**Business Statistics (Donnelly)**
**Chapter 1   An Introduction to Business Statistics**

1) Statistics is the mathematical science that deals with the collection, analysis, and presentation of data–data that can then be used as a basis for inference and induction.
Answer:  TRUE
Diff: 1
Keywords:  introduction to statistics
Objective: 1.1.1

2) Business statistics are statistics applied to the business world in an effort to improve people's decision making in fields such as marketing research, operations, finance, and advertising.
Answer:  TRUE
Diff: 1
Keywords:  introduction to statistics
Objective: 1.1.1

3) Information is the basic foundation for the field of statistics and can be defined as the value assigned to a specific observation or measurement.
Answer:  FALSE
Diff: 1
Keywords:  data
Objective: 1.2.1

4) One of the major reasons to use statistics is to transform data into information.
Answer:  TRUE
Diff: 1
Keywords:  introduction to statistics
Objective: 1.2.1

5) An employee records the number of customers that arrive at a retail store today. This is an example of collecting information.
Answer:  FALSE
Diff: 2
Keywords:  data
Objective: 1.2.1

6) Primary data is data collected by the person or organization that eventually uses the data.
Answer:  TRUE
Diff: 1
Keywords:  primary data
Objective: 1.2.1

7) Asking customers at the shopping mall about their voting intentions in the upcoming political election is an example of secondary data.
Answer: FALSE
Diff: 1
Keywords: primary data
Objective: 1.2.1

8) Analyzing unemployment data from the Bureau of Labor Statistics is an example of using secondary data.
Answer: TRUE
Diff: 1
Keywords: secondary data
Objective: 1.2.1

9) A hotel employee asks customers who are checking out to rate their satisfaction on a scale of 1-10. This is an example of collecting primary data.
Answer: TRUE
Diff: 1
Keywords: primary data
Objective: 1.2.1

10) Analyzing snowfall amounts in New York over the past 100 years to help predict future weather patterns is an example of using primary data.
Answer: FALSE
Diff: 1
Keywords: secondary data
Objective: 1.2.1

11) Bias can occur in a survey when a question is stated in a way that encourages or leads a respondent to a particular answer.
Answer: TRUE
Diff: 1
Keywords: survey, bias
Objective: 1.2.1

12) A restaurant manager randomly selects tables at which customers have just been seated and records the amount of time it takes for the wait staff to greet these customers. This is an example of an experiment being used to collect data.
Answer: FALSE
Diff: 1
Keywords: direct observation
Objective: 1.2.1

13) A marketing research employee randomly selects adults in a shopping mall and asks them what type of car that they drive. This is an example of using direct observation to collect data.
Answer: FALSE
Diff: 1
Keywords: surveys
Objective: 1.2.1

14) A manager of an electronics store would like to investigate the impact that price has on the demand for laptop computers. Each week, the price of a Dell laptop is adjusted and the demand for each week is recorded. This is an example of an experiment being used to collect data.
Answer: TRUE
Diff: 1
Keywords: experiments
Objective: 1.2.1

15) To help ensure good questionnaire design, it is recommended that a survey is tested on a small group of respondents before releasing it to the actual participants.
Answer: TRUE
Diff: 1
Keywords: surveys
Objective: 1.2.1

16) It is recommended that personal demographic questions be placed at the beginning of the questionnaire because respondents find these questions easy to answer.
Answer: FALSE
Diff: 2
Keywords: surveys
Objective: 1.2.1

17) Interval data deals strictly with qualitative data assigned to predetermined categories.
Answer: FALSE
Diff: 1
Keywords: nominal data
Objective: 1.2.1

18) Education level is an example of nominal data.
Answer: TRUE
Diff: 1
Keywords: nominal data
Objective: 1.2.1

19) Nominal data has all the features of interval data with the added benefit of having a true zero point.
Answer: FALSE
Diff: 1
Keywords: ratio data
Objective: 1.2.1

20) The interval measurement level is considered quantitative data.
Answer: TRUE
Diff: 1
Keywords: interval data
Objective: 1.2.1

21) The ratio measurement level is considered qualitative data.
Answer: FALSE
Diff: 1
Keywords: ratio data
Objective: 1.2.1

22) The number of pages in your business statistics textbook is an example of quantitative data.
Answer: TRUE
Diff: 1
Keywords: quantitative data
Objective: 1.2.1

23) Your cell phone number is an example of quantitative data.
Answer: FALSE
Diff: 2
Keywords: qualitative data
Objective: 1.2.1

24) A respondent to a survey indicates that she drives a Ford Taurus. This is an example of qualitative data.
Answer: TRUE
Diff: 1
Keywords: qualitative data
Objective: 1.2.1

25) A respondent to a survey indicates that he has lived in his current residence for three years. This is an example of qualitative data.
Answer: FALSE
Diff: 1
Keywords: qualitative data
Objective: 1.2.1

26) The mathematical operation of addition can be performed on nominal data.
Answer:  FALSE
Diff: 2
Keywords:  nominal data
Objective: 1.2.1

27) The mathematical operation of multiplication can be performed on interval data.
Answer:  FALSE
Diff: 2
Keywords:  interval data
Objective: 1.2.1

28) All mathematical operations can be performed on ratio data.
Answer:  TRUE
Diff: 2
Keywords:  ratio data
Objective: 1.2.1

29) The purpose of inferential statistics is to summarize or display data.
Answer:  FALSE
Diff: 1
Keywords:  descriptive statistics
Objective: 1.3.1

30) The purpose of inferential statistics is to make claims or conclusions about a population based on a sample.
Answer:  TRUE
Diff: 1
Keywords:  inferential statistics
Objective: 1.3.1

31) A limitation of descriptive statistics is that, by summarizing large quantities of data, you lose information.
Answer:  TRUE
Diff: 1
Keywords:  descriptive statistics
Objective: 1.3.1

32) Predicting election results by asking voters their intentions is an example of descriptive statistics.
Answer:  FALSE
Diff: 1
Keywords:  inferential statistics
Objective: 1.3.1

33) Deciding that a process that fills bottles with soda is functioning properly by checking the weights for a sample of bottles is an example of inferential statistics.
Answer: TRUE
Diff: 1
Keywords: inferential statistics
Objective: 1.3.1

34) Calculating the average time callers wait on the phone for technical support is an example of inferential statistics.
Answer: FALSE
Diff: 1
Keywords: descriptive statistics
Objective: 1.3.1

35) Determining the proportion of customers who have credit scores greater than 700 is an example of descriptive statistics.
Answer: TRUE
Diff: 1
Keywords: descriptive statistics
Objective: 1.3.1

36) An unbiased sample is a sample that does not represent the intended population and can lead to distorted findings. Unbiased sampling can occur either intentionally or unintentionally.
Answer: FALSE
Diff: 2
Keywords: biased sample
Objective: 1.4.1

37) Statistics can be misused by making differences seem greater or lesser by adjusting the scale on graphs.
Answer: TRUE
Diff: 1
Keywords: misusing statistics
Objective: 1.4.1

38) Collecting data about the number of television viewers for the Summer Olympics is an example of using statistics in the field of _____.
A) human resources
B) advertising
C) operations
D) finance
Answer: B
Diff: 1
Keywords: uses of business statistics
Objective: 1.1.1

39) Using income data to determine the credit worthiness of a consumer who wishes to purchase a new car is an example of using statistics in the field of _____.
A) marketing research
B) advertising
C) operations
D) finance
Answer:  D
Diff: 1
Keywords:  uses of business statistics
Objective: 1.1.1

40) Gathering information from potential customers in an effort to determine their preferences is an example of using statistics in the field of _____.
A) marketing research
B) advertising
C) operations
D) finance
Answer:  A
Diff: 1
Keywords:  uses of business statistics
Objective: 1.1.1

41) Using quality control techniques to test the salt content of pretzels before they are packaged for the consumer is an example of using statistics in the field of _____.
A) marketing research
B) advertising
C) operations
D) finance
Answer:  C
Diff: 1
Keywords:  uses of business statistics
Objective: 1.1.1

42) _____ is (are) derived from facts for the purpose of making decisions.
A) Data
B) Information
C) Statistics
D) Samples
Answer:  B
Diff: 1
Keywords:  uses of business statistics
Objective: 1.1.1

43) The main drawback to using secondary data is that _____.
A) it may be expensive to obtain the data
B) the subjects of interest need to be directly observed to collect the data
C) the subjects of interest are paid to provide the data
D) you have no control over how the data were collected
Answer: D
Diff: 1
Keywords: sources of data
Objective: 1.2.1

44) A method of gathering data when subjects are exposed to certain treatments and the data of interest is recorded is known as _____.
A) direct observation
B) focus groups
C) experiments
D) surveys
Answer: C
Diff: 1
Keywords: experiments
Objective: 1.2.1

45) A method of gathering data when people are asked a series of questions that can be administered by email, via the web, face-to-face or over the telephone, is known as _____.
A) direct observation
B) focus groups
C) experiments
D) surveys
Answer: D
Diff: 1
Keywords: surveys
Objective: 1.2.1

46) A method of gathering data while the subjects of interest are in their natural environment, often unaware they are being watched, is known as _____.
A) direct observation
B) focus groups
C) experiments
D) surveys
Answer: A
Diff: 1
Keywords: direct observation
Objective: 1.2.1

47) A method of gathering data when individuals are paid to discuss their attitudes towards products or services in a group setting controlled by a moderator is known as _____.
A) direct observation
B) focus groups
C) experiments
D) surveys
Answer:  B
Diff: 1
Keywords:  focus groups
Objective: 1.2.1

48) A telemarketer calls individuals at home over the phone and ask them the likelihood that they will purchase a timeshare property over the next 12 months. This method of gathering data is known as _____.
A) direct observation
B) focus groups
C) experiments
D) surveys
Answer:  D
Diff: 1
Keywords:  surveys
Objective: 1.2.1

49) A Bank of America employee records the amount of time that customers spend using the ATM machine at her branch. This method of gathering data is known as _____.
A) direct observation
B) focus groups
C) experiments
D) surveys
Answer:  A
Diff: 1
Keywords:  direct observation
Objective: 1.2.1

50) The manager at the local Ruby Tuesday's restaurant wanted to investigate the effect of music on the average revenue per customer. Each night for one month, fast-paced music was played. The following month, slow-paced music was played every night. The average revenue per customer for each month was compared. This method of gathering data is known as _____.
A) direct observation
B) focus groups
C) experiments
D) surveys
Answer:  C
Diff: 1
Keywords:  experiments
Objective: 1.2.1

51) A marketing manager for a textbook publisher meets with a group of several students who are paid to discuss what they like and dislike about their textbooks. This method of gathering data is known as _____.
A) direct observation
B) focus groups
C) experiments
D) surveys
Answer: B
Diff: 1
Keywords: focus groups
Objective: 1.2.1

52) _____ data use numerical values to describe something of interest either by measuring it or counting it.
A) Primary
B) Secondary
C) Quantitative
D) Qualitative
Answer: C
Diff: 1
Keywords: quantitative data
Objective: 1.2.1

53) _____ data use descriptive terms to measure or classify something of interest.
A) Primary
B) Secondary
C) Quantitative
D) Qualitative
Answer: D
Diff: 1
Keywords: qualitative data
Objective: 1.2.1

54) Which of the following is an example of quantitative data?
A) the zip code of your home address
B) Apple's closing stock price today
C) your gender
D) your telephone number
Answer: B
Diff: 1
Keywords: qualitative data
Objective: 1.2.1

55) Which of the following is an example of qualitative data?
A) today's high temperature
B) the class average of your last statistics exam
C) the amount of time that you studied for your last statistics exam
D) your last name
Answer:  D
Diff: 1
Keywords:  quantitative data
Objective: 1.2.1

56) Which levels of measurement are considered quantitative data?
A) interval and ratio
B) nominal and interval
C) nominal and ratio
D) nominal and ordinal
Answer:  A
Diff: 1
Keywords:  quantitative data
Objective: 1.2.1

57) Which levels of measurement are considered qualitative data?
A) interval and ratio
B) nominal and interval
C) ordinal and ratio
D) nominal and ordinal
Answer:  D
Diff: 1
Keywords:  qualitative data
Objective: 1.2.1

58) The number of iPhones sold today at an Apple store is an example of _____ data.
A) nominal
B) ordinal
C) interval
D) ratio
Answer:  D
Diff: 1
Keywords:  ratio data
Objective: 1.2.1

59) A respondent of a survey indicates that he is a resident in the state of Ohio. This is an example of _____ data.
A) nominal
B) ordinal
C) interval
D) ratio
Answer:  A
Diff: 1
Keywords:  nominal data
Objective: 1.2.1

60) The Graduate Management Admission Test (GMAT) is a standardized test used by schools to determine the aptitude of individuals who are applying for MBA programs. The range of the GMAT score is 200-800. Brian has recently taken the exam and scored 720. This is an example of _____ data.
A) nominal
B) ordinal
C) interval
D) ratio
Answer:  C
Diff: 1
Keywords:  interval data
Objective: 1.2.1

61) In a Major League Baseball game today, the Philadelphia Phillies scored six runs against the New York Mets. This is an example of _____ data.
A) nominal
B) ordinal
C) interval
D) ratio
Answer:  D
Diff: 1
Keywords:  ratio data
Objective: 1.2.1

62) A respondent of a survey indicates that she is currently in her junior year at the University of Texas. This is an example of _____ data.
A) nominal
B) ordinal
C) interval
D) ratio
Answer:  B
Diff: 1
Keywords:  ordinal data
Objective: 1.2.1

63) A car dealership performs a credit check on a potential customer. According to the credit
bureau, the customer's credit score is 710. This is an example of _____ data.
A) nominal
B) ordinal
C) interval
D) ratio
Answer:  C
Diff: 1
Keywords:  interval data
Objective: 1.2.1

64) A respondent of a survey indicates that he owns the home that he currently resides. This is an
example of _____ data.
A) nominal
B) ordinal
C) interval
D) ratio
Answer:  A
Diff: 1
Keywords:  nominal data
Objective: 1.2.1

65) A respondent of a survey is asked whether their most recent dining experience was excellent,
good, fair, or poor. The person indicates that the experience was "good". This is an example of
_____ data.
A) nominal
B) ordinal
C) interval
D) ratio
Answer:  B
Diff: 1
Keywords:  ordinal data
Objective: 1.2.1

66) A property of _____ data is that the differences between categories are not meaningful
and, therefore, cannot be measured.
A) cross-sectional
B) ordinal
C) interval
D) ratio
Answer:  B
Diff: 1
Keywords:  ordinal data
Objective: 1.2.1

67) _____ data has the benefit of a true zero point.
A) Nominal
B) Ordinal
C) Interval
D) Ratio
Answer: D
Diff: 1
Keywords: ratio data
Objective: 1.2.1

68) _____data are values that correspond to specific measurements taken over a range of time periods.
A) Cross-sectional
B) Ordinal
C) Time series
D) Ratio
Answer: C
Diff: 1
Keywords: time series data
Objective: 1.2.1

69) _____ data are values collected from a number of subjects (firms, individual, states, regions, and so forth) during a single time period.
A) Cross-sectional
B) Ordinal
C) Time series
D) Ratio
Answer: A
Diff: 1
Keywords: cross-sectional data
Objective: 1.2.1

70) The following table shows the number of bagels sold at the Avalon Coffee and Bagel over the past seven days.

| Day | Number Sold |
|-----|-------------|
| Monday | 69 |
| Tuesday | 63 |
| Wednesday | 88 |
| Thursday | 74 |
| Friday | 120 |
| Saturday | 197 |
| Sunday | 226 |

Which of the following data types best describe these values?
A) cross-sectional
B) nominal
C) time series
D) ordinal
Answer:  C
Diff: 1
Keywords:  time series data
Objective: 1.2.1

71) The following table shows the stock price for Facebook at the end of the past four quarters.

| Quarter | Year | Stock Price |
|---------|------|-------------|
| 2 | 2018 | $174.29 |
| 3 | 2018 | $180.27 |
| 4 | 2018 | $152.52 |
| 1 | 2019 | $152.48 |

Which of the following data types best describe these values?
A) cross-sectional
B) nominal
C) time series
D) ordinal
Answer:  C
Diff: 1
Keywords:  time series data
Objective: 1.EOC.2

72) The following table shows the market share for LCD television sales in 2017.

| Company | Market Share |
|---|---|
| Samsung | 20.2% |
| TCL | 12.1% |
| Sony | 10.9% |
| Hisense | 6.0% |
| Sony | 5.6% |
| Sharp | 4.2% |
| Other | 41.0% |

Which of the following data types best describe these values?
A) cross-sectional
B) nominal
C) time series
D) ordinal
Answer:  A
Diff: 1
Keywords:  cross-sectional data
Objective: 1.EOC.2

73) The results from a survey that collected annual household income is shown in the following table.

| Household Income ($000) | Number of Households |
|---|---|
| Under $30 | 67 |
| $30 to under $40 | 111 |
| $40 to under $50 | 125 |
| $50 to under $60 | 21 |
| $60 to under $70 | 38 |
| Over $70 | 40 |

Which of the following data types best describe these values?
A) cross-sectional
B) nominal
C) time series
D) ordinal
Answer:  A
Diff: 1
Keywords:  cross-sectional data
Objective: 1.2.1

74) Your business statistics class had an exam last week. The average exam score for the class is an example of _____.
A) secondary data
B) qualitative data
C) descriptive statistics
D) inferential statistics
Answer:  C
Diff: 1
Keywords:  descriptive statistics
Objective: 1.3.1

75) The proportion of customers that rate their latest airline experience as "excellent" is an example of _____.
A) secondary data
B) qualitative data
C) descriptive statistics
D) inferential statistics
Answer:  C
Diff: 1
Keywords:  descriptive statistics
Objective: 1.3.1

76) General Mills is considering offering a new type of yogurt. To gauge interest, they are performing taste tests at different locations around the country. Based on the results of these samples, they will decide whether or not to market the new yogurt. This is an example of using _____.
A) secondary data
B) qualitative data
C) descriptive statistics
D) inferential statistics
Answer:  D
Diff: 1
Keywords:  inferential statistics
Objective: 1.3.1

77) Bridgestone would like to estimate the average tread life of a particular brand of automobile tire. Fifty customers who have purchased this tire are sampled and asked about the tread life of their tires. This is an example of using _____.
A) secondary data
B) qualitative data
C) descriptive statistics
D) inferential statistics
Answer:  D
Diff: 1
Keywords:  inferential statistics
Objective: 1.3.1

78) Holiday Inn would like to estimate the satisfaction level of its customers. A sample of 25 hotels were selected and the customers at these locations were asked to rate their experience on a scale of 1-10. Based on this sample data, Holiday Inn will draw a conclusion about the satisfaction level of their customers. This is an example of using _____.
A) secondary data
B) qualitative data
C) descriptive statistics
D) inferential statistics
Answer:  D
Diff: 1
Keywords:  inferential statistics
Objective: 1.3.1

79) According to climate data recorded since 1884, the average annual snowfall in Philadelphia is 14 inches. This value is an example of _____.
A) biased data
B) qualitative data
C) descriptive statistics
D) inferential statistics
Answer:  C
Diff: 1
Keywords:  descriptive statistics
Objective: 1.3.1

80) A _____ represents all possible subjects of interest.
A) sample
B) population
C) statistic
D) parameter
Answer:  B
Diff: 1
Keywords:  population
Objective: 1.3.1

81) A _____ is a portion of a population that is representative of the population from which it is selected.
A) sample
B) survey
C) statistic
D) parameter
Answer:  A
Diff: 1
Keywords:  sample
Objective: 1.3.1

82) Data that describe a characteristic about a population is known as a _____ .
A) sample
B) survey
C) statistic
D) parameter
Answer: D
Diff: 1
Keywords: parameter
Objective: 1.3.1

83) Data that describe a characteristic about a sample is known as a _____ .
A) population
B) survey
C) statistic
D) parameter
Answer: C
Diff: 1
Keywords: statistic
Objective: 1.EOC.3

84) A _____ sample does not represent the intended population and can lead to distorted findings.
A) random
B) probability
C) biased
D) stratified
Answer: C
Diff: 1
Keywords: biased sample
Objective: 1.4.1

85) A company believes that travel agent A is more reliable than travel agent B. That belief is expressed on a scale from 1 to 5. Identify the type of data.
A) qualitative
B) quantitative
C) identifier
D) secondary
Answer: A
Diff: 2
Keywords: type of data
Objective: 1.EOC.1

86) A company believes that travel agent A is more reliable than travel agent B. That belief is expressed on a scale from 1 to 5. Identify the measurement level of data.
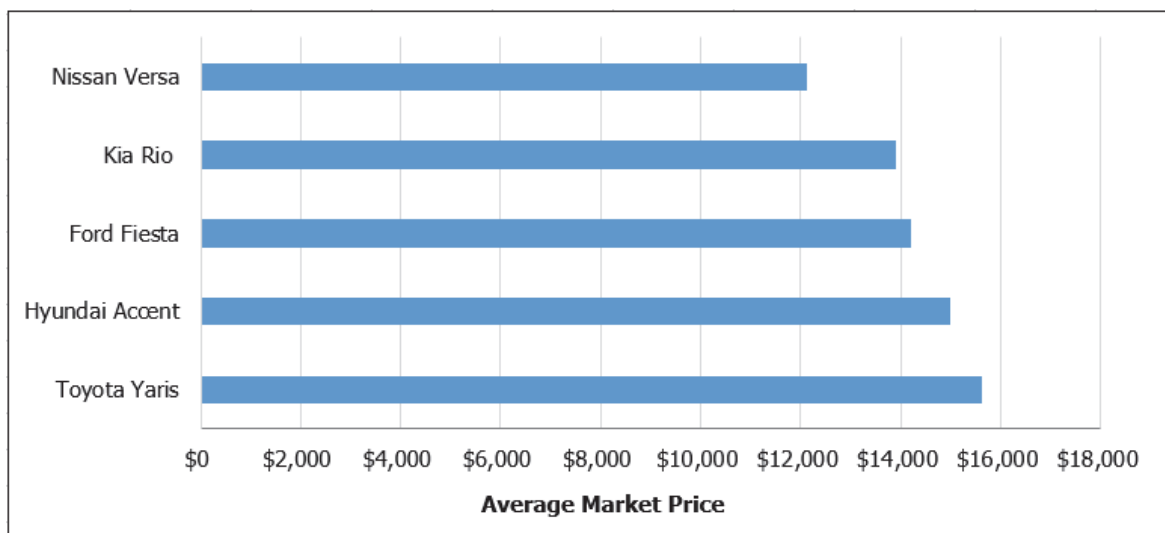A) nominal
B) ordinal
C) ratio
D) interval
Answer:  B
Diff: 2
Keywords:  measurement level of data
Objective: 1.EOC.1

87) The following chart shows the average market price for five brands of cars in April 2019.



Identify the type of data for the brands of cars:
A) quantitative
B) qualitative
C) identifier
D) secondary
Answer:  B
Diff: 2
Keywords:  type of data
Objective: 1.EOC.1

88) The following table shows the customers that visited a convenience store over the past seven days.

| Day | Number of Customers |
|-----|---------------------|
| Monday | 262 |
| Tuesday | 360 |
| Wednesday | 234 |
| Thursday | 321 |
| Friday | 432 |
| Saturday | 543 |
| Sunday | 342 |

Which of the following data types best describe these values?
A) cross-sectional
B) nominal
C) ordinal
D) time series
Answer:  D
Diff: 1
Keywords:  time series data
Objective: 1.EOC.2

89) CS&S company calculates the average payment of monthly phone bills for customers. This is an example of:
A) descriptive statistics
B) inferential statistics
C) predictive statistics
D) nominal data
Answer:  A
Diff: 1
Keywords:  descriptive statistics
Objective: 1.EOC.3

90) Predicting election results for the state by asking a random sample of voters from the state is an example of:
A) descriptive statistics
B) inferential statistics
C) predictive statistics
D) nominal data
Answer:  B
Diff: 1
Keywords:  inferential statistics
Objective: 1.EOC.3