Name_____

MULTIPLE CHOICE. (2 points each) Choose the one alternative that best completes the statement or answers the question

1) Which of the following is not the job of a statistician?   1) _____
    A) determining what information is relevant in a given problem
    B) determining whether the conclusions drawn from a study are to be trusted
    C) implementing new procedures based on the results of a study
    D) collecting numerical information in the form of data

2) A recent report stated "Based on a sample of 200 truck drivers, there is evidence to indicate that, on   2) _____
    average, independent truck drivers earn more than company–hired truck drivers." Does this
    statement describe descriptive or inferential statistics?
    A) inferential statistics   B) descriptive statistics

3) The average age of the students in a statistics class is 22 years. Does this statement describe   3) _____
    descriptive or inferential statistics?
    A) descriptive statistics   B) inferential statistics

4) An assembly line is operating satisfactorily if fewer than 2% of the phones produced per day are   4) _____
    defective. To check the quality of a day's production, the company randomly samples 60 phones
    from a day's production to test for defects. Define the population of interest to the manufacturer.
    A) the 60 responses: defective or not defective
    B) all the phones produced during the day in question
    C) the 60 phones sampled and tested
    D) the 2% of the phones that are defective

5) An insurance company conducted a study to determine the percentage of cardiologists who had   5) _____
    been sued for malpractice in the previous nine years. The sample was randomly chosen from a
    national directory of doctors. What is the variable of interest in this study?
    A) all cardiologists in the directory
    B) the responses: have been sued/have not been sued for malpractice in the last nine years
    C) the number of doctors who are cardiologists
    D) the doctor's area of expertise (i.e., cardiology, pediatrics, etc.)

6) The amount of television viewed by today's youth is of primary concern to Parents Against   6) _____
    Watching Television (PAWT). 250 parents of elementary school–aged children were asked to
    estimate the number of hours per week that their child watches television. Identify the type of data
    collected by PAWT.
    A) qualitative   B) quantitative

7) The manager of a car dealership records the colors of automobiles on a used car lot. Identify the   7) _____
    type of data collected.
    A) quantitative   B) qualitative

8) What method of data collection would you use to collect data for a study where a political pollster   8) _____
    wishes to determine if his candidate is leading in the polls?
    A) observational study   B) published source
    C) survey   D) designed experiment

9) A university was interested in student reaction to a proposal to spend more on athletic scholarships and less on academic scholarships. 35 student athletes were surveyed. What type of problem has occurred?

   A) measurement error   B) selection bias   C) nonresponse bias

9) _____

10) What number is missing from the table?

10) _____

Grades on Test	Frequency	Relative Frequency
A	6	.24
B	7	
C	9	.36
D	2	.08
F	1	.04

   A) .70   B) .72   C) .28   D) .07

11)

11) _____

The manager of a store conducted a customer survey to determine why customers shopped at the store. The results are shown in the figure. What proportion of customers responded that merchandise was the reason they shopped at the store?

   A) 30   B) $\frac{2}{7}$ C) $\frac{1}{2}$ D) $\frac{3}{7}$

12) A survey was conducted to determine how people feel about the quality of programming available on television. Respondents were asked to rate the overall quality from 0 (no quality at all) to 100 (extremely good quality). The stem–and–leaf display of the data is shown below.

12) _____

```
Stem Leaf
  3 0 9
  4 0 3 4 7 8 9 9 9
  5 0 1 1 2 3 4 5
  6 1 2 5 6 6
  7 2 6
  8
  9 8
```
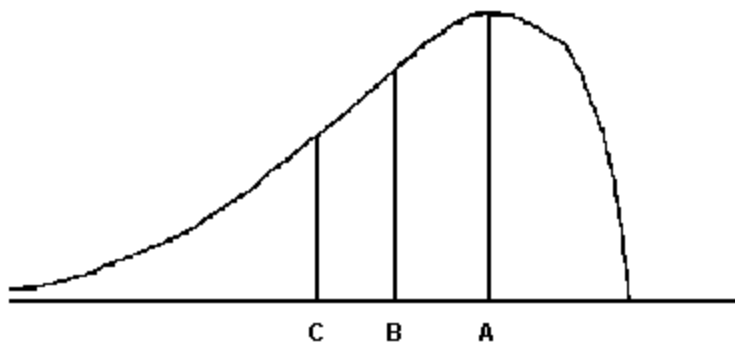
What percentage of the respondents rated overall television quality as very good (regarded as ratings of 80 and above)?

   A) 32%   B) 4%   C) 1%   D) 8%

13) A dot plot of the speeds of a sample of 50 cars passing a policeman with a radar gun is shown below.

13) _____
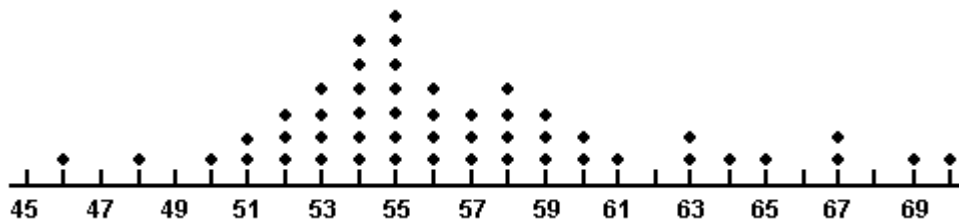
What proportion of the motorists were driving above the posted speed limit of 60 miles per hour?

   A) 2   B) 0.22   C) 0.04   D) 0.18

14)

14) _____

For the distribution drawn here, identify the mean, median, and mode.

   A) A = mode, B = mean, C = median   B) A = mode, B = median, C = mean
   C) A = median, B = mode, C = mean   D) A = mean, B = mode, C = median

15) Which of the following is *not* a measure of central tendency?

15) _____

   A) mean   B) mode   C) range   D) median

16) The mean $\bar{x}$ of a data set is 36.71, and the sample standard deviation s is 3.22. Find the interval representing measurements within one standard deviation of the mean.
    A) (27.05, 46.37)   B) (33.49, 39.93)   C) (35.71, 37.71)   D) (30.27, 43.15)

16) _____

17) A small computing center has found that the number of jobs submitted per day to its computers has a distribution that is approximately mound–shaped and symmetric, with a mean of 78 jobs and a standard deviation of 6. Where do we expect approximately 95% of the distribution to fall?
    A) between 72 and 84 jobs per day   B) between 60 and 96 jobs per day
    C) between 66 and 90 jobs per day   D) between 90 and 96 jobs per day

17) _____

18) The distribution of scores on a test is mound–shaped and symmetric with a mean score of 78. If 68% of the scores fall between 72 and 84, which of the following is most likely to be the standard deviation of the distribution?
    A) 3   B) 2   C) 6   D) 12

18) _____

19) If nothing is known about the shape of a distribution, what percentage of the observations fall within 2 standard deviations of the mean?
    A) at most 25%   B) approximately 5%
    C) at least 75%   D) approximately 95%

19) _____

20) At the U.S. Open Tennis Championship a statistician keeps track of every serve that a player hits during the tournament. The lower quartile of a particular player's serve speeds was reported to be 93 mph. Which of the following interpretations of this information is correct?
    A) 75% of the player's serves were hit at speeds greater than 93 mph.
    B) 75% of the player's serves were hit at speeds less than 93 mph.
    C) 25% of the player's serves were hit at 93 mph.
    D) 93 serves traveled faster than the lower quartile.

20) _____

SHORT ANSWER. (5 points each) Write the word or phrase that best completes each statement or answers the question

21) The calculator screens summarize a data set.

21) _____

```
1-Var Stats
x̄=79.95238095
Σx=1679
Σx²=138471
Sx=14.54467666
σx=14.19415101
↓n=21
```

```
1-Var Stats
↑n=21
 minX=30
 Q₁=75
 Med=82
 Q₃=90
 maxX=97
■
```

a. Identify the lower and upper quartiles of the data set.

b. Find the interquartile range.

c. Is there reason to suspect that the data may contain an outlier? Explain.

4

22) The calculator screens summarize a data set.   22) _____

```
1-Var Stats
 x̄=5.5
 Σx=55
 Σx²=385
 Sx=3.027650354
 σx=2.872281323
↓n=10
■
```

```
1-Var Stats
↑n=10
 minX=1
 Q₁=3
 Med=5.5
 Q₃=8
 maxX=10
```

a.   Identify the mean, sample variance, and the sample standard deviation. Round to one place after the decimal, were necessary.

b.   Find the interval that corresponds to measurements within two standard deviations of the mean.