***Business Statistics: Part I: Exploring and Collecting Data – Test A***

***Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_***

Chapter 1: 1.3 Variable Types.

1. In listing a property, real estate agencies provides information on a number of variables. Which of the following variables related to property listings is categorical?

A. Real Estate Tax

B. Number of Bedrooms

C. Style of Home

D. Asking Price

E. Number of Bathrooms

Chapter 1: 1.3 Variable Types.

2. What scale of measurement is the type of a car (sedan, SUV, convertible, etc)?

A. Nominal

B. Interval

C. Quantitative

D. Ordinal

E. Numerical

Chapter 1: 1.3 Variable Types.

3. Real estate agencies keep track of housing prices in a given area. Suppose they also provide their clients with quarterly median selling prices for homes in a given area for the past three year period. These data are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ .

A. cross-sectional

B. time Series

C. categorical

D. nominal

E. ordinal

Chapter 2: 2.2 Displaying a Categorical Variable.

4. A business researcher conducted a survey of 500 women to determine preferences for types of automobiles. The types are shown below along with the number of women who prefer that type. Which of the following charts would be appropriate for displaying these data?

|  |  |
| --- | --- |
| ***Type of Automobile*** | ***No. of Female*** |
| Sedan | 155 |
| SUV | 112 |
| Van | 125 |
| Sports cars | 55 |
| Convertible | 28 |
| Other | 25 |

A. Histogram

B. Boxplot

C. Pie Chart

D. Line Graph

E. Segmented bar chart

Chapter 4: 4.1 Looking at Scatterplots.

5. The following scatterplot shows monthly sales figures (in units) and number of months of experience on the job for a sample of 19 salespeople. Describe the association between monthly sales and level of experience.



A. Wear negative linear association

B. Moderate positive linear association

C. Moderate negative linear association

D. Weak positive linear association

E. Non-linear

Chapter 4: 4.3 Understanding Correlation.

6. The following scatterplot shows monthly sales figures (in units) and number of months of experience on the job for a sample of 19 salespeople. Estimate the correlation.



A. -0.3

B. +0.7

C. -0.7

D. +0.3

E. 0.0

Chapter 4: 4.1 Looking at Scatterplots.

7. A consumer research group investigating the relationship between the price of meat (per pound) and the fat content (grams) gathered data that produced the following scatterplot. Which description of the association between fat content and price is more accurate?



A. If the point ($2.00 per pound, 6 grams of fat) is removed, the correlation will be higher.

B. If the point ($2.00 per pound, 6 grams of fat) is removed, the correlation will be lower.

C. Increased fat content generally results in decreased price/lb.

D. Both B and C.

E. Both A and C.

Chapter 2: 2.3 Exploring Relationships Between Two Categorical Variables: Contingency Tables.

8. A magazine that publishes product reviews conducted a survey of teenagers’ preferences for cell phones. Three brands of cell phone designed specifically with teens in mind were the focus of the study. The table summarizes responses by brand and gender. What percent of teenagers preferred LG Rumor?

|  |  |  |
| --- | --- | --- |
| ***Cell Phone*** | ***Male*** | ***Female*** |
| LG Rumor | 55 | 87 |
| Sidekick LX | 99 | 150 |
| BlackJack II | 196 | 113 |

A. 50%

B. 41%

C. 25%

D. 16%

E. 20%

Chapter 2: 2.3 Exploring Relationships Between Two Categorical Variables: Contingency Tables.

9. A magazine that publishes product reviews conducted a survey of teenagers’ preferences for cell phones. Three brands of cell phone designed specifically with teens in mind were the focus of the study. The table summarizes responses by brand and gender. What percent of female teenagers preferred the Sidekick LX?

|  |  |  |
| --- | --- | --- |
| ***Cell Phone*** | ***Male*** | ***Female*** |
| LG Rumor | 55 | 87 |
| Sidekick LX | 99 | 150 |
| BlackJack II | 196 | 113 |

A. 43%

B. 60%

C. 21%

D. 50%

E. 16%

Chapter 2: 2.3 Exploring Relationships Between Two Categorical Variables: Contingency Tables.

10. A magazine that publishes product reviews conducted a survey of teenagers’ preferences for cell phones. Three brands of cell phone designed specifically with teens in mind were the focus of the study. The table summarizes responses by brand and gender. What percent of teenagers who preferred the BlackJack II were males?

|  |  |  |
| --- | --- | --- |
| ***Cell Phone*** | ***Male*** | ***Female*** |
| LG Rumor | 55 | 87 |
| Sidekick LX | 99 | 150 |
| BlackJack II | 196 | 113 |

A. 63%

B. 32%

C. 16%

D. 50%

E. 41%

Chapter 2: 2.4 Segmented Bar Charts and Mosaic Plots.

11. An advocacy group is investigating whether gender has an effect on job category in large investment firms. She surveyed a sample of firms with the results shown below. The most appropriate display for these data is a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ .

|  |  |  |
| --- | --- | --- |
| ***Job Category*** | ***Male*** | ***Female*** |
| Clerical / Technical | 85 | 215 |
| Professional Staff | 720 | 480 |
| Executive / Managerial | 400 | 100 |

A. histogram

B. pie chart

C. boxplot

D. segmented bar chart

E. frequency table

Chapter 2: 2.4 Segmented Bar Charts and Mosaic Plots.

12. An advocacy group is investigating whether gender has an effect on job category in large investment firms. She surveyed a sample of firms with the results shown below.

Which of the following statements is true about gender and job category?



A. A greater percentage of males are executives compared to females.

B. A greater percentage of females are executives compared to males.

C. Job category appears to be independent of gender.

D. A smaller percentage of females are clerical compared to males.

E. The segmented bar chart is not appropriate for these data.

Chapter 3: 3.3 Center.

13. A manufacturer of cable wire periodically selects samples to monitor the process. A sample of ten wires is selected and the diameters (in cm.) are 0.493, 0.534, 0.527, 0.511, 0.565, 0.559, 0.519, 0.562, 0.551, and 0.530. The mean diameter is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ .

A. 0.455 cm

B. 0.535 cm

C. 0.511 cm

D. 0.565 cm

E. 0.499 cm

Chapter 3: 3.4 Spread of the Distribution.

14. A manufacturer of cable wire periodically selects samples to monitor the process. A sample of ten wires is selected and the diameters (in cm.) are 0.493, 0.534, 0.527, 0.511, 0.565, 0.559, 0.519, 0.562, 0.551, and 0.530. The standard deviation is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ .

A. 0.455 cm

B. 0.005 cm

C. 0.045 cm

D. 0.024 cm

E. 0.099 cm

Chapter 2: 2.1 Summarizing a Categorical Variable.

15. Which is true of the data shown in the histogram?



I. The distribution is approximately symmetric.

II. The mean and median are approximately equal.

III. The median and IQR summarize the data better than the mean and standard deviation.

A. I only

B. III only

C. I and II

D. I and III

E. I, II and III

Chapter 3: 3.7 Five-Number Summary and Boxplots.

16. Prices per share of the 20 most actively traded stocks on the New York Stock Exchange in October, 2012. Summary statistics for these data are shown below. The IQR for this set of dataset is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ .

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Min | Q1 | Median | Q3 | Max | Mean | SD |
| 2.0 | 7.5 | 15.5 | 34.5 | 85.0 | 4.67 | 20.9 |

A. 83

B. 27

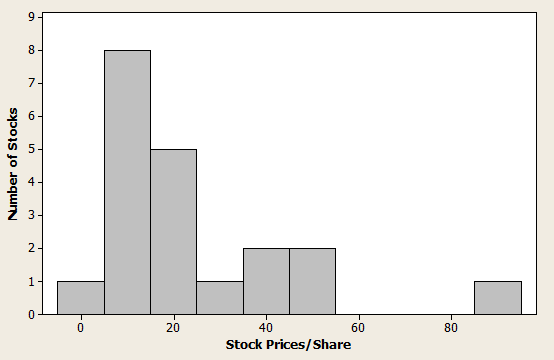
C. 13.5

D. 69.5

E. None of the above

Chapter 2: 2.2 Displaying a Categorical Variable.

17. Prices per share of the 20 most actively traded stocks on the New York Stock Exchange in October, 2012. A histogram for these data are shown below. The data can be described as \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ .



A. the data are skewed to the left with a large positive outlier

B. 5.9 %

C. 17.9 %

D. the data are skewed to the right with a large positive outlier

E. 13.4 %

Chapter 3: 3.8 Comparing Groups.

18. An office supply chain has stores in two locations, Dayton and Scranton. One of these stores is to be closed within the coming year, and to help make the decision, management reviews sales data. Below are boxplots for monthly unit sales for both locations.



Which of the following statement is not correct?

A. Monthly sales are higher in Dayton compared to Scranton.

B. The IQR for sales in Dayton is larger than that for Scranton.

C. Monthly sales are less variable in Scranton compared to Dayton.

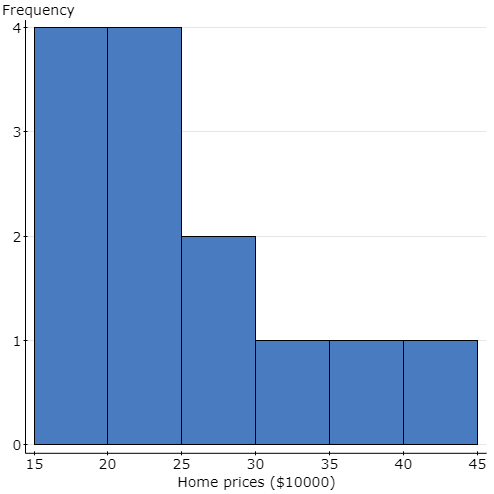
D. Both distributions are fairly symmetric.

E. Monthly sales are more variable in Scranton compared to Dayton.

Chapter 2: Create and use frequency and relative frequency distributions and their displays.

19. Below is a histogram of prices for a sample homes recently sold in a metropolitan area in the southeastern region of the U.S.

**Histogram: Home Prices**



Which of the following statements is true?

A. The mean would be more appropriate than the median to describe the center of this distribution.

B. This distribution is fairly symmetric.

C. This distribution is right skewed.

D. This distribution is left skewed.

E. Both A and C

Chapter 3: 3.6 Standardizing Variables.

20. Suppose a sample of 60 business majors revealed that the average time spent studying per week is 22 hours with a standard deviation of 4 hours. For one student reporting that he studies 16 hours per week, the corresponding *z* score is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ .

A. -1.5

B. 1.5

C. 2.2

D. -2.2

E. -3.0

Chapter 4: 4.3 Understanding Correlation.

21. A correlation of zero between two quantitative variables means that \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ .

A. we have done something wrong in our calculation of *r*

B. there is no association between the two variables

C. there is no linear association between the two variables

D. re-expressing the data will guarantee a linear association between the two variables

E. None of the above.

Chapter 4: 4.9 Variation in the Model and *R*2.

22. A regression analysis of company profits and the amount of money the company spent on advertising produced a *R*2 = 0.72. Which of these is true?

I. This model can correctly predict the profit for 72% of companies.

II. 72% of the variance in company profit can be accounted for by the model.

III. On average, companies spend about 72% of their profits on advertising.

A. None

B. I only

C. II only

D. III only

E. I and III

***Business Statistics: Part I: Exploring and Collecting Data – Test A – Key***

1. C

2. A

3. B

4. C

5. B

6. B

7. E

8. E

9. A

10. A

11. D

12. A

13. B

14. D

15. C

16. B

17. D

18. E

19. C

20. A

21. C

22. C