#### CHAPTER 1

# INTRODUCTION TO STATISTICS

## CHAPTER LEARNING OBJECTIVES

1. ***Define important statistical terms, including population, sample, and parameter, as they relate to descriptive and inferential statistics.*** The study of statistics can be subdivided into two main areas: *descriptive statistics* and *inferential statistics.* Descriptive statistics result from gathering data from a body, group, or population and reaching conclusions only about that group. Inferential statistics are generated from the process of gathering sample data from a group, body, or population and reaching conclusions about the larger group from which the sample was drawn.

2. ***Explain the difference between variables, measurement, and data, and compare the four different levels of data: nominal, ordinal, interval, and ratio.*** Most business statistics studies contain *variables*, measurements, and data. A variable is a characteristic of any entity being studied that is capable of taking on different values. Examples of variables might include monthly household food spending, time between arrivals at a restaurant, and patient satisfaction rating. A *measurement* is when a standard process is used to assign numbers to particular attributes or characteristics of a variable. Measurements of monthly household food spending might be taken in dollars, time between arrivals might be measured in minutes, and patient satisfaction might be measured using a 5-point scale. *Data* are recorded measurements. It is data that are analyzed by business statisticians in order to learn more about the variables being studied. Two major types of inferential statistics are (1) *parametric statistics* and (2) *nonparametric statistics.* Use of parametric statistics requires interval or ratio data and certain assumptions about the distribution of the data. The techniques presented in this text are largely parametric. If data are only nominal or ordinal in level, nonparametric statistics must be used. The appropriate type of statistical analysis depends on the level of data measurement, which can be (1) *nominal,* (2) *ordinal,* (3) *interval,* or (4) *ratio.* Nominal is the lowest level, representing the classification of only data such as geographic location, sex, or social insurance number. The next level is ordinal, which provides rank ordering measurements in which the intervals between consecutive numbers do not necessarily represent equal distances. Interval is the next to highest level of data measurement, in which the distances represented by consecutive numbers are equal. The highest level of data measurement is ratio, which has all the qualities of interval measurement, but ratio data contain an absolute zero and ratios between numbers are meaningful. Interval and ratio data are sometimes called *metric* or *quantitative* data. Nominal and ordinal data are sometimes called *nonmetric* or *qualitative* data.

***3. Explain the differences between the four dimensions of big data.*** The data that is available to decision makers is exponentially growing, as are the sources for that data. This growth has resulted in a new set of data called ‘big data’. Big data is defined as *a collection of large and complex datasets from different sources that are difficult to process using traditional data management and processing applications.* There are four key characteristics associated with big data and they are: variety, velocity, veracity and volume. Each of these characteristics are discussed in the text.

The computer allows for the storage, retrieval, and transfer of large data sets. Furthermore, computer soft ware has been developed to analyze data by means of sophisticated statistical techniques. Business statisticians use many popular statistical soft ware packages, including Minitab, SAS, and SPSS. In this text, the computer statistical output presented is from the Microsoft Excel software, which in spite of its limitations, is the most commonly used package in the business environment.

***4. Compare and contrast the three categories of business analytics.*** There are three main categories of business analytics, or *the application of processes and techniques that transform raw data into meaningful information to improve decision making.* The three categories are descriptive analytics, predictive analytics and prescriptive analytics. Descriptive analytics describe what has or is happening relative to the data collected. On the other hand, predictive analytics which look to find relationships in the data. Tools in this category include regression analysis, time-series and forecasting; all of which are designed to allow management to estimate what might happen based on a given set of criteria or circumstance. The last category is prescriptive analytics which take risk into account when analyzing data and making decisions based on that data. Examples of where prescriptive analytics may be used include performance management or network analysis.

***5. Describe the data mining and data visualization processes***. Data mining is *the process of collecting, exploring and analyzing large volumes of data in an effort to uncover hidden patterns and/or relationships that can be used to enhance business decision-making*. Data mining allows businesses to take large amounts of data, pull out what they need to facilitate decision making. Data visualization is *the study of visual representation of data and is employed to convey data or information by imparting it as visual objects displayed in graphics*. By presenting the information or data visually can make the data and data results more understandable and thereby more useable.

## TRUE-FALSE STATEMENTS

1. Virtually all areas of business use statistics in decision making.

Answer: True

Difficulty: Easy

Learning Objective: Define important statistical terms, including population, sample, and parameter, as they relate to descriptive and inferential statistics.

Section Reference: 1.1 Basic Statistical Concepts

Blooms: Knowledge

AACSB: Analytic

2. The complete collection of all entities under study is called the sample.

Answer: False

Difficulty: Easy

Learning Objective: Define important statistical terms, including population, sample, and parameter, as they relate to descriptive and inferential statistics.

Section Reference: 1.1 Basic Statistical Concepts

Blooms: Knowledge

AACSB: Analytic

3. A portion or subset of the entities under study is called the statistic.

Answer: False

Difficulty: Easy

Learning Objective: Define important statistical terms, including population, sample, and parameter, as they relate to descriptive and inferential statistics.

Section Reference: 1.1 Basic Statistical Concepts

Blooms: Knowledge

AACSB: Analytic

4. A descriptive measure of the population is called a parameter.

Answer: True

Difficulty: Easy

Learning Objective: Define important statistical terms, including population, sample, and parameter, as they relate to descriptive and inferential statistics.

Section Reference: 1.1 Basic Statistical Concepts

Blooms: Knowledge

AACSB: Analytic

5. A census is the process of gathering data on all the entities in the population.

Answer: True

Difficulty: Easy

Learning Objective: Define important statistical terms, including population, sample, and parameter, as they relate to descriptive and inferential statistics.

Section Reference: 1.1 Basic Statistical Concepts

Blooms: Knowledge

AACSB: Analytic

6. Statistics is commonly divided into two branches called descriptive statistics and summary statistics.

Answer: False

Difficulty: Easy

Learning Objective: Define important statistical terms, including population, sample, and parameter, as they relate to descriptive and inferential statistics.

Section Reference: 1.1 Basic Statistical Concepts

Blooms: Knowledge

AACSB: Analytic

7. Statistics is commonly divided into two branches called descriptive statistics and inferential statistics.

Answer: True

Difficulty: Easy

Learning Objective: Define important statistical terms, including population, sample, and parameter, as they relate to descriptive and inferential statistics.

Section Reference: 1.1 Basic Statistical Concepts

Blooms: Knowledge

AACSB: Analytic

8. A descriptive measure of the sample is called a statistic.

Answer: True

Difficulty: Easy

Learning Objective: Define important statistical terms, including population, sample, and parameter, as they relate to descriptive and inferential statistics.

Section Reference: 1.1 Basic Statistical Concepts

Blooms: Knowledge

AACSB: Analytic

9. Gathering data from a sample to reach conclusions about the population from which the sample was drawn is called descriptive statistics.

Answer: False

Difficulty: Medium

Learning Objective: Define important statistical terms, including population, sample, and parameter, as they relate to descriptive and inferential statistics.

Section Reference: 1.1 Basic Statistical Concepts

Blooms: Knowledge

AACSB: Analytic

10. Gathering data from a sample to reach conclusions about the population from which the sample was drawn is called inferential statistics.

Answer: True

Difficulty: Medium

Learning Objective: Define important statistical terms, including population, sample, and parameter, as they relate to descriptive and inferential statistics.

Section Reference: 1.1 Basic Statistical Concepts

Blooms: Knowledge

AACSB: Analytic

11. The basis for inferential statistics is the ability to make decisions about population parameters without having to complete a census of the population.

Answer: True

Difficulty: Easy

Learning Objective: Define important statistical terms, including population, sample, and parameter, as they relate to descriptive and inferential statistics.

Section Reference: 1.1 Basic Statistical Concepts

Blooms: Knowledge

AACSB: Analytic

12. All numerical data must be analyzed statistically in the same way because all of them are represented by numbers.

Answer: False

Difficulty: Hard

Learning Objective: Explain the difference between variables, measurement, and data, and compare the four different levels of data: nominal, ordinal, interval, and ratio.

Section Reference: 1.2 Variables, Data and Data Measurement

Blooms: Knowledge

AACSB: Analytic

13. The manner in which numerical data can be analyzed statistically depends on the level of data measurement represented by numbers being analyzed.

Answer: True

Difficulty: Hard

Learning Objective: Explain the difference between variables, measurement, and data, and compare the four different levels of data: nominal, ordinal, interval, and ratio.

Section Reference: 1.2 Variables, Data and Data Measurement

Blooms: Knowledge

AACSB: Analytic

14. The lowest level of data measurement is the ratio-level.

Answer: False

Difficulty: Easy

Learning Objective: Explain the difference between variables, measurement, and data, and compare the four different levels of data: nominal, ordinal, interval, and ratio.

Section Reference: 1.2 Variables, Data and Data Measurement

Blooms: Knowledge

AACSB: Analytic

15. The highest level of data measurement is the ratio-level.

Answer: True

Difficulty: Easy

Learning Objective: Explain the difference between variables, measurement, and data, and compare the four different levels of data: nominal, ordinal, interval, and ratio.

Section Reference: 1.2 Variables, Data and Data Measurement

Blooms: Knowledge

AACSB: Analytic

16. Numbers which are used to classify or categorize the observations represent data measured at the nominal level.

Answer: True

Difficulty: Medium

Learning Objective: Explain the difference between variables, measurement, and data, and compare the four different levels of data: nominal, ordinal, interval, and ratio.

Section Reference: 1.2 Variables, Data and Data Measurement

Blooms: Knowledge

AACSB: Analytic

17. Numbers which are used to rank-order the performance of workers represent data measured at the interval level.

Answer: False

Difficulty: Medium

Learning Objective: Explain the difference between variables, measurement, and data, and compare the four different levels of data: nominal, ordinal, interval, and ratio.

Section Reference: 1.2 Variables, Data and Data Measurement

Blooms: Knowledge

AACSB: Analytic

18. Nominal and ordinal data are sometimes referred to as qualitative data.

Answer: True

Difficulty: Easy

Learning Objective: Explain the difference between variables, measurement, and data, and compare the four different levels of data: nominal, ordinal, interval, and ratio.

Section Reference: 1.2 Variables, Data and Data Measurement

Blooms: Knowledge

AACSB: Analytic

19. Nominal and ordinal data are sometimes referred to as quantitative data.

Answer: False

Difficulty: Easy

Learning Objective: Explain the difference between variables, measurement, and data, and compare the four different levels of data: nominal, ordinal, interval, and ratio.

Section Reference: 1.2 Variables, Data and Data Measurement

Blooms: Knowledge

AACSB: Analytic

20. With interval-level data, the zero point is a matter of convention and does *not* mean the absence of the phenomenon under observation.

Answer: True

Difficulty: Hard

Learning Objective: Explain the difference between variables, measurement, and data, and compare the four different levels of data: nominal, ordinal, interval, and ratio.

Section Reference: 1.2 Variables, Data and Data Measurement

Blooms: Knowledge

AACSB: Analytic

21. Interval- and ratio-level data are sometimes referred to as quantitative data.

Answer: True

Difficulty: Hard

Learning Objective: Explain the difference between variables, measurement, and data, and compare the four different levels of data: nominal, ordinal, interval, and ratio.

Section Reference: 1.2 Variables, Data and Data Measurement

Blooms: Knowledge

AACSB: Analytic

22. Parametric statistics require that all data used be either interval or nominal.

Answer: False

Difficulty: Hard

Learning Objective: Explain the difference between variables, measurement, and data, and compare the four different levels of data: nominal, ordinal, interval, and ratio.

Section Reference: 1.2 Variables, Data and Data Measurement

Blooms: Knowledge

AACSB: Analytic

23. Big data refers to a standard set of variables collected from customers, suppliers, and staff.

Ans: False

Difficulty: Easy

Learning Objective: Explain the differences between the four dimensions of big data.

Section Reference: 1.3 Big Data

Blooms: Knowledge

AACSB: Analytic

24. If big data has variety, then it can be said that the data are from several different sources such as videos, retail scanners, and the internet.

Ans: True

Difficulty: Easy

Learning Objective: Explain the differences between the four dimensions of big data.

Section Reference: 1.3 Big Data

Blooms: Knowledge

AACSB: Analytic

25. Velocity refers to the speed with which data are available to the business for analysis.

Ans: True

Difficulty: Easy

Learning Objective: Explain the differences between the four dimensions of big data.

Section Reference: 1.3 Big Data

Blooms: Knowledge

AACSB: Analytic

26. The accuracy, quality and correctness of data is referred to as veracity.

Ans: True

Difficulty: Easy

Learning Objective: Explain the differences between the four dimensions of big data.

Section Reference: 1.3 Big Data

Blooms: Knowledge

AACSB: Analytic

27. The term “garbage in, garbage out” refers to the volume of the data used by a business.

Ans: False

Difficulty: Easy

Learning Objective: Explain the differences between the four dimensions of big data.

Section Reference: 1.3 Big Data

Blooms: Knowledge

AACSB: Analytic

28. Big data can include unstructured data such as writings and photographs.

Ans: True

Difficulty: Easy

Learning Objective: Explain the differences between the four dimensions of big data.

Section Reference: 1.3 Big Data

Blooms: Knowledge

AACSB: Analytic

29. Big data should encompass all four characteristics of variety, velocity, virtuous, and volume.

Ans: False

Difficulty: Easy

Learning Objective: Explain the differences between the four dimensions of big data.

Section Reference: 1.3 Big Data

Blooms: Knowledge

AACSB: Analytic

30. Descriptive statistics focuses on what has happened or is happening within the business.

Ans: True

Difficulty: Easy

Learning Objective: Compare and contrast the three categories of business analytics.

Section Reference: 1.4 Business Analytics

Blooms: Knowledge

AACSB: Analytic

31. Prescriptive analytics is the second step in big data analysis, following descriptive statistics.

Ans: False

Difficulty: Easy

Learning Objective: Compare and contrast the three categories of business analytics.

Section Reference: 1.4 Business Analytics

Blooms: Knowledge

AACSB: Analytic

32. Prescriptive analytics is optimal for taking risk and uncertainty into account by looking at the effects of future actions.

Ans: True

Difficulty: Easy

Learning Objective: Compare and contrast the three categories of business analytics.

Section Reference: 1.4 Business Analytics

Blooms: Knowledge

AACSB: Analytic

33. Simulation is a mathematical strategy one would expect to find within both predictive and prescriptive analytics.

Ans: True

Difficulty: Easy

Learning Objective: Compare and contrast the three categories of business analytics.

Section Reference: 1.4 Business Analytics

Blooms: Knowledge

AACSB: Analytic

34. If a manager relies on his/her gut instinct to make critical business decisions, this is an example of business analytics in action.

Ans: False

Difficulty: Easy

Learning Objective: Compare and contrast the three categories of business analytics.

Section Reference: 1.4 Business Analytics

Blooms: Knowledge

AACSB: Analytic

35. The three categories of business analytics could be described as describing what has happened, predicting potential relationships among data, and prescribing future decisions under uncertainty.

Ans: True

Difficulty: Easy

Learning Objective: Compare and contrast the three categories of business analytics.

Section Reference: 1.4 Business Analytics

Blooms: Knowledge

AACSB: Analytic

36. The main objective of business analytics is to transform data into meaningful information for business managers.

Ans: True

Difficulty: Easy

Learning Objective: Compare and contrast the three categories of business analytics.

Section Reference: 1.4 Business Analytics

Blooms: Knowledge

AACSB: Analytic

37. One goal of data visualization is to make complex data easier to understand.

Ans: True

Difficulty: Easy

Learning Objective: Describe the data mining and data visualization processes.

Section Reference: 1.5 Data Mining and Data Visualization

Blooms: Knowledge

AACSB: Analytic

38. The process of turning large amounts of raw data into information that may lead to business advantages is data mining.

Ans: True

Difficulty: Easy

Learning Objective: Describe the data mining and data visualization processes.

Section Reference: 1.5 Data Mining and Data Visualization

Blooms: Knowledge

AACSB: Analytic

39. Data mining involves finding data, converting that data into useful forms, storing and managing the data and making the data available to all employees of the organization.

Ans: False

Difficulty: Medium

Learning Objective: Describe the data mining and data visualization processes.

Section Reference: 1.5 Data Mining and Data Visualization

Blooms: Knowledge

AACSB: Analytic

40. Using a bubble chart to display production levels for an organization’s various product line is an example of data visualization.

Ans: True

Difficulty: Easy

Learning Objective: Describe the data mining and data visualization processes.

Section Reference: 1.5 Data Mining and Data Visualization

Blooms: Knowledge

AACSB: Analytic

**MULTIPLE CHOICE QUESTIONS**

41. Manuel Banales, Marketing Director of Plano Power Plants, Inc.'s Electrical Division, is directing a study to identify and assess the relative importance of product features. Manuel directs his staff to design a survey questionnaire for distribution to all of Plano’s 954 customers. For this study, the set of 954 customers is \_\_\_.

a) a parameter

b) a sample

c) the population

d) a statistic

e) the frame

Answer: c

Difficulty: Easy

Learning Objective: Define important statistical terms, including population, sample, and parameter, as they relate to descriptive and inferential statistics.

Section Reference: 1.1 Basic Statistical Concepts

Blooms: Knowledge

AACSB: Analytic

42. Manuel Banales, Marketing Director of Plano Power Plants, Inc.'s Electrical Division, is directing a study to identify and assess the relative importance of product features. Manuel directs his staff to design a survey questionnaire for distribution to 100 of Plano’s 954 customers. For this study, the set of 100 customers is \_\_\_.

a) a parameter

b) a sample

c) the population

d) a statistic

e) the frame

Answer: b

Difficulty: Easy

Learning Objective: Define important statistical terms, including population, sample, and parameter, as they relate to descriptive and inferential statistics.

Section Reference: 1.1 Basic Statistical Concepts

Blooms: Knowledge

AACSB: Analytic

43. Sue Taylor, Director of Global Industrial Sales, is concerned by a deteriorating sales trend. Specifically, the number of industrial customers is stable at 1,500, but they are purchasing less each year. She orders her staff to search for causes of the downward trend by surveying all 1,500 industrial customers. For this study, the set of 1,500 industrial customers is \_\_\_.

a) a parameter

b) a sample

c) the population

d) a statistic

e) the frame

Answer: c

Difficulty: Easy

Learning Objective: Define important statistical terms, including population, sample, and parameter, as they relate to descriptive and inferential statistics.

Section Reference: 1.1 Basic Statistical Concepts

Blooms: Knowledge

AACSB: Analytic

44. Sue Taylor, Director of Global Industrial Sales, is concerned by a deteriorating sales trend. Specifically, the number of industrial customers is stable at 1,500, but they are purchasing less each year. She orders her staff to search for causes of the downward trend by selecting a focus group of 40 industrial customers. For this study, the set of 40 industrial customers is \_\_\_.

a) a parameter

b) a sample

c) the population

d) a statistic

e) the frame

Answer: b

Difficulty: Easy

Learning Objective: Define important statistical terms, including population, sample, and parameter, as they relate to descriptive and inferential statistics.

Section Reference: 1.1 Basic Statistical Concepts

Blooms: Knowledge

AACSB: Analytic

45. Marc Fortier, Director of Human Resources, is exploring the causes of employee absenteeism at Lennoxville Bottling during the last operating year (January 1, 2019 through December 31, 2019). For this study, the set of all employees who worked at Lennoxville Bottling during the last operating year is \_\_\_.

a) a parameter

b) a sample

c) the population

d) a statistic

e) the frame

Answer: c

Difficulty: Easy

Learning Objective: Define important statistical terms, including population, sample, and parameter, as they relate to descriptive and inferential statistics.

Section Reference: 1.1 Basic Statistical Concepts

Blooms: Knowledge

AACSB: Analytic

46. Marc Fortier, Director of Human Resources, is exploring the causes of employee absenteeism at Lennoxville Bottling during the last operating year. Personnel records for 50 of the plant's 250 employees are selected for analysis. For this study, the group of 50 employees is a \_\_\_.

a) parameter

b) sample

c) population

d) statistic

e) frame

Answer: b

Difficulty: Easy

Learning Objective: Define important statistical terms, including population, sample, and parameter, as they relate to descriptive and inferential statistics.

Section Reference: 1.1 Basic Statistical Concepts

Blooms: Knowledge

AACSB: Analytic

47. When a person collects information from the entire population, this is called a \_\_\_.

a) parameter

b) sample

c) population

d) census

e) statistic

Answer: d

Difficulty: Easy

Learning Objective: Define important statistical terms, including population, sample, and parameter, as they relate to descriptive and inferential statistics.

Section Reference: 1.1 Basic Statistical Concepts

Blooms: Knowledge

AACSB: Analytic

48. Manuel Banales, Marketing Director of Plano Power Plants, Inc.'s Electrical Division, is leading a study to identify and assess the relative importance of product features. Manuel directs his staff to design a survey questionnaire and distribute it to all of Plano’s 954 customers. Manuel is ordering a \_\_\_.

a) statistic from the customers

b) census of the customers

c) sample of the customers

d) sorting of the customers

e) parameter of the customers

Answer: b

Difficulty: Medium

Learning Objective: Define important statistical terms, including population, sample, and parameter, as they relate to descriptive and inferential statistics.

Section Reference: 1.1 Basic Statistical Concepts

Blooms: Knowledge

AACSB: Analytic

49. Manuel Banales, Marketing Director of Plano Power Plants, Inc.'s Electrical Division, is leading a study to identify and assess the relative importance of product features. Manuel directs his staff to design a survey questionnaire and distribute it 100 of Plano’s 954 customers. Manuel is ordering a \_\_\_.

a) statistic from the customers

b) census of the customers

c) sample of the customers

d) sorting of the customers

e) parameter of the customers

Answer: c

Difficulty: Medium

Learning Objective: Define important statistical terms, including population, sample, and parameter, as they relate to descriptive and inferential statistics.

Section Reference: 1.1 Basic Statistical Concepts

Blooms: Knowledge

AACSB: Analytic

50. Sue Taylor, Director of Global Industrial Sales, is concerned by a deteriorating sales trend. Specifically, the number of customers is stable at 1,500, but they are purchasing less each year. She orders her staff to search for causes of the downward trend by surveying all 1,500 industrial customers. Sue is ordering a \_\_\_.

a) statistic from the industrial customers

b) census of the industrial customers

c) sample of the industrial customers

d) sorting of the industrial customers

e) parameter of the industrial customers

Answer: b

Difficulty: Medium

Learning Objective: Define important statistical terms, including population, sample, and parameter, as they relate to descriptive and inferential statistics.

Section Reference: 1.1 Basic Statistical Concepts

Blooms: Knowledge

AACSB: Analytic

51. Sue Taylor, Director of Global Industrial Sales, is concerned by a deteriorating sales trend. Specifically, the number of customers is stable at 1,500, but they are purchasing less each year. She orders her staff to search for causes of the downward trend by selecting a focus group of 40 industrial customers. Sue is ordering a \_\_\_.

a) statistic from the industrial customers

b) census of the industrial customers

c) sample of the industrial customers

d) sorting of the industrial customers

e) parameter of the industrial customers

Answer: c

Difficulty: Medium

Learning Objective: Define important statistical terms, including population, sample, and parameter, as they relate to descriptive and inferential statistics.

Section Reference: 1.1 Basic Statistical Concepts

Blooms: Knowledge

AACSB: Analytic

52. Pinky Bauer, Chief Financial Officer of Harrison Haulers, Inc., suspects irregularities in the payroll system, and orders an inspection of "each and every payroll voucher issued since January 1, 2013." Pinky is ordering a \_\_\_.

a) statistic from the payroll vouchers

b) census of the payroll vouchers

c) sample of the payroll vouchers

d) sorting of the payroll vouchers

e) parameter of the payroll vouchers

Answer: b

Difficulty: Medium

Learning Objective: Define important statistical terms, including population, sample, and parameter, as they relate to descriptive and inferential statistics.

Section Reference: 1.1 Basic Statistical Concepts

Blooms: Knowledge

AACSB: Analytic

53. Pinky Bauer, Chief Financial Officer of Harrison Haulers, Inc., suspects irregularities in the payroll system, and orders an inspection of "every tenth payroll voucher issued since January 1, 2013." Pinky is ordering a \_\_\_.

a) statistic from the payroll vouchers

b) census of the payroll vouchers

c) sample of the payroll vouchers

d) sorting of the payroll vouchers

e) parameter of the payroll vouchers

Answer: c

Difficulty: Easy

Learning Objective: Define important statistical terms, including population, sample, and parameter, as they relate to descriptive and inferential statistics.

Section Reference: 1.1 Basic Statistical Concepts

Blooms: Knowledge

AACSB: Analytic

54. On discovering an improperly adjusted drill press, Jack Joyner, Director of Quality Control, ordered a 100% inspection of all castings drilled during the evening shift. Jack is ordering a \_\_\_.

a) statistic from the castings

b) census of the castings

c) sample of the castings

d) sorting of the castings

e) parameter of the castings

Answer: b

Difficulty: Medium

Learning Objective: Define important statistical terms, including population, sample, and parameter, as they relate to descriptive and inferential statistics.

Section Reference: 1.1 Basic Statistical Concepts

Blooms: Knowledge

AACSB: Analytic

55. On discovering an improperly adjusted drill press, Jack Joyner, Director of Quality Control, ordered an inspection of every fifth casting drilled during the evening shift. Jack is ordering a \_\_\_.

a) statistic from the castings

b) census of the castings

c) sample of the castings

d) sorting of the castings

e) parameter of the castings

Answer: c

Difficulty: Medium

Learning Objective: Define important statistical terms, including population, sample, and parameter, as they relate to descriptive and inferential statistics.

Section Reference: 1.1 Basic Statistical Concepts

Blooms: Knowledge

AACSB: Analytic

56. Using data from a group to generalize about the whole group involves the use of \_\_\_.

a) descriptive statistics

b) inferential statistics

c) population derivation

d) sample persuasion

e) relative level data

Answer: b

Difficulty: Medium

Learning Objective: Define important statistical terms, including population, sample, and parameter, as they relate to descriptive and inferential statistics.

Section Reference: 1.1 Basic Statistical Concepts

Blooms: Knowledge

AACSB: Analytic

57. A student makes an 82 on the first test in a statistics course. From this, she estimates that her average at the end of the semester (after other tests) will be about 82. This is an example of \_\_\_.

a) descriptive statistics

b) inferential statistics

c) population derivation

d) sample persuasion

e) relative level data

Answer: b

Difficulty: Medium

Learning Objective: Define important statistical terms, including population, sample, and parameter, as they relate to descriptive and inferential statistics.

Section Reference: 1.1 Basic Statistical Concepts

Blooms: Knowledge

AACSB: Analytic

58. Jessica Salas, president of Salas Products, is reviewing the warranty policy for her company's new model of automobile batteries. Life tests performed on a sample of 100 batteries indicated an average life of seven years under normal usage. Jessica recommended a six-year warranty period for the new model. This is an example of \_\_\_.

a) descriptive statistics

b) executive forecasting

c) population derivation

d) sample persuasion

e) inferential statistics

Answer: e

Difficulty: Hard

Learning Objective: Define important statistical terms, including population, sample, and parameter, as they relate to descriptive and inferential statistics.

Section Reference: 1.1 Basic Statistical Concepts

Blooms: Knowledge

AACSB: Analytic

59. On discovering an improperly adjusted drill press, Jack Joyner, Director of Quality Control, ordered an inspection of every fifth casting drilled during the evening shift. Less than 1% of the castings were defective, so Jack released the evening shift's production to assembly. This is an example of \_\_\_.

a) nonparametric statistics

b) nominal data

c) descriptive statistics

d) inferential statistics

e) judgmental statistics

Answer: d

Difficulty: Hard

Learning Objective: Define important statistical terms, including population, sample, and parameter, as they relate to descriptive and inferential statistics.

Section Reference: 1.1 Basic Statistical Concepts

Blooms: Knowledge

AACSB: Analytic

60. A salesperson is paid a commission on each sale. This person made $2,000 in their first month on the job. Based on this the salesperson concludes they will make $24,000 during their first year. This is an example of \_\_\_.

a) inferential statistics

b) nominal data

c) descriptive statistics

d) deferential statistics

e) nonparametric statistics

Answer: a

Difficulty: Hard

Learning Objective: Define important statistical terms, including population, sample, and parameter, as they relate to descriptive and inferential statistics.

Section Reference: 1.1 Basic Statistical Concepts

Blooms: Knowledge

AACSB: Analytic

61. A statistics instructor collects background information on the students. About 30% of the students have taken economics and about 40% have taken accounting. There are 23 male students and 27 female students in this class. This is an example of \_\_\_.

a) nonparametric statistics

b) nominal data

c) descriptive statistics

d) inferential statistics

e) census

Answer: c

Difficulty: Medium

Learning Objective: Define important statistical terms, including population, sample, and parameter, as they relate to descriptive and inferential statistics.

Section Reference: 1.1 Basic Statistical Concepts

Blooms: Knowledge

AACSB: Analytic

62. A market researcher is interested in determining the average income for families in Simcoe County, Ontario. To accomplish this, a random sample of 400 families is taken from the county and the data gathered is used to estimate the average income for families of the entire county. This process is an example of \_\_\_.

a) nonparametric statistics

b) nominal data

c) descriptive statistics

d) inferential statistics

e) census

Answer: d

Difficulty: Medium

Learning Objective: Define important statistical terms, including population, sample, and parameter, as they relate to descriptive and inferential statistics.

Section Reference: 1.1 Basic Statistical Concepts

Blooms: Knowledge

AACSB: Analytic

63. The Cascades Inc. has a plant in Winnipeg, Manitoba. Management wants to determine the average number of sick days taken per worker in this plant in 2022. To do this, management gathers records on all the workers in the plant and averages the number of sick days taken in 2022 by each worker. This process is using \_\_\_.

a) nonparametric statistics

b) nominal data

c) descriptive statistics

d) inferential statistics

e) a census

Answer: e

Difficulty: Medium

Learning Objective: Define important statistical terms, including population, sample, and parameter, as they relate to descriptive and inferential statistics.

Section Reference: 1.1 Basic Statistical Concepts

Blooms: Knowledge

AACSB: Analytic

64. The Magnolia Swimming Pool Company wants to determine the average number of years it takes before a major repair is required on one of the pools that the company constructs. The president of the company asks Rick Johnson, a company accountant, to randomly contact fifty families that built Magnolia pools in the past ten years and determine how long it was in each case until a major repair. The information will then be used to estimate the average number of years until a major repair for all pools sold by Magnolia. The average based on the data gathered from the fifty families can best be described as a \_\_\_.

a) parameter

b) sample

c) population

d) statistic

e) frame

Answer: d

Difficulty: Medium

Learning Objective: Define important statistical terms, including population, sample, and parameter, as they relate to descriptive and inferential statistics.

Section Reference: 1.1 Basic Statistical Concepts

Blooms: Knowledge

AACSB: Analytic

65. The Chamber of Commerce wants to assess its membership's opinions of the North American Free Trade Agreement. One-hundred of the 2,000 members are randomly selected and contacted by telephone. Seventy-five percent of respondents reported an overall favourable opinion, and twenty-five percent reported an overall unfavourable opinion. The proportion, 0.75, is a \_\_\_.

a) parameter

b) statistic

c) population

d) sample

e) frame

Answer: b

Difficulty: Medium

Learning Objective: Define important statistical terms, including population, sample, and parameter, as they relate to descriptive and inferential statistics.

Section Reference: 1.1 Basic Statistical Concepts

Blooms: Knowledge

AACSB: Analytic

66. What proportion of Calgary’s registered voters favour trade restrictions with China? In an effort to determine this, a research team calls every registered voter in Calgary and asks if they favor trade restrictions with China. The proportion determined from the data gathered is a \_\_\_.

a) parameter

b) sample

c) population

d) statistic

e) frame

Answer: a

Difficulty: Medium

Learning Objective: Define important statistical terms, including population, sample, and parameter, as they relate to descriptive and inferential statistics.

Section Reference: 1.1 Basic Statistical Concepts

Blooms: Knowledge

AACSB: Analytic

67. A researcher wants to know what the average variation is in altimeters of small, privately owned airplanes. The task of determining this is expensive and time-consuming, if even possible, given the large number of such airplanes. The researcher decides to use government records to randomly locate the owners of ten such planes and then get permission to test the altimeters. When the researcher is done the data gathered from the group of ten will be used to reach conclusions about all small, privately owned airplanes. This process can best be described as \_\_\_.

a) data statistics

b) research statistics

c) descriptive statistics

d) inferential statistics

e) nonparametric statistics

Answer: d

Difficulty: Medium

Learning Objective: Define important statistical terms, including population, sample, and parameter, as they relate to descriptive and inferential statistics.

Section Reference: 1.1 Basic Statistical Concepts

Blooms: Knowledge

AACSB: Analytic

68. A researcher wants to know what the average variation is in altimeters of small, privately owned airplanes. The task of determining this is expensive and time-consuming, if even possible, given the large number of such airplanes. The researcher decides to use government records to randomly locate the owners of ten such planes and then get permission to test the altimeters. When the researcher is done, the data gathered from the group of ten will be used to reach conclusions about all small, privately owned airplanes. The average variation computed using the data gathered on the group of ten airplanes is best described as a \_\_\_.

a) measurement

b) data

c) statistic

d) parameter

e) census

Answer: c

Difficulty: Medium

Learning Objective: Define important statistical terms, including population, sample, and parameter, as they relate to descriptive and inferential statistics.

Section Reference: 1.1 Basic Statistical Concepts

Blooms: Knowledge

AACSB: Analytic

69. The lowest level of data measurement is \_\_\_.

a) interval level

b) ordinal level

c) nominal level

d) ratio level

e) minimal level

Answer: c

Difficulty: Easy

Learning Objective: Explain the difference between variables, measurement, and data, and compare the four different levels of data: nominal, ordinal, interval, and ratio.

Section Reference: 1.2 Variables, Data and Data Measurement

Blooms: Knowledge

AACSB: Analytic

70. Which of the following operations is meaningful for processing nominal data?

a) addition

b) multiplication

c) ranking

d) counting

e) division

Answer: d

Difficulty: Easy

Learning Objective: Explain the difference between variables, measurement, and data, and compare the four different levels of data: nominal, ordinal, interval, and ratio.

Section Reference: 1.2 Variables, Data and Data Measurement

Blooms: Knowledge

AACSB: Analytic

71. Which scale of measurement has these two properties: linear distance is meaningful and the location of origin (or zero point) is arbitrary?

a) interval level

b) ordinal level

c) nominal level

d) ratio level

e) minimal level

Answer: a

Difficulty: Medium

Learning Objective: Explain the difference between variables, measurement, and data, and compare the four different levels of data: nominal, ordinal, interval, and ratio.

Section Reference: 1.2 Variables, Data and Data Measurement

Blooms: Knowledge

AACSB: Analytic

72. Which scale of measurement has these two properties: linear distance is meaningful and the location of origin (or zero point) is absolute (or natural)?

a) interval level

b) ordinal level

c) nominal level

d) ratio level

e) relative level

Answer: d

Difficulty: Medium

Learning Objective: Explain the difference between variables, measurement, and data, and compare the four different levels of data: nominal, ordinal, interval, and ratio.

Section Reference: 1.2 Variables, Data and Data Measurement

Blooms: Knowledge

AACSB: Analytic

73. Sue Taylor, Director of Global Industrial Sales, is concerned by a deteriorating sales trend. Specifically, the number of industrial customers is stable at 1,500, however they are purchasing less each year. She orders her staff to search for causes of the downward trend by surveying all 1,500 industrial customers. One question on the survey asked the customers: “Which of the following best describes your primary business: a. manufacturing, b. wholesaler, c. retail, d. service.” The measurement level for this question is \_\_\_.

a) interval level

b) ordinal level

c) nominal level

d) ratio level

e) relative level

Answer: c

Difficulty: Easy

Learning Objective: Explain the difference between variables, measurement, and data, and compare the four different levels of data: nominal, ordinal, interval, and ratio.

Section Reference: 1.2 Variables, Data and Data Measurement

Blooms: Knowledge

AACSB: Analytic

74. A question in a survey of microcomputer users asked: “Which operating system do you use most often: a. Apple OS 7, b. MS Windows Vista, c. MS Windows XP, d. UNIX.” The measurement level for this question is \_\_\_.

a) nominal level

b) ordinal level

c) interval level

d) ratio level

e) relative level

Answer: a

Difficulty: Easy

Learning Objective: Explain the difference between variables, measurement, and data, and compare the four different levels of data: nominal, ordinal, interval, and ratio.

Section Reference: 1.2 Variables, Data and Data Measurement

Blooms: Knowledge

AACSB: Analytic

75. Which of the following operations is meaningful for processing ordinal data, but is meaningless for processing nominal data?

a) addition

b) multiplication

c) ranking

d) counting

e) division

Answer: c

Difficulty: Easy

Learning Objective: Explain the difference between variables, measurement, and data, and compare the four different levels of data: nominal, ordinal, interval, and ratio.

Section Reference: 1.2 Variables, Data and Data Measurement

Blooms: Knowledge

AACSB: Analytic

76. Sue Taylor, Director of Global Industrial Sales, is concerned by a deteriorating sales trend. Specifically, the number of industrial customers is stable at 1,500, but they are purchasing less each year. She orders her staff to search for causes of the downward trend by surveying all 1,500 industrial customers. One question on the survey asked the customers: “How many people does your company employ?” The measurement level for this question is \_\_\_.

a) interval level

b) ordinal level

c) nominal level

d) relative level

e) ratio level

Answer: e

Difficulty: Easy

Learning Objective: Explain the difference between variables, measurement, and data, and compare the four different levels of data: nominal, ordinal, interval, and ratio.

Section Reference: 1.2 Variables, Data and Data Measurement

Blooms: Knowledge

AACSB: Analytic

77. A consumer has been asked to rank five cars based upon their desirability. This level of measurement is \_\_\_.

a) interval level

b) ordinal level

c) nominal level

d) ratio level

e) relative level

Answer: b

Difficulty: Easy

Learning Objective: Explain the difference between variables, measurement, and data, and compare the four different levels of data: nominal, ordinal, interval, and ratio.

Section Reference: 1.2 Variables, Data and Data Measurement

Blooms: Knowledge

AACSB: Analytic

78. Morningstar Mutual Funds analyzes the risk and performance of mutual funds. Each mutual fund is assigned an overall rating of one to five stars. One star is the lowest rating, and five stars is the highest rating. This level of measurement is \_\_\_.

a) ordinal level

b) interval level

c) nominal level

d) ratio level

e) relative level

Answer: a

Difficulty: Medium

Learning Objective: Explain the difference between variables, measurement, and data, and compare the four different levels of data: nominal, ordinal, interval, and ratio.

Section Reference: 1.2 Variables, Data and Data Measurement

Blooms: Knowledge

AACSB: Analytic

79. A level of data measurement that has an absolute zero is called \_\_\_.

a) interval level

b) ordinal level

c) nominal level

d) ratio level

e) relative level

Answer: d

Difficulty: Easy

Learning Objective: Explain the difference between variables, measurement, and data, and compare the four different levels of data: nominal, ordinal, interval, and ratio.

Section Reference: 1.2 Variables, Data and Data Measurement

Blooms: Knowledge

AACSB: Analytic

80. A person has decided to code a particular set of sales data. A value of 0 is assigned if the sales occurred on a weekday, and a value of 1 means it happened on a weekend. This is an example of \_\_\_.

a) interval level data

b) ordinal level data

c) nominal level data

d) ratio level data

e) relative level data

Answer: c

Difficulty: Medium

Learning Objective: Explain the difference between variables, measurement, and data, and compare the four different levels of data: nominal, ordinal, interval, and ratio.

Section Reference: 1.2 Variables, Data and Data Measurement

Blooms: Knowledge

AACSB: Analytic

81. Members of the accounting department's clerical staff were asked to rate their supervisor's leadership style as either (1) authoritarian or (2) participatory. This is an example of \_\_\_.

a) interval level data

b) ordinal level data

c) nominal level data

d) ratio level data

e) relative level data

Answer: c

Difficulty: Medium

Learning Objective: Explain the difference between variables, measurement, and data, and compare the four different levels of data: nominal, ordinal, interval, and ratio.

Section Reference: 1.2 Variables, Data and Data Measurement

Blooms: Knowledge

AACSB: Analytic

82. A market research analyst has asked consumers to rate the appearance of a new package on a scale of 1 to 5. A 1 means that the appearance is awful while a 5 means that it is excellent. The level of this data is usually considered \_\_\_.

a) interval level data

b) ordinal level data

c) nominal level data

d) ratio level data

e) relative level data

Answer: b

Difficulty: Easy

Learning Objective: Explain the difference between variables, measurement, and data, and compare the four different levels of data: nominal, ordinal, interval, and ratio.

Section Reference: 1.2 Variables, Data and Data Measurement

Blooms: Knowledge

AACSB: Analytic

83. The social insurance number of employees would be an example of what level of data measurement?

a) interval level data

b) ordinal level data

c) nominal level data

d) ratio level data

e) relative level data

Answer: c

Difficulty: Easy

Learning Objective: Explain the difference between variables, measurement, and data, and compare the four different levels of data: nominal, ordinal, interval, and ratio.

Section Reference: 1.2 Variables, Data and Data Measurement

Blooms: Knowledge

AACSB: Analytic

84. Sales of a restaurant (in dollars) are an example of what level of data measurement?

a) interval level data

b) ordinal level data

c) nominal level data

d) ratio level data

e) relative level data

Answer: d

Difficulty: Medium

Learning Objective: Explain the difference between variables, measurement, and data, and compare the four different levels of data: nominal, ordinal, interval, and ratio.

Section Reference: 1.2 Variables, Data and Data Measurement

Blooms: Knowledge

AACSB: Analytic

85. Grades on a test range from 0 to 100. This level of data is \_\_\_.

a) interval level data

b) ordinal level data

c) nominal level data

d) ratio level data

e) relative level data

Answer: d

Difficulty: Medium

Learning Objective: Explain the difference between variables, measurement, and data, and compare the four different levels of data: nominal, ordinal, interval, and ratio.

Section Reference: 1.2 Variables, Data and Data Measurement

Blooms: Knowledge

AACSB: Analytic

86. If it were *not* for the existence of an "absolute zero," ratio data would be considered the same as \_\_\_.

a) interval level data

b) ordinal level data

c) nominal level data

d) ratio level data

e) relative level data

Answer: a

Difficulty: Medium

Learning Objective: Explain the difference between variables, measurement, and data, and compare the four different levels of data: nominal, ordinal, interval, and ratio.

Section Reference: 1.2 Variables, Data and Data Measurement

Blooms: Knowledge

AACSB: Analytic

87. Law School Admission Test (LSAT) scores are an example of what type of measurement scale?

a) interval level data

b) ordinal level data

c) nominal level data

d) ratio level data

e) relative level data

Answer: d

Difficulty: Medium

Learning Objective: Explain the difference between variables, measurement, and data, and compare the four different levels of data: nominal, ordinal, interval, and ratio.

Section Reference: 1.2 Variables, Data and Data Measurement

Blooms: Knowledge

AACSB: Analytic

88. Which types of data are normally used in parametric statistics?

a) interval or ratio level data

b) ordinal or nominal level data

c) nominal or ratio level data

d) ratio or ordinal level data

e) relative or ratio level data

Answer: a

Difficulty: Hard

Learning Objective: Explain the difference between variables, measurement, and data, and compare the four different levels of data: nominal, ordinal, interval, and ratio.

Section Reference: 1.2 Variables, Data and Data Measurement

Blooms: Knowledge

AACSB: Analytic

89. Which types of data are normally used with nonparametric statistics?

a) interval or ratio level data

b) ordinal or nominal level data

c) nominal or ratio level data

d) ratio or ordinal level data

e) relative or ratio level data

Answer: b

Difficulty: Medium

Learning Objective: Explain the difference between variables, measurement, and data, and compare the four different levels of data: nominal, ordinal, interval, and ratio.

Section Reference: 1.2 Variables, Data and Data Measurement

Blooms: Knowledge

AACSB: Analytic

90. How much inventory do Christmas tree sales lots keep? A researcher goes from location to location around the city counting the number of trees in each lot. These numbers most likely represent what level of data?

a) interval level

b) ordinal level

c) nominal level

d) ratio level

e) relative level

Answer: d

Difficulty: Medium

Learning Objective: Explain the difference between variables, measurement, and data, and compare the four different levels of data: nominal, ordinal, interval, and ratio.

Section Reference: 1.2 Variables, Data and Data Measurement

Blooms: Knowledge

AACSB: Analytic

91. During the Valentine season, different offices in a company are encouraged to decorate their doors. A committee then goes around and ranks the doors according to how well the doors are decorated. The best door gets a ranking of “1”; the second best gets a ranking of “2”, etc. The numbers of these rankings represent which level of data?

a) interval level

b) ordinal level

c) nominal level

d) ratio level

e) relative level

Answer: b

Difficulty: Medium

Learning Objective: Explain the difference between variables, measurement, and data, and compare the four different levels of data: nominal, ordinal, interval, and ratio.

Section Reference: 1.2 Variables, Data and Data Measurement

Blooms: Knowledge

AACSB: Analytic

92. A large manufacturing company in Sarnia produces valves for the chemical industry. According to specifications, one particular valve is supposed to have a five-inch opening on the side. Quality control inspectors take random samples of these valves just after the hole is bored. They measure the size of the hole in an effort to determine if the machine is out-of-adjustment. The measurement of the diameter of the hole represents which level of data?

a) interval level

b) ordinal level

c) nominal level

d) central level

e) ratio level

Answer: e

Difficulty: Medium

Learning Objective: Explain the difference between variables, measurement, and data, and compare the four different levels of data: nominal, ordinal, interval, and ratio.

Section Reference: 1.2 Variables, Data and Data Measurement

Blooms: Knowledge

AACSB: Analytic

93. A marketing demographic survey is undertaken to determine the market potential for a new product. One of the questions asked is: What type of residence do you live in? Respondents are offered several possible answers including: house, apartment, or condominium. In order to computerize the survey answers, the responses are coded as a 1 if the answer is "house", a 2 if the answer is an "apartment", and a 3 if the answer is a "condominium". These numbers, 1, 2, and 3, are examples of which level of data?

a) interval level

b) ordinal level

c) nominal level

d) ratio level

e) relative level

Answer: c

Difficulty: Medium

Learning Objective: Explain the difference between variables, measurement, and data, and compare the four different levels of data: nominal, ordinal, interval, and ratio.

Section Reference: 1.2 Variables, Data and Data Measurement

Blooms: Knowledge

AACSB: Analytic

94. A marketing survey is conducted to discover the potentiality of several new products. A series of focus groups is used to conduct this survey. At the end of one of the sessions, the group members are asked to rank the remaining eight products in order of desirability. A one indicates the most favoured product and an eight is awarded to the least desirable. These numbers are examples of which level of data?

a) interval level

b) ordinal level

c) nominal level

d) ratio level

e) relative level

Answer: b

Difficulty: Easy

Learning Objective: Explain the difference between variables, measurement, and data, and compare the four different levels of data: nominal, ordinal, interval, and ratio.

Section Reference: 1.2 Variables, Data and Data Measurement

Blooms: Knowledge

AACSB: Analytic

95. A business is attempting to find the best small town in Canada in which to relocate. As part of the investigation, the elevations of all small towns in Canada are researched. Some towns are located high in the Rockies with elevations over 2,000 metres. There are even some towns located in the Maritimes with elevations below sea level. These elevations can best be described as which level of data?

a) interval level

b) ordinal level

c) nominal level

d) ratio level

e) relative level

Answer: a

Difficulty: Medium

Learning Objective: Explain the difference between variables, measurement, and data, and compare the four different levels of data: nominal, ordinal, interval, and ratio.

Section Reference: 1.2 Variables, Data and Data Measurement

Blooms: Knowledge

AACSB: Analytic

96. You are the owner of a camping site and want to evaluate the feasibility of opening earlier during the year. For this analysis, you obtain the average maximum and minimum local daily temperatures for early spring. This is an example of \_\_\_\_\_\_\_.

a) interval level data

b) ordinal level data

c) nominal level data

d) ratio level data

e) relative level data

Ans: a

Difficulty: Easy

Learning Objective: Explain the difference between variables, measurement, and data, and compare the four different levels of data: nominal, ordinal, interval, and ratio.

Section Reference: 1.2 Variables, Data and Data Measurement

Bloom’s level: Comprehension

AACSB: Analytic

97. You are the owner of a camping site and want to estimate the average age of your customers. For this purpose, you select a representative sample of your clients and offer them a discount on their next visit as compensation for filling out a short questionnaire that includes relevant age intervals. The average age of your customers being estimated through these responses is:

a) a measurement

b) data

c) a statistic

d) a parameter

e) a census

Ans: d

Difficulty: Medium

Learning Objective: Explain the difference between variables, measurement, and data, and compare the four different levels of data: nominal, ordinal, interval, and ratio.

Section Reference: 1.2 Variables, Data and Data Measurement

Bloom’s level: Comprehension

AACSB: Analytic

98. You are the owner of a camping site and want to estimate the average age of your customers. For this purpose, you select a representative sample of your clients and offer them a discount on their next visit as compensation for filling out a short questionnaire that includes relevant age intervals. The average age of the customers who fill out the questionnaire is:

a) a measurement

b) data

c) a statistic

d) a parameter

e) a census

Ans: c

Difficulty: Medium

Learning Objective: Explain the difference between variables, measurement, and data, and compare the four different levels of data: nominal, ordinal, interval, and ratio.

Section Reference: 1.2 Variables, Data and Data Measurement

Bloom’s level: Comprehension

AACSB: Analytic

99. You are the owner of a camping site and want to estimate the average age of your customers. For this purpose, you select a representative sample of your clients and offer them a discount on their next visit as compensation for filling out a short questionnaire that includes relevant age intervals: “Your age is (a) 30 or younger, (b) 30 to 40, (c) 40 to 50, (c) 50 to 60, (d) 60 or older.” This is an example of \_\_\_\_\_\_\_.

a) interval level data

b) ordinal level data

c) nominal level data

d) ratio level data

e) relative level data

Ans: b

Difficulty: Easy

Learning Objective: Explain the difference between variables, measurement, and data, and compare the four different levels of data: nominal, ordinal, interval, and ratio.

Section Reference: 1.2 Variables, Data and Data Measurement

Bloom’s level: Comprehension

AACSB: Analytic

100. You are the owner of a camping site and want to estimate the level of customer satisfaction among your clients. For this purpose, you select a representative sample of your clients and offer them a discount on their next visit as compensation for filling out a short questionnaire. One question specifically says, “How satisfied are you with your experience, on a scale from (1) to (5), where (1) is ‘very dissatisfied’ and (5) is ‘very satisfied’?” This is an example of \_\_\_\_\_\_\_.

a) interval level data

b) ordinal level data

c) nominal level data

d) ratio level data

e) relative level data

Ans: b

Difficulty: Easy

Learning Objective: Explain the difference between variables, measurement, and data, and compare the four different levels of data: nominal, ordinal, interval, and ratio.

Section Reference: 1.2 Variables, Data and Data Measurement

Bloom’s level: Comprehension

AACSB: Analytic

101. A business manager has access to a large data set that includes complex information that would be difficult to process with traditional data management. These data would be referred to as \_\_\_\_\_\_\_\_\_\_,

a) big data

b) business data

c) mega data

d) business analytics

e) mined data

Ans: a

Difficulty: Medium

Learning Objective: Explain the differences between the four dimensions of big data.

Section Reference: 1.3 Big Data

Bloom’s level: Comprehension

AACSB: Analytic

102. Which of the following would not be a potential source of data for a furniture manufacturing business?

a) Timber production

b) Social media

c) Customer purchases

d) Operations data

e) Dietary data

Ans: e

Difficulty: Medium

Learning Objective: Explain the differences between the four dimensions of big data.

Section Reference: 1.3 Big Data

Bloom’s level: Comprehension

AACSB: Analytic

103. Big data can be seen as a large amount of either organized or unorganized data that is analyzed to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_:

a) confirm and justify a decision.

b) disprove and refute an assumption.

c) make an informed decision or evaluation.

d) structure and design a methodology.

e) process and eliminate.

Ans: b

Difficulty: Medium

Learning Objective: Explain the differences between the four dimensions of big data.

Section Reference: 1.3 Big Data

Bloom’s level: Knowledge

AACSB: Analytic

104. An international social media company stores approximately 300 billion images and 1.2 trillion posts. Given just this information, which of the vectors of big data is the most likely focus of this company’s data collection?

a) Volume

b) Velocity

c) Variety

d) Veracity

e) Visualization

Ans: a

Difficulty: Medium

Learning Objective: Explain the differences between the four dimensions of big data.

Section Reference: 1.3 Big Data

Bloom’s level: Knowledge

AACSB: Analytic

105. The need for new methodologies and processing techniques regarding business data has arisen because \_\_\_\_\_\_\_\_\_\_\_\_\_

a) big data sources have become too large and complex.

b) privacy issues related to business data sources.

c) national security concerns regarding data sources.

d) the lack of industry needs for big data sources.

e) decrease in availability of data.

Ans: a

Difficulty: Medium

Learning Objective: Explain the differences between the four dimensions of big data.

Section Reference: 1.3 Big Data

Bloom’s level: Knowledge

AACSB: Analytic

106. If a company is concerned that data they have received may contain some false information they are concerned about the \_\_\_\_\_\_\_\_\_ of the data.

a) variety

b) veracity

c) volume

d) velocity

e) valorous

Ans: b

Difficulty: Medium

Learning Objective: Explain the differences between the four dimensions of big data.

Section Reference: 1.3 Big Data

Bloom’s level: Knowledge

AACSB: Analytic

107. If a company receives a lot of data within a short amount of time, then the data has both \_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_.

a) variety, velocity

b) velocity, veracity

c) veracity, volume

d) velocity, volume

e) variety, veracity

Ans: d

Difficulty: Medium

Learning Objective: Explain the differences between the four dimensions of big data.

Section Reference: 1.3 Big Data

Bloom’s level: Knowledge

AACSB: Analytic

108. A company has collected data that they believe will help them identify the characteristics of their top customers. After some analysis, it is discovered that they need data on the age and income of these customers. Therefore, the company needs data that has more \_\_\_\_\_\_\_\_\_\_\_\_

a) variety

b) velocity

c) customers

d) veracity

e) purchases

Ans: a

Response: See section 1.3 Introduction to Business Analytics

Difficulty: Medium

Learning Objective: Explain the differences between the four dimensions of big data.

Section Reference: 1.3 Big Data

Bloom’s level: Knowledge

AACSB: Analytic

109. A business manager is looking to hire someone who can use large data sets to create business models that can then be used to help the manager make better decisions. The manager is looking to hire someone with \_\_\_\_\_\_\_\_\_\_\_\_\_.

a) mathematics skills

b) science skills

c) business analytics skills

d) qualitative analysis skills

e) business decision skills

Ans: c

Difficulty: Easy

Learning Objective: Compare and contrast the three categories of business analytics.

Section Reference: 1.4 Business Analytics

Bloom’s level: Comprehension

AACSB: Analytic

110. The CIO for a large hospitality business has been inundated with information and data regarding customer needs and spending preferences. However, her in-house data analytics team has advised her that what she really needs is to develop an understanding of relationships. With this knowledge she should will be able to recognize new patterns and undiscovered trends. This category of analytics is called \_\_\_\_\_\_\_\_\_\_\_.

a) predictive

b) prescriptive

c) descriptive

d) statistical inference

e) production

Ans: a

Difficulty: Medium

Learning Objective: Compare and contrast the three categories of business analytics.

Section Reference: 1.4 Business Analytics

Bloom’s level: Comprehension

AACSB: Analytic

111. Online retailers are consistently pursuing new ways to improve market share and establish better relations with customers. One of the most common methods is to provide recommendations when customers place an order based upon similar or complementary items. These most likely patterns in purchases would most be an example of what type of analytics?

a) predictive

b) data mining

c) financial

d) descriptive

e) time sensitive

Ans: a

Difficulty: Medium

Learning Objective: Compare and contrast the three categories of business analytics.

Section Reference: 1.4 Business Analytics

Bloom’s level: Comprehension

AACSB: Analytic

112. Future Video, a gaming company, is awaiting a marketing survey that will tell them how well and in what markets their latest game console is selling. The VP of Marketing has to develop contingency plans for the investors based upon this information. What type of analytics would the VP most likely be using?

a) descriptive

b) visual

c) prescriptive

d) time-series

e) volume

Ans: c

Difficulty: Medium

Learning Objective: Compare and contrast the three categories of business analytics.

Section Reference: 1.4 Business Analytics

Bloom’s level: Comprehension

AACSB: Analytic

113. A company wishes to establish a system that can continually and automatically process new data to improve recommendations and provide better decision options, you are likely dealing in the area of \_\_\_\_\_\_\_\_\_\_\_\_\_\_.

a) prescriptive analytics

b) extracting analytics

c) visualization

d) tableau-produced bar analytics

e) descriptive analytics

Ans: a

Difficulty: Medium

Learning Objective: Compare and contrast the three categories of business analytics.

Section Reference: 1.4 Business Analytics

Bloom’s level: Comprehension

AACSB: Analytic

114. The potential misuse of statistical data relates to the area of:

a) statistical inference

b) computer interpretation

c) descriptive analytics

d) business ethics

e) nonparametric behavior

Ans: d

Difficulty: Medium

Learning Objective: Compare and contrast the three categories of business analytics.

Section Reference: 1.4 Business Analytics

Bloom’s level: Knowledge

AACSB: Analytic

115. Simulation, statistical modeling, time-series and regression are topics in \_\_\_\_\_\_\_\_\_\_\_\_.

a) predictive analytics

b) prescriptive analytics

c) data visualization

d) network analytics

e) information graphics

Ans: a

Difficulty: Medium

Learning Objective: Compare and contrast the three categories of business analytics.

Section Reference: 1.4 Business Analytics

Bloom’s level: Knowledge

AACSB: Analytic

116. A company uses business analytics to focus on the best course of action within specific circumstances. This would fit within which category of business analytics?

a) Descriptive

b) Predictive

c) Metric

d) Prescriptive

e) Mining

Ans: d

Difficulty: Medium

Learning Objective: Compare and contrast the three categories of business analytics.

Section Reference: 1.4 Business Analytics

Bloom’s level: Knowledge

AACSB: Analytic

117. Predictive analytics focus on how past patterns might occur in the future. These analyses often rely on patterns that are \_\_\_\_\_\_\_ the future.

a) repeated into

b) decreasing in

c) increasing in

d) steady in

e) extrapolated into

Ans: e

Difficulty: Medium

Learning Objective: Compare and contrast the three categories of business analytics.

Section Reference: 1.4 Business Analytics

Bloom’s level: Knowledge

AACSB: Analytic

118. The category of business analytics that is often used to optimize the performance of a system in the business would be \_\_\_\_\_\_\_\_\_\_.

a) Descriptive

b) Prescriptive

c) Metric

d) Predictive

e) Mining

Ans: d

Difficulty: Medium

Learning Objective: Compare and contrast the three categories of business analytics.

Section Reference: 1.4 Business Analytics

Bloom’s level: Knowledge

AACSB: Analytic

119. Data visualization is a strategy used to:

a) help analysts see the data points

b) convey information as a visual object

c) arrange data so that it can be imported into a statistical analysis program

d) plan a research project

e) transform data into inferential statistics

Ans: b

Difficulty: Medium

Learning Objective: Describe the data mining and data visualization processes.

Section Reference: 1.5 Data Mining and Data Visualization

Bloom’s level: Knowledge

AACSB: Analytic

120. By transforming data from social media and competitors, an analyst was able to identify a relationship between an increase in the number of positive online comments about the company and negative marketing ads from its competitors. This relationship was most likely found through \_\_\_\_\_\_\_\_\_\_\_\_\_ .

a) the process of data visualization

b) the production of data

c) the process of data elimination

d) the process of data mining

e) the managing of data mining

Ans: d

Difficulty: Medium

Learning Objective: Describe the data mining and data visualization processes.

Section Reference: 1.5 Data Mining and Data Visualization

Bloom’s level: Comprehension

AACSB: Analytic

121. A company is concerned that the data it has acquired has become so large that its practical use is severely limited) They decide to extract patterns from its present data, increasing its essential value). This is an example of:

a) data visualization

b) business optimization

c) data mining

d) volume analysis

e) predictive mining

Ans: c

Difficulty: Medium

Learning Objective: Describe the data mining and data visualization processes.

Section Reference: 1.5 Data Mining and Data Visualization

Bloom’s level: Comprehension

AACSB: Analytic

122. A CEO wants to depict information in creative ways by effectively using bars charts and line graphs. This strategy is an example of \_\_\_\_\_\_\_\_\_\_\_\_:

a) data extraction

b) data mining

c) data interpretation

d) data visualization

e) data elimination

Ans: d

Difficulty: Medium

Learning Objective: Describe the data mining and data visualization processes.

Section Reference: 1.5 Data Mining and Data Visualization

Bloom’s level: Comprehension

AACSB: Analytic

123. Which is not a primary goal of data mining?

a) turning raw data into useful information

b) discovering and interpreting useful information

c) converting data into useful forms

d) making date accessible to business analytics users

e) deriving results that build a consensus

Ans: e

Difficulty: Medium

Learning Objective: Describe the data mining and data visualization processes.

Section Reference: 1.5 Data Mining and Data Visualization

Bloom’s level: Comprehension

AACSB: Analytic

124. Which of the following is not true regarding data mining?

a) most major industries utilize data mining

b) data mining is performed to confirm a preconceived hypothesis

c) data mining is often performed through a database management system

d) data mining should be used in making future business decisions

e) the first three steps of data mining is extract, transform and load

Ans: b

Difficulty: Medium

Learning Objective: Describe the data mining and data visualization processes.

Section Reference: 1.5 Data Mining and Data Visualization

Bloom’s level: Comprehension

AACSB: Analytic

125. The ultimate goal of data mining is

a) to make data accessible and usable to the business analyst

b) to provide visual representation of data

c) to develop a database management system

d) to study frequency distributions

e) to draw a distinction between variety and velocity

Ans: a

Difficulty: Medium

Learning Objective: Describe the data mining and data visualization processes.

Section Reference: 1.5 Data Mining and Data Visualization

Bloom’s level: Knowledge

AACSB: Analytic

126. The CFO of a mid-level investment firm reports that the company has lost thousands of dollars through its data mining process due to poor data accuracy and quality. She is addressing an issue related to:

a) veracity

b) volume

c) business intelligence

d) descriptive analytics

e) sampling distribution

Ans: a

Difficulty: Medium

Learning Objective: Describe the data mining and data visualization processes.

Section Reference: 1.5 Data Mining and Data Visualization

Bloom’s level: Comprehension

AACSB: Analytic

127. After acquiring a major investment firm, managers of the acquiring company needed a process to transform the mountains of the acquired company’s data into useful business information. This can be done with \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

a) extracting management

b) visualization analytics

c) data mining

d) tableau-produced analytics

e) spectrum mining

Ans: c

Difficulty: Medium

Learning Objective: Describe the data mining and data visualization processes.

Section Reference: 1.5 Data Mining and Data Visualization

Bloom’s level: Comprehension

AACSB: Analytic

128. A software package defined as a category of computer graphics products used to create graphical displays and interfaces for software applications would be used in \_\_\_\_\_\_\_\_\_\_\_\_\_\_.

a) data monitoring

b) measuring the veracity of data

c) data visualization

d) data mining

e) prescriptive analytics

Ans: c

Difficulty: Medium

Learning Objective: Describe the data mining and data visualization processes.

Section Reference: 1.5 Data Mining and Data Visualization

Bloom’s level: Knowledge

AACSB: Analytic

129. Utilizing visual technology to convey information to a diverse audience with a wide range of backgrounds would be an example of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

a) data mining

b) prescriptive visualization

c) data visualization

d) velocity analytics

e) network analysis

Ans: c

Difficulty: Medium

Learning Objective: Describe the data mining and data visualization processes.

Section Reference: 1.5 Data Mining and Data Visualization

Bloom’s level: Knowledge

AACSB: Analytic

130. Data visualization is most commonly used in which category of business analytics?

a) Descriptive

b) Predictive

c) Metric

d) Prescriptive

e) Mining

Ans: a

Difficulty: Medium

Learning Objective: Describe the data mining and data visualization processes.

Section Reference: 1.5 Data Mining and Data Visualization

Bloom’s level: Knowledge

AACSB: Analytic

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