Business Statistics 11th edition Groebner Test Bank

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

1) For the same data, a graph of a relative frequency distribution will look exactly the same as a graph of the frequency distribution.
Answer: True False

2) When choosing class boundaries for a frequency distribution, classes such as 60- 70, 70- 80, 80- 90 would be acceptable.
Answer: True False

3) Recently a survey was conducted in which customers of a large insurance company were asked to indicate the number of speeding tickets they had received in the past three years. The data in this case would most likely be analyzed using a frequency distribution with the data grouped into classes such as 0- 2, 3- 5, 6- 8, etc.
Answer: True False

4) Recently a survey was conducted in which customers of a large insurance company were asked to indicate the number of speeding tickets they had received in the past three years. The minimum value in the data was zero and the largest was six tickets. If you wished to illustrate the proportion of people who had three or fewer tickets, you would most likely construct a cumulative relative frequency distribution.
Answer: True False

5) Frequency distributions are specifically for analyzing discrete data.
Answer: True False

6) It is often a good idea to convert frequency distributions to relative frequency distributions when you wish to compare two distributions with different amounts of data.
Answer: True False

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7) There is no difference between cumulative frequency and relative frequency.
Answer: True False

8) A study of 2000 Verizon cellphone customers listed the annual incomes of the customers as well as other variables. The lowest income was $25,000 and the highest income was $145,000. To develop a frequency distribution with 6 classes, the smallest value that the class width can be is 20K.
Answer: True False

9) A cumulative frequency distribution shows the percentage of observations for the variable of interest with values less than or equal to the upper limit of each class.
Answer: True False

10) In constructing a frequency distribution for the savings account balances for customers at a bank, the following class boundaries might be acceptable if the minimum balance is $5.00 and the maximum balance is $18,700:
$0.00 - $5,000
$5,000 - 10,000
$10,000 - $15,000
$15,000 - $20,000
Answer: True False

11) The appropriate number of classes should generally be between 5 and 20.
Answer: True False

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12) There is no hard- and- fast rule regarding the number of classes that must be used when establishing a frequency distribution for a continuous variable.

Answer: True False

13) The following class limits would be acceptable for developing a frequency distribution on income:
$0 < $5,000
$5001 < $10,000
$10,001 < $20,000
Over $20,000

Answer: True False

14) If a manager is interested in analyzing the relationship between the age of customers and the dollar volume of business that is done in the store, a relative frequency distribution would be most appropriate.

Answer: True False

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

15) Recently a study of fans attending the New York Mets baseball games was conducted and 500 fans were surveyed. In forming a frequency distribution of the number of miles fans traveled from home to the stadium, it was found that 247 fans traveled between 0 and 5 miles. Based on this information what was the relative frequency for this class?
A) 0.494
B) 0.247
C) 0.30
D) Can't be determined without more information.

Answer: A

16) Frequency distributions can be formed from which of the following types of data?
A) Both discrete and continuous
B) Continuous only
C) Only qualitative data
D) Discrete only

Answer: A

17) Which of the following is not considered desirable when constructing a frequency distribution for continuous data?
A) Equal- width classes
B) All- inclusive classes
C) Open- ended classes
D) Mutually exclusive classes

Answer: C

18) Assuming you have data for a variable with 2,000 values, using the $2^k \geq n$ guideline, what is the least number of groups that should be used in developing a grouped data frequency distribution?
A) 12
B) 11
C) 9
D) 13

Answer: B

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

19) When developing a frequency distribution, the following bin classifications follow the definition of appropriate intervals of a variable:
0 to < 10
10 to < 20
20 to < 25
Answer: True False

20) Once you have determined the class width using the formula, high- low divided by the number of classes, it is appropriate to round to the nearest integer to make the analysis easier.
Answer: True False

21) The upper and lower limits of each class in a frequency distribution are also referred to as the data array.
Answer: True False

22) In a recent study of retail daily sales by stores at a mall in Kansas, the minimum daily sales was $700 and the maximum was $51,000. If you wish to construct a frequency distribution with 10 classes, the minimum class width would be $5,100.
Answer: True False

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

23) The Maple Grove Hotel manager has collected data on the number of rooms occupied each evening for the past 700 nights. The fewest rooms occupied during that period was 11 and the most was the capacity, 430. Based on this information, which of the following would be reasonable class limits for the first class if the manager wishes to use 8 classes to develop a frequency distribution?
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A) 0 to 52.38
B) 11 to 19
C) 10 to < 65
D) 0 to 40
Answer: C

24) A common rule of thumb for determining how many classes to use when developing a frequency distribution with classes is:
A) equal to 0.25 times the number of data values.
B) no fewer than 6 classes.
C) at least 10 classes.
D) between 5 and 20 classes.
Answer: D

25) Which of the following is an acceptable format for setting up class boundaries for a frequency distribution?
A) 200 to 299.99
B) 20 to under 40
C) 20 to 40
D) All of the above.
Answer: D

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26) Many Walmart stores have automotive departments where customers can buy tires, have their vehicles serviced, and obtain other automotive services. Recently, the manager at an Ohio Walmart collected data on the time customers had to wait to get the desired automotive service. Of the 500 cars in the sample, the shortest time any customer spent waiting was 3 minutes and the longest time was 183 minutes. Assuming that the manager wishes to develop a frequency distribution with 9 classes, which of the following would be an appropriate class width for each class?

A) 19.99
B) 3 to 23
C) 20.00
D) 10.50

Answer: C

ESSAY. Write your answer in the space provided or on a separate sheet of paper.

27) In creating a frequency distribution for numerical data, describe the steps in choosing the classes.

Answer: The steps are (1) determine the number of classes, (2) determine the class width, (3) determine the class boundaries, and (4) count how many values are in each class.
The number of classes should generally be between 5 and 20, where the more data you have means more classes. To determine the class width, the classes must span the entire range of the data set from the smallest value to the largest value. So an initial estimate of class width is to divide the range by the number of classes.

$$W = \frac{\text{Max - Min}}{\text{\# Classes}}$$

This width usually needs to be adjusted up to a "round" number. To determine the class boundaries there are several considerations. The classes should be of equal width, have no gaps between classes (all inclusive), and no overlaps (mutually exclusive). Finally the number of observation in each class is tallied.

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28) Suppose you are given the following data.

99	107	89	94	119	99	87	116	97	101	111	99
93	121	100	115	88	93	83	112	109	116	99	94
109	104	99	96	97	93	103	89	108	94	93	98

If you wish to have a histogram with five classes, what should the first class limits be?

Answer: The first class limits can be determined by first determining the width for each class. Given that we want 5 classes, the class width is determined by:

$$W = \frac{\text{High - Low}}{\text{\# Classes}} = \frac{121 - 83}{5} = 7.60$$

However, we could round the 7.60 up to 8 for ease of interpretation. Then the first class could be set up as 83 and under 91 or 83 to 90.99 or 83 < 91.

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29) Suppose that you have a data set of 512 observations and the data values range from 36 to 187. What classes would you choose for this data set? Explain why you would choose these values.

Answer: For n=512 values, 9 classes would be about the right number of classes based on the $2^k \geq n$ rule. Then the class width should be about (187- 36)/9 = 16.8, which should be rounded to 20. So the classes should start at 20 or 30 to be low enough to contain the lowest value. So one way to do the classes is:
20 to < 40
40 to < 60
60 to < 80
80 to < 100
100 to < 120
120 to < 140
140 to < 160
160 to < 180
180 to < 200
This is 9 classes, all inclusive, mutually exclusive, equal width, and contains all the data values.

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

30) In a report describing the number of people in the family of each of the 400 employees at a manufacturing company, the frequency count at the value 3 was 220. This means that the relative frequency at the 3 level is .44.

Answer: True ● False

31) A histogram can be created for discrete or continuous data.

Answer: ● True False

32) In a recent study at First National Bank, a frequency count was made for the variable marital status for the bank's 10,000 customers. It would also be appropriate to develop a histogram for this variable to show how marital status is distributed.

Answer: True ● False

33) A histogram can be constructed for data that are either quantitative or qualitative.

Answer: True ● False

34) Consider a situation in which both a frequency distribution and a relative frequency distribution have been developed for the same quantitative variable. If histograms are constructed from each distribution, the graphs will appear to have the same shape.

Answer: ● True False

35) When a histogram is constructed for discrete numerical data, there should be spaces between the bars of the histogram.

Answer: True ● False

36) An ogive is a graph that shows cumulative relative frequency.

Answer: ● True False

37) An ogive is a graph of a joint frequency distribution.

Answer: True ● False

38) A histogram is an effective tool for graphically describing a joint frequency distribution.

Answer: True ● False

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39) In a study involving car owners, one question asked the owner for the number of miles driven last year. A second question asked the owner for the age of the vehicle. A histogram would be useful for analyzing the relationship between miles driven and the age of the vehicle.

Answer: True ✔ False

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

40) A histogram is most commonly used to analyze which of the following?
A) Nominal level data
B) Quantitative data
C) Ordinal data
D) Time- series data

Answer: B

41) A histogram is used to display which of the following characteristics for a quantitative variable?
A) The spread in the data
B) The approximate center of the data
C) The shape of the distribution
D) All of the above.

Answer: D

42) When using Excel's Histogram option under the Data Analysis tool, the term bins refers to:
A) the column where the data are located.
B) the lower limits of each class.
C) the mid- point of each class.
D) the upper limits of each class.

Answer: D

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43) A frequency histogram should be computed from which type of data?
A) Ordinal data
B) Quantitative data
C) Nominal level data
D) Categorical data

Answer: B

ESSAY. Write your answer in the space provided or on a separate sheet of paper.

44) Explain what information can be conveyed by a frequency histogram.

Answer: A frequency histogram can be used to convey information about three different characteristics of a quantitative variable. First, the histogram can give us an idea of where the center of the data falls. The histogram can show the spread in the variable. Finally, the histogram can show the shape of the distribution.

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

45) One way to develop a frequency distribution using Excel is to use the Frequency function.

Answer: ✔ True False

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46) After developing a frequency distribution for a quantitative variable, a histogram can be developed with the horizontal axis representing the values of the variable and the vertical axis representing the frequency of occurrence in each class or group.

Answer: True False

47) When the Histogram tool in Excel is used to construct a frequency distribution and histogram, the default histogram is in the proper format and will require only that you add appropriate labels.

Answer: True False

48) When using the Histogram tool in Excel to construct a frequency distribution and histogram, the bins represent the upper class limits.

Answer: True False

49) When using the Histogram tool in Excel to construct a frequency distribution and histogram, if the first bin value is 10 and the second bin value is 20, the frequency count for the second class will include all values from 10 up to, but not including, 20.

Answer: True False

50) If you wish to construct a graph of a relative frequency distribution, you would most likely construct an ogive.

Answer: True False

51) In constructing a histogram for a joint frequency distribution, the histogram will have the most meaning for the decision maker if there are no gaps between the bars on the histogram.

Answer: True False

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

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52) In forming the classes for a frequency distribution and histogram, suppose there were a number of empty classes. You should:

A) keep the current class width.
B) decrease the class width.
C) use an ogive instead.
D) increase the class width.

Answer: B

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ESSAY. Write your answer in the space provided or on a separate sheet of paper.

53) Discuss the steps that you would use to manually construct a histogram for the salaries of the 1,124 employees in the Ferris Steel Company.

Answer: We might begin by sorting the data from low to high. Since salaries would likely be somewhat continuous, there would likely be lots of different possible salaries represented in the 1,124 data points. Thus, we would need to group the data into classes. We need to determine how many classes we want to use. The rule of thumb is somewhere between 5- 20 depending on the data. Once the number of classes is determined, we next compute the class width using the formula:

$$W = \frac{\text{High - Low}}{\text{\# Classes}}$$

We can round this class width up to a nice round number for ease of interpretation. Next, we form the classes making sure that they are mutually exclusive and all inclusive. In addition, they should be the same width, if possible. Once the classes are determined, the next step is to form a frequency distribution by counting how many of the salaries fall in each class. A histogram can be formed directly from the frequency distribution by placing the variable (salaries) on the horizontal axis. The vertical axis will represent the frequency in each class. Bars are drawn with width corresponding to the class limits and height corresponding to frequency in each class, no gaps are allowed except in cases where the frequency is equal to zero. Label the histogram appropriately.

54) Explain why a relative frequency histogram is sometimes preferable to a regular frequency histogram.

Answer: Relative frequencies are used when we are interested in comparing two or more distributions when the number of data values in the distributions differs. For instance, suppose we have two frequency distributions on salaries, one for college graduates and one for non- college graduates. There are 100 college graduates in the data set and 1,000 non- college graduates. In each distribution, the first class limits are $0 through $15,000. If there are 5 college graduates in the first class and 50 non- college graduates in the first class, it may appear that non- college graduates are much more heavily represented in the low salary bracket. However, if we convert these to relative frequencies, it turns out that the relative frequency is 0.05 for both groups.

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

55) A joint frequency distribution is used to describe the number of occurrences where two observations in a data set have the same value.

Answer: True ✓ False

56) A joint frequency distribution can be constructed for either quantitative or qualitative data.

Answer: ✓ True False

57) A recent study of students at the university contained data on year in school and student age. An appropriate tool for analyzing the relationship between these two variables would be a joint frequency distribution.

Answer: ✓ True False

58) A histogram can be used to display a joint frequency distribution between two quantitative variables.

Answer: True ✓ False

59) In Excel, joint frequency distributions can be generated using the Pivot Table feature under the Data tab.

Answer: ✓ True False

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60) An ogive is a graph that shows cumulative relative frequency.
Answer: True False

61) If you have constructed a joint frequency distribution manually and now wish to convert it to a joint relative distribution, the proper method is to divide each cell frequency by the cell's row total.
Answer: True False

62) Another name for a joint frequency distribution is a cross- tabulation table.
Answer: True False

63) Two separate frequency distributions for two variables provide the same information as one joint frequency distribution involving the same two variables.
Answer: True False

64) In Excel a joint frequency distribution table can be created using a tool called PivotTable.
Answer: True False

65) In a study involving car owners, one question asked the owner for the number of miles driven last year. A second question asked the owner for the age of the vehicle. A joint frequency distribution would be useful for determining whether newer cars tend to be driven more miles than older cars.
Answer: True False

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

66) Which of the following is a reason for constructing a joint frequency distribution?
A) To determine the trend between the two variables
B) To show the average of two variables
C) To help analyze the relationship between the two variables
D) To measure the spread between the two variables
Answer: C

67) Joint frequency distributions are used to display:
A) the cumulative distribution of a variable with two possible outcomes.
B) the relative frequency of two variables.
C) the histograms of two variables analyzed simultaneously.
D) the number of occurrences at each of the possible joint occurrences of two variables.
Answer: D

68) A study was recently done in which the brand preference for breakfast cereal was analyzed against the gender of the shopper. The study consisted of 200 male shoppers and 300 female shoppers. Three different cereal brands were considered: A, B, and C. A total of 250 female shoppers preferred brand A, 25 female shoppers preferred brand C. The number of female shoppers that preferred brand B was:
A) 75.
B) 100.
C) 25.
D) 50.
Answer: C

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69) A study was recently done in which the brand preference for breakfast cereal was analyzed against the gender of the shopper. The study consisted of 200 male shoppers and 300 female shoppers. Three different cereal brands were considered: A, B, and C. A total of 250 female shoppers preferred brand A, 25 female shoppers preferred brand C. A total of 100 shoppers preferred brand B. The number of male shoppers that preferred brand B was:
A) 50.
B) 100.
C) 75.
D) 25.

Answer: C

70) The undergraduate students at your university are classified as freshmen, sophomores, juniors, or seniors. A recent study of undergraduates asked the students to indicate the number of credits they were registered for this term. The responses were 3, 6, 9, 12, 15, and 18. The number of cells in a joint frequency distribution for the two variables, class standing, and credit hours is:
A) 10.
B) 4.
C) 24.
D) None of the above.

Answer: C

71) Which of the following CANNOT be shown effectively with a histogram?
A) The center, shape and spread of a distribution
B) A frequency distribution
C) A joint frequency distribution
D) A relative frequency distribution

Answer: C

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

72) A bar chart is the same as a histogram.

Answer: True False

73) Histograms cannot have gaps between the bars, whereas bar charts can have gaps.

Answer: True False

74) The regional sales manager for a medical supply company recently collected data on the reasons why customers returned the merchandise for a refund. She actually formed a frequency distribution for this variable. It would now be acceptable to construct a bar chart to graphically display the results.

Answer: True False

75) Bar charts can typically be formed with the bars vertical or horizontal without adversely affecting the interpretation.

Answer: True False

76) Bar charts can show either frequency or percentage.

Answer: True False

77) A tire store manager has collected data showing the number of tires of each brand sold during the past month. A bar chart might be effective in graphically illustrating which brands tend to sell best at this store.

Answer: True False

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78) A pie chart is almost always constructed when the variable of interest is qualitative.

Answer: True ● False

79) In situations involving two or more variables, both histograms and bar charts can be used for multiple variables on the same graph.

Answer: True ● False

80) The difference between bar charts and histograms is that bar charts always show percentage while histograms always show frequency.

Answer: True ● False

81) When developing a bar chart, it is usually preferable to organize the bars in order from high to low.

Answer: True ● False

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

82) Which of the following is NOT true of a bar chart?

A) The bars can be either horizontal or vertical.
B) It can show either frequency or relative frequency.
C) It is used for categorical data.
D) It is used for numerical data.

Answer: D

83) One characteristic of a bar chart is:

A) it is used to display the distribution of a continuous variable.
B) the bars can be displayed either vertically or horizontally.
C) there can be no gaps between the bars.
D) it shows cumulative frequency.

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Answer: B

84) A bar chart is most likely used to display which of the following?

A) A continuous variable
B) A nominal level variable
C) An ordinal level variable
D) Either B or C

Answer: D

85) One of the key differences between a bar chart and histogram is:

A) a bar chart is used to display a categorical variable and a histogram is used to display the distribution of a quantitative variable.
B) the bar chart must be vertical while the histogram must be horizontal.
C) the histogram contains gaps between the bars and the bar chart does not.
D) the histogram shows relative frequency while the bar chart shows frequency.

Answer: A

86) Which of the following is a false statement?

A) A bar chart and histogram can typically be used interchangeably.
B) A histogram is usually constructed without gaps between the bars.
C) The bars on a bar chart can be different colors.
D) A bar chart is usually constructed so that gaps exist between the bars.

Answer: A

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87) Which of the following is a key difference between a bar chart and a histogram?
A) A bar chart is developed to analyze a continuous variable, while a histogram is used to analyze discrete variables.
B) A bar chart typically has gaps between the bars while a histogram has no gaps.
C) Both A and B are correct.
D) There is actually no real difference between a bar chart and a histogram.
Answer: B

88) A bar chart possesses which of the following?
A) An easy method for displaying the general shape of a continuous variable
B) The option of displaying the data in scatter diagram form
C) The option for displaying two or more variables on the same chart
D) Capability of displaying the distribution for a quantitative variable
Answer: C

ESSAY. Write your answer in the space provided or on a separate sheet of paper.

89) Why should a histogram contain no gaps between the bars but a bar chart may have gaps?
Answer: A histogram is used to convey the distribution of a quantitative variable. The horizontal axis represents the range of possible values for the variable of interest. The bars are joined together to form the distribution. A bar chart is used to illustrate a qualitative variable. By using gaps between the bars, the differences between the categories are more easily seen.

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

90) A stem and leaf diagram is most similar to a bar chart.
Answer: True ● False

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91) A study was recently conducted in which makers of toothpaste tracked sales for the month at different stores in a market area. The variable of interest was the number of units sold. The numbers ranged from 1,200 to 22,700. In this case, the stems in a stem and leaf diagram might be values such as 1 and 22 while the leaves would be 200 and 700.
Answer: ● True False

92) In constructing a stem and leaf diagram, the stem and leaves are defined using a similar method to the definition of the bins of a histogram.
Answer: ● True False

93) A stem and leaf diagram is more appropriate for graphically displaying a joint frequency distribution than is a histogram since the stems can be used to display one variable while the leaves can be used to display the second variable.
Answer: True ● False

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

94) Which of the following is true about the difference between stem and leaf diagrams and histograms?
A) The histogram shows the shape center and spread of the distribution while the stem and leaf does not.
B) The stem and leaf diagram shows more information by showing the individual values.
C) The stem and leaf diagram shows less information than a histogram.
D) There is no difference.
Answer: B

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95) A stem and leaf diagram is used to:
A) show the joint relationship between two variables.
B) graph a joint frequency distribution.
C) show relative cumulative frequency.
D) display the distribution of a quantitative variable.

Answer: D

96) A stem and leaf diagram is an alternative to using:
A) a pie chart.
B) a bar chart.
C) an ogive.
D) a histogram.

Answer: D

97) One of the advantages that a stem and leaf diagram has over a histogram is:
A) the detail of the data is preserved.
B) it can be used with nominal data.
C) it shows the general distribution of a quantitative variable.
D) There are no advantages.

Answer: A

ESSAY. Write your answer in the space provided or on a separate sheet of paper.

98) A company has 400 employees. The manager of human resources has recorded the annual salary and wages for each employee. These value range from $17,500 to $67,800. Provide an example of a stem and a leaf that could be developed to describe the distribution of the salary and wage data.

Answer: Given these data, the stems could be the thousands (e.g. 17 and 67) and the leaves could be the hundreds (e.g. 5 and 8).

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

99) The Wilson company monitors customer complaints and organizes these complaints into six distinct categories. Over the past year, the company has received 534 complaints. One possible graphical method for representing these data would be a histogram.

Answer: True False

100) One of the differences between a stem and leaf diagram and a histogram is that even for variables involving a large number of different values, the stem and leaf diagram shows the individual data values whereas the histogram requires you to group the data and lose the individual values.

Answer: True False

101) If the Viking Sales Company plans to display the sales for each of its six major products for the year 2001, an effective chart to do this would be a histogram.

Answer: True False

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

102) A study was recently conducted by the regional electric and gas company. Data were collected for three customer categories showing the dollar amount of natural gas and the dollar amount of electricity consumed during the year. Which of the following graphs would most likely be used to display both sets of data together?
A) Line chart
B) Pie chart
C) Histogram
D) Bar chart

Answer: D

103) The city counsel has just voted to pass the city's budget for next year. If you were writing a report describing the budget so the citizens could understand how the total tax dollars will be spent, which of the following graphs might be most appropriate?
A) Scatter diagram
B) Pie chart
C) Histogram
D) Ogive

Answer: B

104) At a manufacturing plant workers are divided into 4 different teams that rotate shifts. The number of units produced by each team is recorded. The best type of chart to display the data is a:
A) line chart.
B) pie chart.
C) ogive.
D) histogram.

Answer: B

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105) A homeowners association consists of 20 homes. The family in each home is considered an automatic member of the association. Recently, one of the homes fell into a state of disrepair. A survey was conducted of the homeowners both on the same street as the house in question and on the second street. At issue was whether legal action should be brought against the homeowner with the problem house. There are 8 homes on the same street as the problem house and 6 of these called for legal action. The percentage of houses on the second street that favored legal action is 50 percent. Which type of chart might be most effective for conveying the information about percentage of residents favoring legal action by street?
A) Histogram
B) Stem and leaf diagram
C) Pie chart
D) Bar chart

Answer: D

106) The Grangeville Power Company has four classifications for its customers. For each customer classification, the company tracks the total amount of electricity used during the year. Which of the following types of graphs would be most appropriate to use?
A) A vertical bar chart
B) A horizontal bar chart
C) Both A and B would be appropriate.
D) A histogram

Answer: C

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107) The Canyon Water Company collects data on the number of gallons of water consumed during a month for each customer. The production manager has divided the usage into 6 classes. To display these data effectively, she could use which of the following types of graphs to convey information about the water usage?
A) A histogram
B) A stem and leaf diagram
C) A bar chart
D) Either a histogram or a pie chart

Answer: D

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

108) In a scatter plot the points should always be connected with a line.

Answer: True ✔ False

109) A major insurance company believes that for drivers between 16 years of age and 60 years of age, the number of accidents per year tends to decrease as age increases. If this is the case, a scatter diagram should show a negative relationship between the two variables.

Answer: ✔ True False

110) When developing a scatter diagram, it is appropriate to connect the points on the graph with straight lines or the lines can be omitted.

Answer: True ✔ False

111) Scatter diagrams can be used for either quantitative or qualitative data.

Answer: True ✔ False

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112) If a scatter diagram shows points that are reasonably aligned and are sloping downward from left to right, this implies that there is a negative linear relationship between the two variables.

Answer: ✔ True False

113) In constructing and analyzing a scatter diagram, it is important to focus on the data points of interest by establishing appropriate scales for both the x and y axes. Otherwise, a nonlinear relationship can appear to be linear.

Answer: ✔ True False

114) A scatter diagram can show whether a pair of variables has a strong or weak relationship, and also whether it is linear or curved.

Answer: ✔ True False

115) On a scatter diagram, the independent variable should be placed on the horizontal axis and the dependent variable should be placed on the vertical axis.

Answer: ✔ True False

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

116) Ace Hardware Store collected data on the sales volume for five locations for the past four months. The data are input into an Excel spreadsheet where columns A through E represents the location names and column F represents the sales for each day for the past four months at that location. In order to construct a scatter diagram that displays the percent of total sales by location for each day for the past six months, the required steps in Excel will be to:

1) Determine the total sales by location.
2) Input the daily sales for each location
3) Divide the daily sales for a particular location by the total sales for that location.

What would be the correct order of these steps?

A) 2, 1, 3
B) 2, 3, 1
C) 1, 2, 3
D) 1, 3, 2

Answer: A

117) If two variables show a positive linear relationship in a scatter diagram:

A) most of the data values will plot in the lower left- hand quadrant.
B) most of the data values will plot in the lower left- hand and upper right- hand quadrants.
C) the data will cluster in the center of the graph.
D) most of the data values will cluster close to the x and y axes.

Answer: B

118) A scatter diagram can be used to do which of the following?

A) Describe the basic distribution for a quantitative variable
B) Determine the trend in a variable
C) Analyze the relationship between two variables
D) Show the percentage of a variable that is associated with each category into which that variable has been divided

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Answer: C

119) In constructing a scatter diagram:

A) the dependent variable should be on the horizontal axis.
B) the independent variable should be on the vertical axis.
C) the independent variable should be on the horizontal axis.
D) It does not matter which variable goes on which axis.

Answer: C

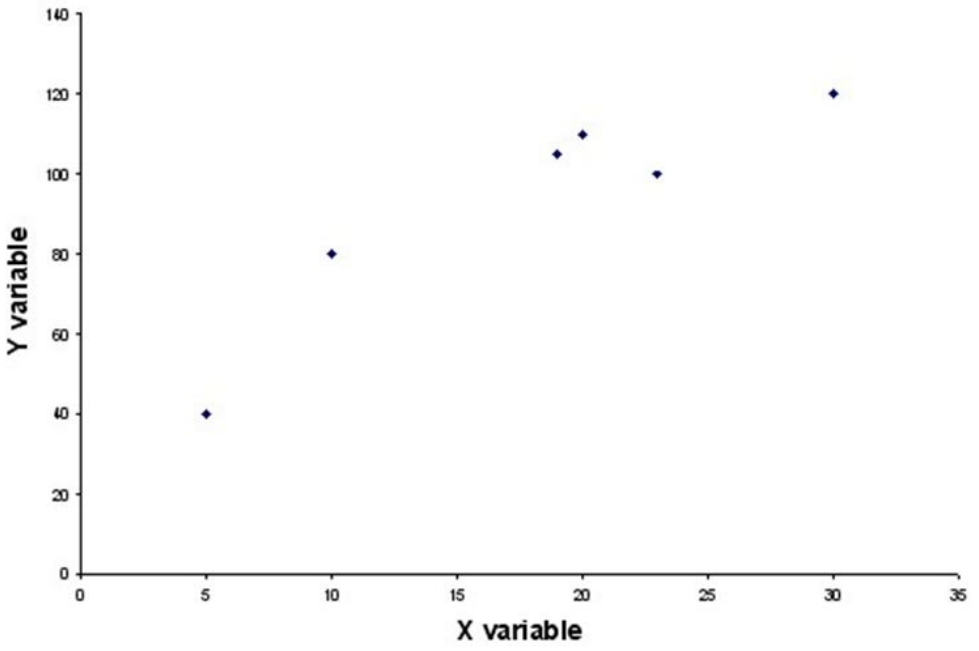
120) Which of the following questions CANNOT be answered using a scatter diagram?

A) Is there a curved or linear relation between the 2 variables?
B) Is there a weak or strong relation between the 2 variables?
C) Is there a causal relationship between the 2 variables?
D) Is there a positive or negative relation between the 2 variables?

Answer: C

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121) Consider the following chart. Which of the following statements is most correct?



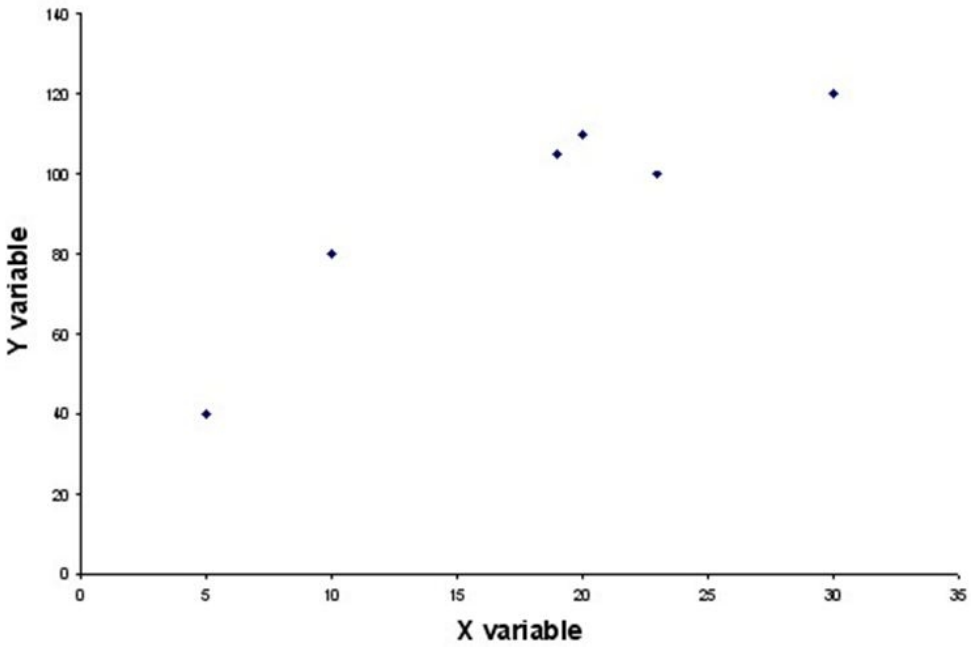
A) There is a negative linear relationship between the two variables.
B) There is no apparent relationship between the two variables.
C) There is a perfect linear relationship between the two variables.
D) There is a positive linear relationship between the two variables.

Answer: D

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122) Consider the following chart. Which of the following statements is most correct?



A) The values in a scatter plot should be connected by a straight line.
B) The values for the dependent variable are determined by the values for the independent variable.
C) A scatter plot like this one shows the trend in the data over time.
D) The variable on the horizontal axis should be the independent variable.

Answer: D

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

123) In preparing a line chart, the horizontal axis shows time and the vertical axis shows the value of the variable of interest.

Answer: True False

124) A university recently collected data for a sample of 200 business majors. One variable collected was the number of credits left to be taken before graduation. This variable could effectively be displayed using a line chart.

Answer: True False

125) If two variables are graphed on the same line chart, two separate scales are always required.

Answer: True False

126) Roscoe and Associates makes computer software for use in the telecommunications industry. Recently, managers at the company collected data for the year 2001 on three variables: total dollars spent on research and development, total sales dollars, and total employee salaries. To graphically present these three variables, the managers would be justified in using a line chart with all three variables plotted.

Answer: True False

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

127) A line chart is most appropriate for:
A) cross- sectional data.
B) ordinal level data.
C) nominal level data.
D) time- series data.
Answer: D

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

128) A scatter diagram is a line graph without the points connected by a line.
Answer: True ✔ False

129) Sawyer & Company is a law firm in Dallas, Texas. Recently, the administrative manager prepared a report for the managing partners that showed the number of court cases handled by the firm monthly over the past three years. It was appropriate for her to use a line chart in this case.
Answer: ✔ True False

130) Sawyer & Company is a law firm in Dallas, Texas. Recently, the administrative manager prepared a report for the managing partners that showed the number of court cases handled by the firm monthly over the past three years. One of the objectives of graphing these data might have been to identify a trend in the number of court cases.
Answer: ✔ True False

131) To show the relationship between amount of rainfall and the number of car accidents, the best type of graph to use is a scatter diagram.
Answer: ✔ True False

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132) The J.B. Hanson Company is interested in analyzing the relationship between end- of- the- week inventory levels and sales for the same week. The graph that most likely would be used to show this relationship is a histogram.
Answer: True ✔ False

133) A study at State University involved an analysis of students' GPAs and the number of hours that they work at jobs off- campus. An appropriate graph to display the relationship between these two variables might be a scatter diagram.
Answer: ✔ True False

134) In analyzing a single quantitative variable, you will generally choose to use a scatter diagram if the variable is measured over time and a histogram if the variable is cross- sectional.
Answer: True ✔ False

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

135) To show how the price of a stock has changed over the last 3 months, the best type of chart to use is:
A) a bar chart.
B) a line chart.
C) a pie chart.
D) a histogram.
Answer: B

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136) The managers at Harris Pizza in Boston have tracked the tips received by their drivers along with the total bill to the customer. An appropriate graph for analyzing the relationship between these two variables is:
A) a histogram.
B) a scatter diagram.
C) a pie chart.
D) a line chart.

Answer: B

137) The sales manager at Western Furniture Company tracked data on the number of customers who came into the store each day and the total dollar volume of sales at the store during the same day. She is considering putting together a report for top management and wishes to show the relationship between these two variables. Which of the following graphs would likely be most useful? She has a sample of 36 days' worth of data.
A) Pie chart
B) Frequency histogram
C) Scatter diagram
D) Bar chart

Answer: C

138) The Fitness Center manager has collected data on the number of visits to the club each week for the past 8 weeks. These data are shown as follows. Which of the following statements is most correct?

Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8
1415	1623	1934	1879	2102	2156	2511	2499

A) The proper graph for displaying these data is a pie chart.
B) The data lend themselves to a line chart.
C) A frequency histogram should be developed to help identify the trend in these data.
D) There has been a gradual downward trend in these data.

Answer: B

139) A professor wants to know if the amount of time her students spent working on a statistics assignment relates to the grade the student receives. She surveyed 10 students and recorded the data below. Which of the following statements is most correct?

# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10
5	3	3.5	1	4.5	1	3	4	2	2.5
90	80	80	60	90	70	75	85	70	75

A) A histogram will illustrate whether a linear relationship exists between the number of hours studied and the grade received.
B) A line chart for these data will show a trend between the student number and the grade received.
C) A scatter diagram would be useful for displaying a relationship between the number of hours studied and the grade received.
D) None of the above

Answer: C

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ESSAY. Write your answer in the space provided or on a separate sheet of paper.

140) Explain why it is appropriate to connect the points on a line graph, but the points on a scatter plot should not be connected.

Answer: A line chart is used to display data that are measured in sequence over time. The points are in a defined order. Connecting the points serves to illustrate any trend that may be present in the data. A scatter plot is used to show the relationship between two variables. The XY data points are plotted in a two- dimensional space. The order that the XY points are recorded is of no consequence, so connecting the points would be meaningless.

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1) TRUE
ID: BS11G 2.1.1-1
Diff: 1
Objective: (2.1) Construct different types of frequency distributions from data.

2) FALSE
ID: BS11G 2.1.1-2
Diff: 1
Objective: (2.1) Construct different types of frequency distributions from data.

3) FALSE
ID: BS11G 2.1.1-3
Diff: 2
Objective: (2.1) Construct different types of frequency distributions from data.

4) TRUE
ID: BS11G 2.1.1-4
Diff: 2
Objective: (2.1) Construct different types of frequency distributions from data.

5) FALSE
ID: BS11G 2.1.1-5
Diff: 1
Objective: (2.1) Construct different types of frequency distributions from data.

6) TRUE
ID: BS11G 2.1.1-6
Diff: 1
Objective: (2.1) Construct different types of frequency distributions from data.

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7) FALSE
ID: BS11G 2.1.1-7
Diff: 2
Objective: (2.1) Construct different types of frequency distributions from data.

8) TRUE
ID: BS11G 2.1.1-8
Diff: 2
Objective: (2.1) Construct different types of frequency distributions from data.

9) FALSE
ID: BS11G 2.1.1-9
Diff: 2
Objective: (2.1) Construct different types of frequency distributions from data.

10) FALSE
ID: BS11G 2.1.1-10
Diff: 1
Objective: (2.1) Construct different types of frequency distributions from data.

11) TRUE
ID: BS11G 2.1.1-11
Diff: 2
Objective: (2.1) Construct different types of frequency distributions from data.

12) TRUE
ID: BS11G 2.1.1-12
Diff: 1
Objective: (2.1) Construct different types of frequency distributions from data.

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Answer Key
Testname: UNTITLED2

13) FALSE
ID: BS11G 2.1.1-13
Diff: 2
Objective: (2.1) Construct different types of frequency distributions from data.

14) FALSE
ID: BS11G 2.1.1-14
Diff: 2
Objective: (2.1) Construct different types of frequency distributions from data.

15) A
ID: BS11G 2.1.1-15
Diff: 2
Objective: (2.1) Construct different types of frequency distributions from data.

16) A
ID: BS11G 2.1.1-16
Diff: 2
Objective: (2.1) Construct different types of frequency distributions from data.

17) C
ID: BS11G 2.1.1-17
Diff: 1
Objective: (2.1) Construct different types of frequency distributions from data.

18) B
ID: BS11G 2.1.1-18
Diff: 1
Objective: (2.1) Construct different types of frequency distributions from data.

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19) FALSE
ID: BS11G 2.1.2-1
Diff: 1
Objective: (2.1) Determine the class width and number of classes to use in grouped data frequency distributions.

20) FALSE
ID: BS11G 2.1.2-2
Diff: 2
Objective: (2.1) Determine the class width and number of classes to use in grouped data frequency distributions.

21) FALSE
ID: BS11G 2.1.2-3
Diff: 2
Objective: (2.1) Determine the class width and number of classes to use in grouped data frequency distributions.

22) FALSE
ID: BS11G 2.1.2-4
Diff: 2
Objective: (2.1) Determine the class width and number of classes to use in grouped data frequency distributions.

23) C
ID: BS11G 2.1.2-5
Diff: 2
Objective: (2.1) Determine the class width and number of classes to use in grouped data frequency distributions.

24) D
ID: BS11G 2.1.2-6
Diff: 1
Objective: (2.1) Determine the class width and number of classes to use in grouped data frequency distributions.

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25) D
ID: BS11G 2.1.2-7
Diff: 2
Objective: (2.1) Determine the class width and number of classes to use in grouped data frequency distributions.

26) C
ID: BS11G 2.1.2-8
Diff: 2
Objective: (2.1) Determine the class width and number of classes to use in grouped data frequency distributions.

27) The steps are (1) determine the number of classes, (2) determine the class width, (3) determine the class boundaries, and (4) count how many values are in each class.
The number of classes should generally be between 5 and 20, where the more data you have means more classes. To determine the class width, the classes must span the entire range of the data set from the smallest value to the largest value. So an initial estimate of class width is to divide the range by the number of classes.

$$W = \frac{\text{Max - Min}}{\#\text{ Classes}}$$

This width usually needs to be adjusted up to a "round" number. To determine the class boundaries there are several considerations. The classes should be of equal width, have no gaps between classes (all inclusive), and no overlaps (mutually exclusive). Finally the number of observation in each class is tallied.
ID: BS11G 2.1.2-9
Diff: 2
Objective: (2.1) Determine the class width and number of classes to use in grouped data frequency distributions.

28) The first class limits can be determined by first determining the width for each class. Given that we want 5 classes, the class width is determined by:

$$W = \frac{\text{High - Low}}{\#\text{ Classes}} = \frac{121 - 83}{5} = 7.60$$

However, we could round the 7.60 up to 8 for ease of interpretation. Then the first class could be set up as 83 and under 91 or 83 to 90.99 or 83 < 91.
ID: BS11G 2.1.2-10
Diff: 2
Objective: (2.1) Determine the class width and number of classes to use in grouped data frequency distributions.

29) For n=512 values, 9 classes would be about the right number of classes based on the $2^k \geq n$ rule. Then the class width should be about (187- 36)/9 = 16.8, which should be rounded to 20. So the classes should start at 20 or 30 to be low enough to contain the lowest value. So one way to do the classes is:
20 to < 40
40 to < 60
60 to < 80
80 to < 100
100 to < 120
120 to < 140
140 to < 160
160 to < 180
180 to < 200
This is 9 classes, all inclusive, mutually exclusive, equal width, and contains all the data values.
ID: BS11G 2.1.2-11
Diff: 2
Objective: (2.1) Determine the class width and number of classes to use in grouped data frequency distributions.

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30) FALSE
ID: BS11G 2.1.3-1
Diff: 1
Objective: (2.1) Interpret frequency distributions, histograms, and ogives.

31) TRUE
ID: BS11G 2.1.3-2
Diff: 1
Objective: (2.1) Interpret frequency distributions, histograms, and ogives.

32) FALSE
ID: BS11G 2.1.3-3
Diff: 2
Objective: (2.1) Interpret frequency distributions, histograms, and ogives.

33) FALSE
ID: BS11G 2.1.3-4
Diff: 1
Objective: (2.1) Interpret frequency distributions, histograms, and ogives.

34) TRUE
ID: BS11G 2.1.3-5
Diff: 2
Objective: (2.1) Interpret frequency distributions, histograms, and ogives.

35) FALSE
ID: BS11G 2.1.3-6
Diff: 2
Objective: (2.1) Interpret frequency distributions, histograms, and ogives.

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36) TRUE
ID: BS11G 2.1.3-7
Diff: 1
Objective: (2.1) Interpret frequency distributions, histograms, and ogives.

37) FALSE
ID: BS11G 2.1.3-8
Diff: 1
Objective: (2.1) Interpret frequency distributions, histograms, and ogives.

38) FALSE
ID: BS11G 2.1.3-9
Diff: 2
Objective: (2.1) Interpret frequency distributions, histograms, and ogives.

39) FALSE
ID: BS11G 2.1.3-10
Diff: 3
Objective: (2.1) Interpret frequency distributions, histograms, and ogives.

40) B
ID: BS11G 2.1.3-11
Diff: 2
Objective: (2.1) Interpret frequency distributions, histograms, and ogives.

41) D
ID: BS11G 2.1.3-12
Diff: 2
Objective: (2.1) Interpret frequency distributions, histograms, and ogives.

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42) D
ID: BS11G 2.1.3-13
Diff: 2
Objective: (2.1) Interpret frequency distributions, histograms, and ogives.

43) B
ID: BS11G 2.1.3-14
Diff: 2
Objective: (2.1) Interpret frequency distributions, histograms, and ogives.

44) A frequency histogram can be used to convey information about three different characteristics of a quantitative variable. First, the histogram can give us an idea of where the center of the data falls. The histogram can show the spread in the variable. Finally, the histogram can show the shape of the distribution.
ID: BS11G 2.1.3-15
Diff: 2
Objective: (2.1) Interpret frequency distributions, histograms, and ogives.

45) TRUE
ID: BS11G 2.1.4-1
Diff: 2
Objective: (2.1) Construct frequency distributions and use them to develop frequency histograms and ogives.

46) TRUE
ID: BS11G 2.1.4-2
Diff: 2
Objective: (2.1) Construct frequency distributions and use them to develop frequency histograms and ogives.

47) FALSE
ID: BS11G 2.1.4-3
Diff: 2
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Objective: (2.1) Construct frequency distributions and use them to develop frequency histograms and ogives.

48) TRUE
ID: BS11G 2.1.4-4
Diff: 2
Objective: (2.1) Construct frequency distributions and use them to develop frequency histograms and ogives.

49) FALSE
ID: BS11G 2.1.4-5
Diff: 3
Objective: (2.1) Construct frequency distributions and use them to develop frequency histograms and ogives.

50) FALSE
ID: BS11G 2.1.4-6
Diff: 2
Objective: (2.1) Construct frequency distributions and use them to develop frequency histograms and ogives.

51) FALSE
ID: BS11G 2.1.4-7
Diff: 2
Objective: (2.1) Construct frequency distributions and use them to develop frequency histograms and ogives.

52) B
ID: BS11G 2.1.4-8
Diff: 2
Objective: (2.1) Construct frequency distributions and use them to develop frequency histograms and ogives.

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Answer Key
Testname: UNTITLED2

53) We might begin by sorting the data from low to high. Since salaries would likely be somewhat continuous, there would likely be lots of different possible salaries represented in the 1,124 data points. Thus, we would need to group the data into classes. We need to determine how many classes we want to use. The rule of thumb is somewhere between 5- 20 depending on the data. Once the number of classes is determined, we next compute the class width using the formula:

$$W = \frac{\text{High - Low}}{\text{\# Classes}}$$

We can round this class width up to a nice round number for ease of interpretation. Next, we form the classes making sure that they are mutually exclusive and all inclusive. In addition, they should be the same width, if possible. Once the classes are determined, the next step is to form a frequency distribution by counting how many of the salaries fall in each class. A histogram can be formed directly from the frequency distribution by placing the variable (salaries) on the horizontal axis. The vertical axis will represent the frequency in each class. Bars are drawn with width corresponding to the class limits and height corresponding to frequency in each class, no gaps are allowed except in cases where the frequency is equal to zero. Label the histogram appropriately.
ID: BS11G 2.1.4- 9
Diff: 3
Objective: (2.1) Construct frequency distributions and use them to develop frequency histograms and ogives.

54) Relative frequencies are used when we are interested in comparing two or more distributions when the number of data values in the distributions differs. For instance, suppose we have two frequency distributions on salaries, one for college graduates and one for non- college graduates. There are 100 college graduates in the data set and 1,000 non- college graduates. In each distribution, the first class limits are $0 through $15,000. If there are 5 college graduates in the first class and 50 non- college graduates in the first class, it may appear that non- college graduates are much more heavily represented in the low salary bracket. However, if we convert these to relative frequencies, it turns out that the relative frequency is 0.05 for both groups.
ID: BS11G 2.1.4- 10
Diff: 2
Objective: (2.1) Construct frequency distributions and use them to develop frequency histograms and ogives.

55) FALSE
ID: BS11G 2.1.5- 1
Diff: 1
Objective: (2.1) Construct and interpret joint frequency distributions.

56) TRUE
ID: BS11G 2.1.5- 2
Diff: 2
Objective: (2.1) Construct and interpret joint frequency distributions.

57) TRUE
ID: BS11G 2.1.5- 3
Diff: 2
Objective: (2.1) Construct and interpret joint frequency distributions.

58) FALSE
ID: BS11G 2.1.5- 4
Diff: 3
Objective: (2.1) Construct and interpret joint frequency distributions.

59) TRUE
ID: BS11G 2.1.5- 5
Diff: 2
Objective: (2.1) Construct and interpret joint frequency distributions.

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Answer Key
Testname: UNTITLED2

60) TRUE
ID: BS11G 2.1.5-6
Diff: 1
Objective: (2.1) Construct and interpret joint frequency distributions.

61) FALSE
ID: BS11G 2.1.5-7
Diff: 2
Objective: (2.1) Construct and interpret joint frequency distributions.

62) TRUE
ID: BS11G 2.1.5-8
Diff: 1
Objective: (2.1) Construct and interpret joint frequency distributions.

63) FALSE
ID: BS11G 2.1.5-9
Diff: 3
Objective: (2.1) Construct and interpret joint frequency distributions.

64) TRUE
ID: BS11G 2.1.5-10
Diff: 2
Objective: (2.1) Construct and interpret joint frequency distributions.

65) TRUE
ID: BS11G 2.1.5-11
Diff: 2
Objective: (2.1) Construct and interpret joint frequency distributions.

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66) C
ID: BS11G 2.1.5-12
Diff: 1
Objective: (2.1) Construct and interpret joint frequency distributions.

67) D
ID: BS11G 2.1.5-13
Diff: 2
Objective: (2.1) Construct and interpret joint frequency distributions.

68) C
ID: BS11G 2.1.5-14
Diff: 1
Objective: (2.1) Construct and interpret joint frequency distributions.

69) C
ID: BS11G 2.1.5-15
Diff: 2
Objective: (2.1) Construct and interpret joint frequency distributions.

70) C
ID: BS11G 2.1.5-16
Diff: 1
Objective: (2.1) Construct and interpret joint frequency distributions.

71) C
ID: BS11G 2.1.5-17
Diff: 2
Objective: (2.1) Construct and interpret joint frequency distributions.

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Answer Key
Testname: UNTITLED2

72) FALSE
ID: BS11G 2.2.1-1
Diff: 1
Objective: (2.2) Construct and interpret bar charts and pie charts.

73) TRUE
ID: BS11G 2.2.1-2
Diff: 1
Objective: (2.2) Construct and interpret bar charts and pie charts.

74) TRUE
ID: BS11G 2.2.1-3
Diff: 2
Objective: (2.2) Construct and interpret bar charts and pie charts.

75) TRUE
ID: BS11G 2.2.1-4
Diff: 2
Objective: (2.2) Construct and interpret bar charts and pie charts.

76) TRUE
ID: BS11G 2.2.1-5
Diff: 1
Objective: (2.2) Construct and interpret bar charts and pie charts.

77) TRUE
ID: BS11G 2.2.1-6
Diff: 2
Objective: (2.2) Construct and interpret bar charts and pie charts.

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78) FALSE
ID: BS11G 2.2.1-7
Diff: 2
Objective: (2.2) Construct and interpret bar charts and pie charts.

79) FALSE
ID: BS11G 2.2.1-8
Diff: 3
Objective: (2.2) Construct and interpret bar charts and pie charts.

80) FALSE
ID: BS11G 2.2.1-9
Diff: 1
Objective: (2.2) Construct and interpret bar charts and pie charts.

81) FALSE
ID: BS11G 2.2.1-10
Diff: 2
Objective: (2.2) Construct and interpret bar charts and pie charts.

82) D
ID: BS11G 2.2.1-11
Diff: 2
Objective: (2.2) Construct and interpret bar charts and pie charts.

83) B
ID: BS11G 2.2.1-12
Diff: 1
Objective: (2.2) Construct and interpret bar charts and pie charts.

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84) D
ID: BS11G 2.2.1-13
Diff: 2
Objective: (2.2) Construct and interpret bar charts and pie charts.

85) A
ID: BS11G 2.2.1-14
Diff: 2
Objective: (2.2) Construct and interpret bar charts and pie charts.

86) A
ID: BS11G 2.2.1-15
Diff: 2
Objective: (2.2) Construct and interpret bar charts and pie charts.

87) B
ID: BS11G 2.2.1-16
Diff: 2
Objective: (2.2) Construct and interpret bar charts and pie charts.

88) C
ID: BS11G 2.2.1-17
Diff: 2
Objective: (2.2) Construct and interpret bar charts and pie charts.

89) A histogram is used to convey the distribution of a quantitative variable. The horizontal axis represents the range of possible values for the variable of interest. The bars are joined together to form the distribution. A bar chart is used to illustrate a qualitative variable. By using gaps between the bars, the differences between the categories are more easily seen.
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ID: BS11G 2.2.1-18
Diff: 2
Objective: (2.2) Construct and interpret bar charts and pie charts.

90) FALSE
ID: BS11G 2.2.2-1
Diff: 1
Objective: (2.2) Construct and interpret stem and leaf diagrams.

91) TRUE
ID: BS11G 2.2.2-2
Diff: 2
Objective: (2.2) Construct and interpret stem and leaf diagrams.

92) TRUE
ID: BS11G 2.2.2-3
Diff: 1
Objective: (2.2) Construct and interpret stem and leaf diagrams.

93) FALSE
ID: BS11G 2.2.2-4
Diff: 2
Objective: (2.2) Construct and interpret stem and leaf diagrams.

94) B
ID: BS11G 2.2.2-5
Diff: 2
Objective: (2.2) Construct and interpret stem and leaf diagrams.

95) D
ID: BS11G 2.2.2-6
Diff: 2
Objective: (2.2) Construct and interpret stem and leaf diagrams.

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96) D
ID: BS11G 2.2.2-7
Diff: 2
Objective: (2.2) Construct and interpret stem and leaf diagrams.

97) A
ID: BS11G 2.2.2-8
Diff: 2
Objective: (2.2) Construct and interpret stem and leaf diagrams.

98) Given these data, the stems could be the thousands (e.g. 17 and 67) and the leaves could be the hundreds (e.g. 5 and 8).
ID: BS11G 2.2.2-9
Diff: 2
Objective: (2.2) Construct and interpret stem and leaf diagrams.

99) FALSE
ID: BS11G 2.2.3-1
Diff: 2
Objective: (2.2) Construct multiple visualizations of data and determine which is most appropriate.

100) TRUE
ID: BS11G 2.2.3-2
Diff: 2
Objective: (2.2) Construct multiple visualizations of data and determine which is most appropriate.

101) FALSE
ID: BS11G 2.2.3-3
Diff: 2
Objective: (2.2) Construct multiple visualizations of data and determine which is most appropriate.

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102) D
ID: BS11G 2.2.3-4
Diff: 2
Objective: (2.2) Construct multiple visualizations of data and determine which is most appropriate.

103) B
ID: BS11G 2.2.3-5
Diff: 2
Objective: (2.2) Construct multiple visualizations of data and determine which is most appropriate.

104) B
ID: BS11G 2.2.3-6
Diff: 2
Objective: (2.2) Construct multiple visualizations of data and determine which is most appropriate.

105) D
ID: BS11G 2.2.3-7
Diff: 2
Objective: (2.2) Construct multiple visualizations of data and determine which is most appropriate.

106) C
ID: BS11G 2.2.3-8
Diff: 2
Objective: (2.2) Construct multiple visualizations of data and determine which is most appropriate.

107) D
ID: BS11G 2.2.3-9
Diff: 2
Objective: (2.2) Construct multiple visualizations of data and determine which is most appropriate.

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Answer Key
Testname: UNTITLED2

108) FALSE
ID: BS11G 2.3.1-1
Diff: 1
Objective: (2.3) Construct and interpret scatter diagrams.

109) TRUE
ID: BS11G 2.3.1-2
Diff: 2
Objective: (2.3) Construct and interpret scatter diagrams.

110) FALSE
ID: BS11G 2.3.1-3
Diff: 2
Objective: (2.3) Construct and interpret scatter diagrams.

111) FALSE
ID: BS11G 2.3.1-4
Diff: 1
Objective: (2.3) Construct and interpret scatter diagrams.

112) TRUE
ID: BS11G 2.3.1-5
Diff: 2
Objective: (2.3) Construct and interpret scatter diagrams.

113) TRUE
ID: BS11G 2.3.1-6
Diff: 1
Objective: (2.3) Construct and interpret scatter diagrams.

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114) TRUE
ID: BS11G 2.3.1-7
Diff: 2
Objective: (2.3) Construct and interpret scatter diagrams.

115) TRUE
ID: BS11G 2.3.1-8
Diff: 2
Objective: (2.3) Construct and interpret scatter diagrams.

116) A
ID: BS11G 2.3.1-9
Diff: 3
Objective: (2.3) Construct and interpret scatter diagrams.

117) B
ID: BS11G 2.3.1-10
Diff: 2
Objective: (2.3) Construct and interpret scatter diagrams.

118) C
ID: BS11G 2.3.1-11
Diff: 2
Objective: (2.3) Construct and interpret scatter diagrams.

119) C
ID: BS11G 2.3.1-12
Diff: 2
Objective: (2.3) Construct and interpret scatter diagrams.

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120) C
ID: BS11G 2.3.1-13
Diff: 2
Objective: (2.3) Construct and interpret scatter diagrams.

121) D
ID: BS11G 2.3.1-14
Diff: 2
Objective: (2.3) Construct and interpret scatter diagrams.

122) D
ID: BS11G 2.3.1-15
Diff: 2
Objective: (2.3) Construct and interpret scatter diagrams.

123) TRUE
ID: BS11G 2.3.2-1
Diff: 1
Objective: (2.3) Construct and interpret line charts.

124) FALSE
ID: BS11G 2.3.2-2
Diff: 2
Objective: (2.3) Construct and interpret line charts.

125) FALSE
ID: BS11G 2.3.2-3
Diff: 2
Objective: (2.3) Construct and interpret line charts.

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126) FALSE
ID: BS11G 2.3.2-4
Diff: 3
Objective: (2.3) Construct and interpret line charts.

127) D
ID: BS11G 2.3.2-5
Diff: 1
Objective: (2.3) Construct and interpret line charts.

128) FALSE
ID: BS11G 2.3.3-1
Diff: 1
Objective: (2.3) Construct graphs and determine the most appropriate visualization.

129) TRUE
ID: BS11G 2.3.3-2
Diff: 2
Objective: (2.3) Construct graphs and determine the most appropriate visualization.

130) TRUE
ID: BS11G 2.3.3-3
Diff: 1
Objective: (2.3) Construct graphs and determine the most appropriate visualization.

131) TRUE
ID: BS11G 2.3.3-4
Diff: 1
Objective: (2.3) Construct graphs and determine the most appropriate visualization.

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132) FALSE
ID: BS11G 2.3.3- 5
Diff: 2
Objective: (2.3) Construct graphs and determine the most appropriate visualization.

133) TRUE
ID: BS11G 2.3.3- 6
Diff: 2
Objective: (2.3) Construct graphs and determine the most appropriate visualization.

134) FALSE
ID: BS11G 2.3.3- 7
Diff: 2
Objective: (2.3) Construct graphs and determine the most appropriate visualization.

135) B
ID: BS11G 2.3.3- 8
Diff: 1
Objective: (2.3) Construct graphs and determine the most appropriate visualization.

136) B
ID: BS11G 2.3.3- 9
Diff: 2
Objective: (2.3) Construct graphs and determine the most appropriate visualization.

137) C
ID: BS11G 2.3.3- 10
Diff: 2
Objective: (2.3) Construct graphs and determine the most appropriate visualization.

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138) B
ID: BS11G 2.3.3- 11
Diff: 2
Objective: (2.3) Construct graphs and determine the most appropriate visualization.

139) C
ID: BS11G 2.3.3- 12
Diff: 2
Objective: (2.3) Construct graphs and determine the most appropriate visualization.

140) A line chart is used to display data that are measured in sequence over time. The points are in a defined order. Connecting the points serves to illustrate any trend that may be present in the data. A scatter plot is used to show the relationship between two variables. The XY data points are plotted in a two- dimensional space. The order that the XY points are recorded is of no consequence, so connecting the points would be meaningless.
ID: BS11G 2.3.3- 13
Diff: 3
Objective: (2.3) Construct graphs and determine the most appropriate visualization.

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