ false

53) Private statistical databases (e.g., CRSP) are usually free.
- ⊙ true
- ⊙ false

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MULTIPLE CHOICE - Choose the one alternative that best completes the statement or answers the question.

54) An investment firm rates bonds for Aard Company Incorporated as "B+," while bonds of Deva Corporated are rated "AA." Which level of measurement would be appropriate for such data?
   A) nominal
   B) ordinal
   C) interval
   D) ratio

55) Which variable is *least* likely to be regarded as ratio data?
   A) length of time required for a randomly chosen vehicle to cross a toll bridge (minutes)
   B) weight of a randomly chosen student (pounds)
   C) number of fatalities in a randomly chosen traffic disaster (persons)
   D) student's evaluation of a professor's teaching (Likert scale)

56) Which type of data could be used to calculate an average?
   A) nominal
   B) ordinal
   C) interval
   D) none of these responses

57) Which of the following is numerical data?
   A) your gender
   B) the brand of cell phone you own
   C) whether you have an American Express card
   D) the fuel economy (MPG) of your car

58) Measurements from a sample are called
   A) statistics.
   B) inferences.
   C) parameters.
   D) variables.

59) Measurements summarizing a population are called
   A) statistics.
   B) inferences.
   C) parameters.
   D) variables.

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60) Quantitative variables use which two levels of measurement?
   A) ordinal and ratio
   B) interval and ordinal
   C) nominal and ordinal
   D) interval and ratio

61) Temperature in degrees Fahrenheit is an example of a(n) _____ variable.
   A) nominal
   B) ordinal

   C) interval
   D) ratio

62) Using a sample to make generalizations about an aspect of a population is called
   A) data mining.
   B) descriptive statistics.
   C) random sampling.
   D) statistical inference.

63) Your telephone area code is an example of a(n) _____ variable.
   A) nominal
   B) ordinal
   C) interval
   D) ratio

64) Which is *least* likely to be regarded as a ratio variable?
   A) a critic's rating of a restaurant on a 1 to 4 scale
   B) automobile exhaust emission of nitrogen dioxide (milligrams per mile)
   C) number of customer complaints per day at a cable TV company office
   D) cost of an eBay purchase

65) Automobile exhaust emission of CO_2 (milligrams per mile) is _____ data.
   A) nominal
   B) ordinal
   C) interval
   D) ratio

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66) Your rating of the food served at a local restaurant using a three-point scale of 0 = gross, 1 = decent, 2 = yummy is _____ data.
- A) nominal
- B) ordinal
- C) interval
- D) ratio

67) The number of passengers "bumped" on a particular airline flight is _____ data.
- A) nominal
- B) ordinal
- C) interval
- D) ratio

68) Which should *not* be regarded as a continuous random variable?
- A) tonnage carried by a randomly chosen oil tanker at sea
- B) wind velocity at 7 o'clock this morning
- C) number of personal fouls by the Miami Heat in a game
- D) length of time to play a Wimbledon tennis match

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69) Which of the following is *not* true?
- A) Categorical data have values that are described by words rather than numbers.
- B) Categorical data are also referred to as nominal or qualitative data.
- C) The number of checks processed at a bank in a day is categorical data.
- D) Numerical data can be either discrete or continuous.

70) Which of the following is true?
- A) The type of charge card used by a customer (Visa, MasterCard, AmEx) is ordinal data.
- B) The duration (minutes) of a flight from Boston to Minneapolis is ratio data.
- C) The number of Nobel Prize–winning faculty at Oxnard University is continuous data.
- D) The number of regional warehouses owned by Jankord Industries is ordinal data.

71) Which statement is *correct*?
- A) Judgment sampling is preferred to systematic sampling.
- B) Sampling without replacement introduces bias in our estimates of parameters.
- C) Cluster sampling is useful when strata characteristics are unknown.
- D) Focus groups usually work best without a moderator.

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72) A Likert scale
   A) yields interval data if scale distances are equal.
   B) must have an even number of scale points.
   C) must have a verbal label on each scale point.
   D) is rarely used in marketing surveys.

73) Which is most nearly correct regarding sampling error?
   A) It can be eliminated by increasing the sample size.
   B) It cannot be eliminated by any statistical sampling method.
   C) It can be eliminated by using Excel's =RANDBETWEEN() function.
   D) It can be eliminated by utilizing systematic random sampling.

74) The necessary sample size does *not* depend on
   A) the type of sampling method used.
   B) the inherent variability in the population.
   C) the desired precision of the estimate.
   D) the purpose of the study.

75) Which statement is *false*?
   A) Random dialing phone surveys have low response and are poorly targeted.
   B) Selection bias means that many respondents dislike the interviewer.
   C) Simple random sampling requires a list of the population.
   D) Web surveys are economical but suffer from nonresponse bias.

76) Judgment sampling is sometimes preferred over random sampling, for example, when
   A) the desired sample size is much larger than the population.
   B) the sampling budget is large and the population is conveniently located.
   C) time is short and the sampling budget is limited.
   D) the population is readily accessible and sampling is nondestructive.

77) An advantage of convenience samples is that
   A) the required sample size is easier to calculate.
   B) sampling error can be reduced.
   C) computation of statistics is easier.
   D) they are often quicker and cheaper.

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78) On randomly-chosen days and times of day, the Federal Aviation Administration records the peak noise from departing private business jets as measured by a ground-level observer at a point one mile from the end of the departure runway. The jet size (light, midsize, super-midsize, large) is noted. Average noise level is then calculated by aircraft size. This most nearly resembles which type of sample?
- A) biased sample
- B) simple random sample
- C) judgment sample
- D) stratified sample

79) Professor Hardtack chose a sample of 7 students from his statistics class of 35 students by picking every student who was wearing red that day. Which kind of sample is this?
- A) simple random sample
- B) judgment sample
- C) systematic sample
- D) convenience sample

80) Thirty work orders are selected from a filing cabinet containing 500 work order folders by choosing every 15th folder. Which sampling method is this?
- A) simple random sample
- B) systematic sample
- C) stratified sample
- D) cluster sample

81) Which of the following is *not* a likely reason for sampling?
- A) the destructive nature of certain tests
- B) the physical impossibility of checking all the items in the population
- C) prohibitive cost of studying the entire population
- D) the expense of obtaining tables of random numbers

82) Comparing a census of a large population to a sample drawn from it, we expect that the
- A) sample is usually a more practical method of obtaining the desired information.
- B) accuracy of the observations in the census is surely higher than in the sample.
- C) sample must be a large fraction of the population to be accurate.

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83) A stratified sample is sometimes recommended when
- A) the sample size is very large.
- B) the population is small compared to the sample.
- C) distinguishable strata can be identified in the populations.
- D) the population is spread out geographically.

84) A *random sample* is one in which the
- A) probability that an item is selected for the sample is the same for all population items.
- B) population items are selected haphazardly by experienced workers.
- C) items to be selected from the population are specified based on expert judgment.
- D) probability of selecting a population item depends on the item's data value.

85) An advantage of convenience samples over random samples is that
- A) they are easy to analyze.
- B) it is easier to determine the sample size needed.
- C) it is easier to calculate the sampling errors involved.
- D) data collection cost is reduced.

86) To measure satisfaction with its cell phone service, AT&T takes a stratified sample of its customers by age and location. Which is an advantage of this type of sampling, as opposed to other sampling methods?
- A) It is less intrusive on customers' privacy.
- B) It does not require random numbers.
- C) It gives faster results.
- D) It can give more accurate results.

87) A marketing professor wants to know how many MBA students would take a summer elective in international accounting and gives a survey to a marketing class she was teaching. Which kind of sample is this?
- A) simple random sample
- B) cluster sample
- C) systematic sample
- D) convenience sample

88) A binary variable (also called a dichotomous variable or dummy variable) has
- A) only two possible values.
- B) continuous scale values.
- C) rounded data values.
- D) ordinal or interval values.

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89) A population has groups that have a small amount of variation within them, but large variation among or between the groups themselves. The proper sampling technique is
- A) simple random.
- B) stratified.
- C) cluster.
- D) judgment.

90) A manager choses two people from a team of eight to give an oral presentation because she felt they were representative of the whole team's views. What sampling technique did she use in choosing these two people?
- A) convenience
- B) simple random
- C) judgment
- D) cluster

91) A marketing survey was sent to random samples of households in ten different neighborhoods near a new shopping mall. This is an example of
- A) convenience sampling
- B) simple random sampling
- C) judgment sampling
- D) cluster sampling

92) Sampling bias can best be reduced by
- A) using convenience sampling.
- B) having a computer tabulate the results.
- C) utilizing random sampling.
- D) taking a judgment sample.

93) A sampling technique used when groups are defined by their geographical location is
- A) cluster sampling.
- B) convenience sampling.
- C) judgment sampling.
- D) random sampling.

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94) If we choose 500 random numbers using Excel's function =RANDBETWEEN(1,99), we would *most likely* find that
   A) numbers near the mean (50) would tend to occur more frequently.
   B) numbers near 1 and 99 would tend to occur less frequently.
   C) some numbers would occur more than once.
   D) the numbers would have a clear pattern.

95) A problem with nonrandom sampling is that
   A) larger samples need to be taken to reduce the sampling error inherent in this approach.
   B) not every item in the population has the same chance of being selected, as it should.
   C) it is usually more expensive than random sampling.
   D) it generally provides lower response rates than random sampling.

96) From its 32 regions, the FAA selects six regions, and then randomly audits 25 departing commercial flights in each region for compliance with legal fuel and weight requirements. This is an example of
   A) simple random sampling.
   B) stratified random sampling.
   C) cluster sampling.
   D) judgment sampling.

97) Which of the following is a *correct* statement?
   A) Choosing the third person listed on every fifth page of the phone book is stratified sampling.
   B) An advantage of a systematic sample is that no list of enumerated data items is required.
   C) Convenience sampling is used to study shoppers in convenience stores.
   D) Judgment sampling is an example of true random sampling.

98) Which of the following is *false*?
   A) Sampling error is the difference between the true parameter and the sample estimate.
   B) Sampling error is a result of unavoidable random variation in a sample.
   C) A sampling frame is chosen from the target population in a statistical study.
   D) The target population must first be defined by a full list or data file of all individuals.

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99) When we are choosing a random sample and we do not place chosen units back into the population, we are
  - A) sampling with replacement.
  - B) sampling without replacement.
  - C) using a systematic sample.
  - D) using a voluntary sample.

100) Which method is likely to be used by a journalism student who is casually surveying opinions of students about the university's cafeteria food for an article that she is writing for publication tomorrow?
  - A) simple random sample
  - B) systematic random sample
  - C) cluster sample
  - D) convenience sample

101) Which of the following is *false*?
  - A) Mail surveys are cheap but have low response rates.
  - B) Coverage error is when respondents give untruthful answers.
  - C) Focus groups are nonrandom but can probe issues more deeply.
  - D) Surveys posted on popular websites suffer from selection bias.

102) Which is a time series variable?
  - A) VISA balances of 30 students on December 31 of this year
  - B) net earnings reported by Xena Corporation for the last 10 quarters
  - C) dollar exchange rates yesterday against 10 other world currencies
  - D) titles of the top 10 movies in total revenue last week

103) An *observation* in a data set would refer to
  - A) only a variable whose value is recorded by visual inspection.
  - B) a data item whose value is numerical (as opposed to categorical).
  - C) a single row that contains one or more observed variables.
  - D) the values of all the variables in the entire data set.

104) A *multivariate* data set contains
  - A) more than two observations.
  - B) more than two categorical variables.
  - C) more than two variables.
  - D) more than two levels of measurement.

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105) The Centers for Disease Control and Prevention (CDC) wants to estimate the average extra hospital stay that occurs when heart surgery patients experience postoperative atrial fibrillation. They divide the United States into nine regions. In each region, hospitals are selected at random within each hospital size group (small, medium, large). In each hospital, heart surgery patients are sampled according to known percentages by age group (under 50, 50 to 64, 65 and over) and gender (male, female). This procedure combines which sampling methods?

A) systematic, simple random, and convenience
B) convenience, systematic, and judgment
C) cluster, stratified, and simple random
D) judgment, systematic, and simple random

106) Which statement is correct?

A) Selecting every fifth shopper arriving at a store will approximate a random sample of shoppers.
B) Selecting only shoppers who drive SUVs is a stratified sampling method.
C) A census is preferable to a sample for most business problems.
D) Stratified samples are usually cheaper than other methods.

107) Which is a categorical variable? TBEXAM.COM

A) the brand of jeans you usually wear
B) the price you paid for your last pair of jeans
C) the distance to the store where you purchased your last pair of jeans
D) the number of pairs of jeans that you own

108) Which is a discrete variable?

A) the time it takes to put on a pair of jeans
B) the price you paid for your last pair of jeans
C) the distance to the store where you purchased your last pair of jeans
D) the number of pairs of jeans that you own

109) A section of the population we have targeted for analysis is

A) a statistic.
B) a frame.
C) a sample.
D) a coven.

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110) Which is *not* a time series variable?
   A) closing checkbook balances of 30 students on December 31 of this year
   B) net earnings reported by Xena Corporation for the last 10 quarters
   C) dollar/euro exchange rates at 12 noon GMT for the last 30 days
   D) movie attendance at a certain theater for each Saturday last year

111) A good Likert scale may *not* have
   A) unequal distances between scale points.
   B) an odd number of scale points.
   C) a verbal label on each scale point.
   D) verbal anchors at its end points.

112) A Likert scale with an odd number of scale points between "Strongly Agree" and "Strongly Disagree"
   A) cannot have equal scale distances.
   B) cannot have a neutral middle point.
   C) must have a verbal label on each scale point.
   D) is often used in marketing surveys.

113) A Likert scale with an even number of scale points between "Strongly Agree" and "Strongly Disagree"
   A) cannot have equal scale distances.
   B) is intended to prevent "neutral" choices.
   C) must have a verbal label on each scale point.
   D) is rarely used in surveys.

114) Which statement is correct?
   A) Analysts rarely consult business periodicals (e.g., *Bloomberg Businessweek*).
   B) Web searches (e.g., Google) often yield unverifiable data.
   C) Government data sources (e.g.,www.bls.gov) are often costly.
   D) Private statistical databases (e.g., CRSP) are usually free.

115) Which statement is correct?
   A) Analysts avoid business periodicals (e.g., Bloomberg Businessweek).
   B) Web searches (e.g., Google) yield reliable and easily verified data.
   C) Government data sources (e.g.,www.bls.gov) usually are free.
   D) Private statistical databases (e.g., CRSP) usually are free.

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116) A *valid* survey is one that
   A) measures what the researcher wants to measure.
   B) has been approved by top management.
   C) is administered by a professional statistician.
   D) has a large number of questions.

117) A *reliable* survey is one that
   A) is administered by mature employees.
   B) has been approved by quality engineers.
   C) gives consistent measurements.
   D) has many easy questions.

118) Because surveys are a measurement tool, they are often called
   A) indicators.
   B) gizmos.
   C) instruments.
   D) devices.

119) Which measurement exemplifies an interval scale but not a ratio scale?
   A) weight (kilogram) of a randomly-chosen laptop computer in an office
   B) earnings per share of a randomly-chosen S&P 500 stock
   C) maximum wind speed (miles per hour) of a randomly-chosen tropical storm
   D) size (megabytes) of a randomly-chosen Excel spreadsheet
   E) water temperature (F^o) at Miami Beach on a randomly-chosen day

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Answer Key

Test name: Chapter 02

1) TRUE
Categories are nominal data but may sometimes also imply ranking (e.g., sophomore, junior, senior).

2) TRUE
Numerical data can be counts (e.g., cars owned) or continuous measures (e.g., height).

3) TRUE
Categories are nonnumerical values, sometimes called qualitative data.

4) FALSE
Integers (counting something) are discrete numerical data.

5) TRUE
Integers (counting something) are discrete numerical data.

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6) FALSE
Weight is measured on a continuous scale (fractions are possible) .

7) FALSE
The number of warehouses would be numerical data with a true zero reference point.

8) FALSE
Nominal (categorical) data could be called ordinal data if codes connote a ranking of data values.

9) FALSE
The "number of" anything is discrete (no fractions allowed).

10) FALSE
The method of statistical inference depends on the type of data.

11) FALSE
Zero is only a reference point, not necessarily an observable data value.

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12) TRUE

Categorical and nominal are equivalent terms.

13) TRUE

For temperature, scale distances are meaningful (20 to 25 is the same as 50 to 55 degrees), and 0 degrees Fahrenheit does not mean the absence of heat, so it is not a ratio measurement.

14) TRUE

Likert scale data are often treated as interval data so that averages can be calculated.

15) TRUE

True zero exists as a reference point, whether or not it is observed.

16) FALSE

In 2012 the U.S. Census Bureau ceased publishing this free compendium of data, but you can buy it for $219 from a private publisher.

17) TRUE

You can always go back to a lower level of measurement (but not vice versa).

18) FALSE

No true zero point exists on a Likert scale.

19) TRUE

Likert scales are used in all kinds of surveys.

20) TRUE

For example, the eras Jurassic, Paleozoic, and Mesozoic can be ranked in time.

21) TRUE

The true zero is a reference that need not be observable.

22) FALSE

A census may cost too much money and/or take too much time, while samples can be quick and accurate.

23) TRUE

To be random, every item in the population must have the same chance of being chosen.

24) TRUE

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While better than mere convenience, judgment sampling may have bias.

25) TRUE

A census may flounder on cost and time, while samples can be quick and accurate.

26) FALSE

Sampling error is unavoidable, though it can be reduced by careful sampling.

27) FALSE

Our target population should be all drivers under the age of 25.

28) TRUE

The sampling frame could be different from the target population.

29) FALSE

Parameters describe populations not samples.

30) TRUE

A statistic measures a sample whereas a parameter measures a population.

31) TRUE

There is no bias if this method is implemented correctly.

32) FALSE

Not unless the target population is customers who shopped today (cf., all customers). Also, this is a *systematic* (not simple) random sample.

33) FALSE

This is two-stage cluster sampling combined with systematic sampling.

34) FALSE

Self-selection bias exists (respondents may be atypical).

35) TRUE

Data collected and recorded over time would be a time series.

36) TRUE

An example would be sampling voters randomly within random zip codes.

37) TRUE

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Systematic sampling works with a list (like random sampling) but also without one.

38) TRUE

Phone surveys are cheaper, but suffer from these weaknesses.

39) FALSE

Mail surveys have low response rates and invite self-selection bias.

40) TRUE

Convenience sampling is quick but not random, and the target population is unclear.

41) TRUE

Data for individuals would be a cross section (not a time series).

42) FALSE

The "number of" anything is ratio data because a true zero reference point exists.

43) TRUE

Nonresponse or self-selection bias is rampant in such surveys. Those who respond may be quite atypical.

44) TRUE

It is customary to use a *column* for each variable, while each row is an *observation*.

45) TRUE

It is customary to use a *column* for each variable, while each row is an *observation*.

46) FALSE

Bivariate refers to the number of *variables*, not the number of *observations*.

47) FALSE

Regardless of the number of *observations*, we have only one *variable* (running time).

48) TRUE

Regardless of the number of *observations*, we have only one *variable* (running time).

49) TRUE

We would have a data matrix with 50 rows and 3 columns.

50) TRUE

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Data collected over time is a time series.

51) TRUE

Data were not collected over time, so we have cross-sectional data.

52) TRUE

An even number of scale points (e.g., 4) forces the respondent to "lean" toward one end of the scale or the other.

53) FALSE

Private research databases generally require a subscription (often expensive).

54) B

Ranks are clear, but interval would require assumed equal scale distances (doubtful).

55) D

A Likert scale has no true zero. The other examples do.

56) C

Interval data can be used for calculating averages. Nominal and ordinal are not numerical so cannot be used for performing mathematical operations.

57) D

Fuel economy is numerical. The others are categorical.

58) A

A measurement calculated from a sample is a statistic.

59) C

A measurement that describes a population is a parameter.

60) D

Numerical (quantitative) data can be interval or ratio.

61) C

No true zero exists in temperature measurements except on the Kelvin scale.

62) D

Generalizing from a sample to a population is an inference.

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63) A

Area codes are not ranked, so they are merely nominal (i.e., categorical).

64) A

Ratings on a Likert scale have no meaningful zero.

65) D

Meaningful zero emissions are possible (e.g., electric car) so ratio.

66) B

Only rankings are implied (not equal scale distances). The zero in this example is merely a code, not a number.

67) D

A true zero point exists (no passengers might be bumped).

68) C

Counting things yields integer (discrete) data.

69) C

The "number of" anything is a discrete *numerical* variable.

70) B

A true zero exists as a reference point (even if not observed), so ratios have meaning.

71) C

Review the characteristics of each sampling method.

72) A

Marketers use Likert scales and try to make scales with meaningful intervals.

73) B

Sampling involves error, though it can be minimized by proper methodology.

74) A

Inherent variability, desired precision, and purpose of the study should all be considered when determining the necessary sample size.

75) B

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Selection bias occurs when respondents do not represent the target population.

76) C
Judgment sampling can save time and may be better than mere convenience.

77) D
Convenience samples are quick, although with a possible trade-off of accuracy.

78) D
B Jets within each size group are selected randomly, so this is a stratified sample.

79) D
It may be quick, but no judgment is involved and may not be representative of all students.

80) B
This is a systematic sample from an accessible but unlisted population.

81) D
It is easy to obtain random numbers (e.g., Excel's =RANDBETWEEN function).

82) A
Census is often impractical, while samples can be extremely accurate.

83) C
Identifiable strata such as gender, ethnicity, or region can be used.

84) A
Each item must have the same chance of being picked if the sample is random.

85) D
Convenience samples are often used because they are quick (but maybe not accurate).

86) D
Stratified sampling can yield more complete and helpful information.

87) D
Students in a marketing class may not be typical of all MBA students who would want to take an elective class in international accounting.

88) A

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Binary variables are used in every field of business to code qualitative (nominal) data when there are only two categories.

89) B
Identifiable strata call for stratified sampling if you can afford the extra time and cost.

90) C
Expert judgment may be better than just pointing a finger (we hope).

91) D
Cluster sampling typically uses geographic regions.

92) C
Sampling bias can be avoided by using random sampling and by defining the population frame carefully.

93) A
Strata based on location can be targeted through cluster sampling.

94) C
On average, we would expect each number to occur around five times.

95) B
Only random sampling gives every item the same chance to be picked.

96) C
Two-stage cluster sampling is being used (a special form of stratification).

97) B
If no list is available, then systematic sampling is an attractive option.

98) D
Defining a target population (e.g., female college graduates working in web design) does not presume the existence of a complete list.

99) B
Sampling without replacement prevents the same item from being chosen more than once.

100)   D

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Quick and easy may trump true random sampling for a busy journalist.

101) B

Coverage error is when you miss some segment of the target population.

102) B

If x_1, x_2, . . ., x_n do not refer to n time periods, it isn't a time series.

103) C

We usually put observations in *rows* on a spreadsheet, while each *column* is a variable.

104) C

When you have more than two variables, it is multivariate data.

105) C

Identifiable strata were sampled, but also random sampling within strata and regional clusters was used.

106) A

Done carefully, systematic sampling is close to random when there is no list.

107) A

Categories have only names (e.g., Calvin Klein).

108) D

The "number of" anything is discrete numerical data.

109) B

We must define the segment we want to look at (e.g., independent voters).

110) A

If x_1, x_2, . . ., x_n do not refer to n time periods, it is not a time series.

111) A

Surveys try to create scales with meaningful intervals.

112) D

Likert scales should have arguably equal intervals. A middle neutral response is possible with an odd number of scale points (e.g., 5 or 7).

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113) B

Likert scales should have arguably equal intervals. An even number of scale points (e.g., 4) forces the respondent to "lean" toward one end of the scale or the other.

114) B

Periodicals are often up-to-date and readily available data sources. Web data may be unreliable, and searches may be directed toward obtaining payment for data. Private research databases generally require a subscription, while government data sources generally are free.

115) C

Periodicals are often up-to-date and readily available data sources. Web data may be unreliable, and searches may be directed toward obtaining payment for data. Private research databases generally require a subscription, while government data sources generally are free.

116) A

There is no need for a large number of questions as long as the survey has been tested to be sure it measures what the researcher wants to know.

117) C

Over time and across groups of similar respondents, a reliable survey should give consistent results (within expected ranges of statistical variation).

118) C

Surveys are often called instruments.

119) E

All have a true zero reference point except water temperature. On the Fahrenheit scale, zero is an artifact of the scale, so ratios are not meaningful. For example, 75 degrees is not 25% warmer than 60 degrees.