Chapter 8 Test Review 2

1. The area of statistics that organizes and summarizes information about observations is known as:

   a. analytical statistics
   b. inferential statistics
   c. population statistics
   d. descriptive statistics

2. A word that best describes inferential statistics is:

   a. organizing   b. generalizing   c. summarizing   d. analyzing

3. Choose the correct type of sampling plan used in the following situation.

   In order to find out how its employees felt about higher student fees imposed by the legislature, a university divided employees into three categories: staff, faculty and student employees. A random sample was selected from each group and they were telephoned and asked for their opinions.

   a. cluster sampling
   b. simple random sample
   c. stratified sampling
   d. convenience sampling

4. If you wish to graph the distribution of ethnic backgrounds for a population of alcoholics, use a

   a. histogram   b. frequency polygon   c. stem and leaf display   d. bar graph

5. A frequency distribution can be presented as a graph using:

   a. a circle graph   b. a histogram   c. a stem and leaf display   d. a bar graph

6. A stem and leaf display is a device for sorting data on the basis of:

   a. class intervals
   b. data range
   c. relative frequency
   d. leading and trailing digits

7. Which of the following <u>doesn't</u> describe the median?

    a. splits the distribution into upper and lower halves
    b. associated with the 50th percentile
    c. represents the value midway between the largest and smallest observations
    d. associated with the middle value when observations are ordered from least to most

8. Which of the types of averages we have studied probably serves as the basis for the statement: The average college professor is a white male.

    a. mean   b. median   c. mode   d. none of these

9. Calculate the mean for the following data set:
         retirement ages: {60, 63, 45, 63, 70, 55, 63, 60, 65, 63, 65}

    a. 63   b. 61.9   c. 62.35   d. 61.09

10. Find the median of the following data set:
         gas mileage: {20.3, 22.7, 21.4, 20.6, 21.4, 20.9}

    a. 21.22   b. 21.4   c. 20.9   d. 21.15

11. Indicate which of the following batches of observations has the larger standard deviation.

    a. 4045, 4050, 4055   c. 530, 540, 550
    b. 988, 1000, 1012   d. 5, 20, 35

12. An electronics firm gives a $1,500 bonus to every salaried employee at the end of the year. Compared to the original distribution of salaries (without the bonus), the new distribution has:

    a. the same mean and the same standard deviation
    b. the same mean and a new standard deviation
    c. a new mean and the same standard deviation
    d. a new mean and a new standard deviation

13. A study was conducted to investigate the relationship between the cost y (in tens of thousands of dollars) per unit of equipment manufactured and the number of units produced per run x. The prediction equation was found to be $y = 7.31 - 0.01x$ and x was the observed for values between 10 and 200. If a production run is scheduled to produce 50 units, what would you predict the cost per unit to be?

    a. $6.81   b. $68,100   c. $681.00   d. $6810

14. Find the standard deviation for the following set of data:
$$\{2, 4, 6, 8, 8, 9, 22, 25, 32, 57\}$$

    a. 17.2   b. 2   c. 24   d. 16.9

15. Find the mode for the following set of data:
$$\{1, 1, 2, 2, 3, 3, 4, 4, 5, 5, 6, 6\}$$

    a. 2 and 4   b. 1, 2, 3, 4, 5, 6   c. no mode   d. 6

16. Given a mean test score of 78 with a standard deviation of 5, calculate a z score for a test score of an 85.

    a. −1.4   b. 1.4   c. 2   d. −2

17. If you had a z score of -1.5 on a test that had a mean score of 78 and a standard deviation of 5, what numerical grade did you have on the test?

    a. 85.5   b. 89   c. 69.5   d. 70.5

18. A negative z score signifies that the original score is:

    a. negative   c. below the mean
    b. some small number   d. above the mean

19. On a reading comprehension test, it would be preferable to achieve a z score of:

    a. 2.34   b. 0.00   c. −3.50   d. 1.00

20. A z score can be positive or negative, the area under the curve can be:

    a. positive   c. either positive or negative
    b. negative   d. impossible to tell

21. A graph that shows the correlation between two quantitative variables is called a:

    a. bar graph   b. histogram   c. boxplot   d. scatter diagram

22. It was found that the correlation coefficient between the number of salespeople and actual monthly sales was 0.01. This indicates a:

    a. very strong relationship between two sets of data
    b. very weak relationship between two sets of data
    c. cause and effect between two sets of data
    d. a moderate relationship between two sets of data

23. When the values of x tend to increase and the values of y tend to increase, we say that:

    a. there is a negative correlation between the variables
    b. a positive relationship exists between the two variables
    c. there is no relationship between the two variables
    d. there is a cause-effect between the two variables

24. We want to estimate monthly sales based on the number of salespeople. The regression equation is $y = 10\,x + 20$ (in thousands of dollars). If we have eight salespersons, the monthly sales would be:

    a. $20,000   b. $10,000   c. $30,000   d. $100,000

25. A correlation coefficient may assume any value from:

    a. 0 to 100   b. 0 to 1   c. 1 to 5   d. -1 to 1