Name_____

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

Select the most appropriate answer.
    1) Using statistics to draw conclusions about parameters is called   1) _____
        A) designing a study.
        B) deductive statistics.
        C) inferential statistics.
        D) descriptive statistics.
        E) sampling.

    2) A manufacturer of cellular phones has decided that an assembly line is operating satisfactorily if   2) _____
       less than 6% of the phones manufactured per day are defective. To check the quality of a day's
       production, the company decides to randomly sample 30 phones from a day's production and test
       for defects. Define the population of interest to the manufacturer.
        A) the 30 cellular phones that were sampled and tested
        B) all defective cellular phones manufactured by the company
        C) all cellular phones manufactured during the day in question
        D) the 30 responses: defective or not defective
        E) the 6% of the cellular phones that were defective

Answer true or false.
    3) A lobbyist for a major airspace firm assigns a number to each legislator and then uses a computer   3) _____
       to randomly generate ten numbers. The lobbyist contacts the legislators corresponding to these
       numbers. This technique produces a random sample.
        A) True   B) False

Provide an appropriate response.
    4) The average salary of all General Motors workers is $42,000. Is this value a parameter or a statistic?   4) _____
        A) parameter   B) statistic

Classify as categorical or qualitative data.
    5) The amount of time spent watching television or playing video games is considered a significant   5) _____
       factor on predicting childhood obesity. 290 parents of school-aged children were asked to estimate
       the number of hours per week that their child spent watching television or playing video games.
       This is an example of what type of variable?
        A) Categorical   B) Quantitative

Select the most appropriate answer.
    6) The characteristics observed to address the questions posed in a study are called   6) _____
        A) statistics.
        B) parameters.
        C) quantities.
        D) variables.
        E) categories.

Classify the variable as either discrete or continuous.

7) The following table shows the heights of the five tallest mountains in North America.　　　　　　7) _____

Mountain	Height (ft)	Rank
McKinley	20,320	1
Logan	19,850	2
Citlaltepec	18,700	3
St. Elias	18,008	4
Popocatepetl	17,930	5

The ranks given in the third column represent what type of data?

A) Discrete　　　　　　　　　　　　　　　　　　B) Continuous

The heights (in inches) of 30 adult males are listed below. A frequency distribution show the frequency and relative frequency using five classes.

```
70  72  71  70  69  73  69  68  70  71
67  71  70  74  69  68  71  71  71  72
69  71  68  67  73  74  70  71  69  68
```

Height (in inches)	Frequency	Relative Frequency
67.0-68.4	6	0.20
68.5-69.9	5	0.167
70.0-71.4	13	0.433
71.5-72.9	2	0.067
73.0-74.4	4	0.133

8) Which category of heights represents the mode?　　　　　　8) _____

A) 71.5-72.9　　　B) 73.0-74.4　　　C) 68.5-69.9　　　D) 67.0-68.4　　　E) 70.0-71.4

Select the most appropriate answer.

9) Which of the following numerical summary measures cannot be easily approximated from a box plot?　　　　　　9) _____

A) range
B) Q1
C) variance
D) median
E) interquartile range

Provide an appropriate response.

10) According to the Empirical Rule, approximately 95% of the data values from a bell-shaped distribution fall within _____ standard deviations of the mean.　　　　　　10) _____
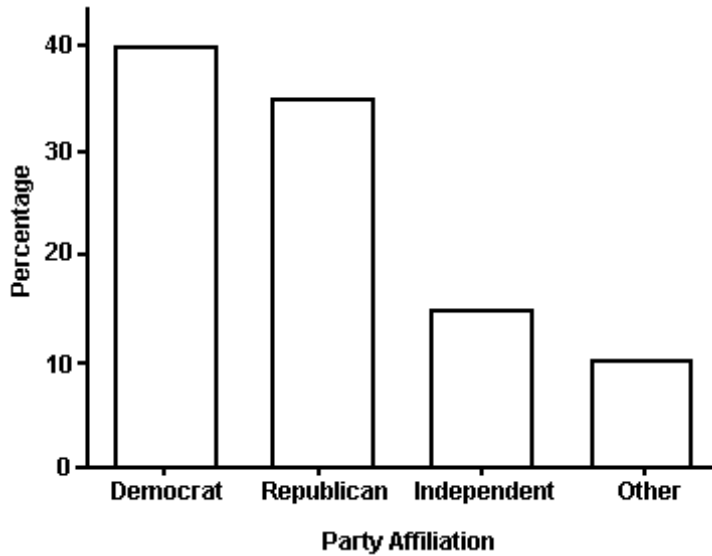
A) 0.5　　　B) 2　　　C) 1　　　D) 3　　　E) 2.5

The bar graph below shows the political party affiliation of 1000 registered U.S. voters.

11) What percentage of the 1000 registered U.S. voters belongs to one of the two traditional parties (Democratic and Republican)?

11) _____

    A) 75%   B) 35%   C) 40%   D) 50%   E) 25%

Provide an appropriate response.

12) The age at inauguration for the last 15 U.S. presidents is given below. Find the range of the ages.

12) _____

G.W. Bush	54
Clinton	46
G.H.W. Bush	64
Reagan	69
Carter	52
Ford	61
Nixon	56
L.B. Johnson	55
Kennedy	43
Eisenhower	62
Truman	60
F.D. Roosevelt	51
Hoover	54
Coolidge	51
Harding	55

    A) 55.5 years   B) 18 years   C) 10 years   D) 26 years   E) 55 years

Select the most appropriate answer.

13) What percent of the data falls below Q1?

13) _____

    A) 50%   B) 10%   C) 25%   D) 33%   E) 75%

Provide an appropriate response.

14) For the stem-and-leaf plot below, find the range of the data set.

```
1 | 4 5
2 | 6 6 6 7 8 9
2 | 7 7 7 8 8 9 9 9
3 | 0 1 1 2 3 4 4 5
3 | 6 6 6 7 8 8 9
4 | 0 0
```

A) 34   B) 26   C) 36   D) 40   E) 14

14) _____

Complete the conditional proportion table and use it to solve the problem.

15) The partially completed conditional proportion table gives the relative frequencies of the data on age (in years) and sex for the residents of a retirement home.

15) _____

	Age (yrs)			
	60-69	70-79	Over 79	Total
Male	0.19	0.1	0.11	
Female	0.2	0.1	0.3	
Total				1

What percentage of the residents are males over 79?
A) 13%   B) 10.5%   C) 11%   D) 5.6%   E) 1.1%

Answer true or false.

16) The value of the correlation is always between 0 and 1.

16) _____

A) True   B) False

Select the most appropriate answer.

17) The slope is the

17) _____

A) predicted value of y.
B) change in the predicted value of y per unit increase in x.
C) predicted value of y when x = 0.
D) smallest value for the residual sum of squares.
E) point where the regression line crosses the y-axis.

Provide an appropriate response.

18) A regression line for predicting the selling prices of homes in Chicago is $\hat{y} = 168 + 102x$, where x is the square footage of the house. Interpret the residual for a house with 1800 square feet that recently sold for $200,000.

18) _____

A) The house sold for $16,400 less than was to be expected from the regression equation.
B) The house sold for $16,400 more than was to be expected from the regression equation.
C) The house sold for $16,232 less than was to be expected from the regression equation.
D) The house sold for $16,064 more than was to be expected from the regression equation.
E) The house sold for $16,232 more than was to be expected from the regression equation.

Determine the quartile, percentile or interquartile range as specified.

19) The cholesterol levels (in milligrams per deciliter) of 30 adults are listed below. Find the interquartile range for the cholesterol level of the 30 adults.

19) _____

154 156 165 165 170 171 172 180 184 185
189 189 190 192 195 198 198 200 200 200
205 205 211 215 220 220 225 238 255 265
  A) 31   B) 211   C) 111   D) 30   E) 180

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

20)

154 156 165 165 170 171 172 180 184 185
189 189 190 192 195 198 198 200 200 200
205 205 211 215 220 220 225 238 255 265

A) Find Q1, Q2, Q3, IQR and potential outliers
B) Draw the box plot