Directions: Answer all Questions and please give me a <u>justification</u> on why you chose that answer. Thank you.

MULTIPLE CHOICE QUESTIONS

In the following multiple choice questions, circle the correct answer.

1.   A numerical value used as a summary measure for a sample, such as sample mean, is known as a

      a.   population parameter
      b.   sample parameter
      c.   sample statistic
      d.   population mean
      e.   None of the above answers is correct.
      ANSWER:

2.   Since the population size is always larger than the sample size, then the sample statistic

      a.   can never be larger than the population parameter
      b.   can never be equal to the population parameter
      c.   can never be zero
      d.   can never be smaller than the population parameter
      e.   None of the above answers is correct.
      ANSWER:

3. μ is an example of a

      a.   population parameter
      b.   sample statistic
      c.   population variance
      d.   mode
      e.   None of the above answers is correct.
      ANSWER:

4.   The mean of a sample is

      a.   always equal to the mean of the population
      b.   always smaller than the mean of the population
      c.   computed by summing the data values and dividing the sum by (n - 1)
      d.   computed by summing all the data values and dividing the sum by the number of items
      e.   None of the above answers is correct.
      ANSWER:

5.   The sum of the percent frequencies for all classes will always equal

      a.   one
      b.   the number of classes
      c.   the number of items in the study
      d.   100
      e.   None of the above answers is correct.
      ANSWER:

6.   In a five number summary, which of the following is <u>not</u> used for data summarization?

      a.   the smallest value
      b.   the largest value
      c.   the median
      d.   the 25th percentile
      e.   the mean
      ANSWER:

7.   Since the mode is the most frequently occurring data value, it

        a.   can never be larger than the mean
        b.   is always larger than the median
        c.   is always larger than the mean
        d.   must have a value of at least two
        e.   None of the above answers is correct.
        ANSWER:

Exhibit 3-1
The following data show the number of hours worked by 200 statistics students.

        Number of Hours   Frequency

            0 - 9   40
          10 - 19   50
          20 - 29   70
          30 - 39   40

8.   Refer to Exhibit 3-1. The class width for this distribution

        a.   is 9
        b.   is 10
        c.   is 11
        d.   varies from class to class
        e.   None of the above answers is correct.
        ANSWER:

9.   Refer to Exhibit 3-1. The number of students working 19 hours or less

        a.   is 40
        b.   is 50
        c.   is 90
        d.   can not be determined without the original data
        e.   None of the above answers is correct.
        ANSWER:

10.   Refer to Exhibit 3-1. The relative frequency of students working 9 hours or less

        a.   is .2
        b.   is .45
        c.   is 40
        d.   can not be determined from the information given
        e.   None of the above answers is correct.
        ANSWER:

11.   Refer to Exhibit 3-1. The cumulative relative frequency for the class of 10 - 19

        a.   is 90
        b.   is .25
        c.   is .45
        d.   can not be determined from the information given
        e.   None of the above answers is correct.
        ANSWER:

12.   The difference between the largest and the smallest data values is the

        a.   variance
        b.   interquartile range
        c.   range
        d.   coefficient of variation
        e.   None of the above answers is correct.
        ANSWER:

13.   Which of the following is not a measure of central location?

    a.   mean
    b.   median
    c.   variance
    d.   mode
    e.   None of the above answers is correct.
ANSWER:

14.   If a data set has an even number of observations, the median

    a.   can not be determined
    b.   is the average value of the two middle items
    c.   must be equal to the mean
    d.   is the average value of the two middle items when all items are arranged in ascending order
    e.   None of the above answers is correct.
ANSWER:

15.   The sum of deviations of the individual data elements from their mean is

    a.   always greater than zero
    b.   always less than zero
    c.   sometimes greater than and sometimes less than zero, depending on the data elements
    d.   always equal to zero
    e.   None of the above answers is correct.
ANSWER:

16.   The value that has half of the observations above it and half the observations below it is called the

    a.   range
    b.   median
    c.   mean
    d.   mode
    e.   None of the above answers is correct.
ANSWER:

17.   The most frequently occurring value of a data set is called the

    a.   range
    b.   mode
    c.   mean
    d.   median
    e.   None of the above answers is correct.
ANSWER:

18..   In a sample of 800 students in a university, 160, or 20%, are Business majors. Based on the above information, the school's paper reported that "20% of all the students at the university are Business majors." This report is an example of

    a.   a sample
    b.   a population
    c.   statistical inference
    d.   descriptive statistics
    e.   None of the above answers is correct.
ANSWER:

19..   A statistics professor asked students in a class their ages. On the basis of this information, the professor states that the average age of all the students in the university is 21 years. This is an example of

    a.   a census
    b.   descriptive statistics
    c.   an experiment
    d.   statistical inference
    e.   None of the above answers is correct.
ANSWER:

20.	A tabular summary of a set of data showing the fraction of the total number of items in several classes is a

	a.	frequency distribution
	b.	relative frequency distribution
	c.	frequency
	d.	cumulative frequency distribution
	e.	None of the above answers is correct.
	ANSWER:

21.	The standard deviation of a sample of 100 observations equals 64. The variance of the sample equals

	a.	8
	b.	10
	c.	6,400
	d.	4,096
	e.	None of the above answers is correct.
	ANSWER:

22.	The variance of a sample of 81 observations equals 64. The standard deviation of the sample equals

	a.	0
	b.	4096
	c.	8
	d.	6,561
	e.	None of the above answers is correct.
	ANSWER:

Exhibit 3-2
A researcher has collected the following sample data.

	5	12	6	8	5
	6	7	5	12	4

23.	Refer to Exhibit 3-2. The median is

	a.	5
	b.	6
	c.	7
	d.	8
	e.	None of the above answers is correct.
	ANSWER:

24.	Refer to Exhibit 3-2. The mode is

	a.	5
	b.	6
	c.	7
	d.	8
	e.	None of the above answers is correct.
	ANSWER:

25.	Refer to Exhibit 3-2. The mean is

	a.	5
	b.	6
	c.	7
	d.	8
	e.	None of the above answers is correct.
	ANSWER:

Exhibit 3-3

A researcher has collected the following sample data. The mean of the sample is 5.

| 3 | 5 | 12 | 3 | 2 |

26.   Refer to Exhibit 3-3. The variance is

    a.   80
    b.   4.062
    c.   13.2
    d.   16.5
    e.   None of the above answers is correct.
    ANSWER:

27.   Refer to Exhibit 3-3. The standard deviation is

    a.   8.944
    b.   4.062
    c.   13.2
    d.   16.5
    e.   None of the above answers is correct.
    ANSWER:

28.   Refer to Exhibit 3-3. The coefficient of variation is

    a.   72.66%
    b.   81.24%
    c.   264%
    d.   330%
    e.   None of the above answers is correct.
    ANSWER:

29.   Refer to Exhibit 3-3. The range is

    a.   1
    b.   2
    c.   10
    d.   12
    e.   None of the above answers is correct.
    ANSWER:

30.   Refer to Exhibit 3-3. The interquartile range is

    a.   1
    b.   2
    c.   10
    d.   12
    e.   None of the above answers is correct.
    ANSWER:

Exhibit 3-4

The following is the frequency distribution for the speeds of a sample of automobiles traveling on an interstate highway.

Speed Miles per Hour	Frequency
50 - 54	2
55 - 59	4
60 - 64	5
65 - 69	10
70 - 74	9
75 - 79	5
	35

31.   Refer to Exhibit 3-4. The mean is

    a.   35
    b.   670
    c.   10
    d.   67
    e.   None of the above answers is correct.
    ANSWER:

32.   Refer to Exhibit 3-4. The variance is

a.   6.969
b.   7.071
c.   48.570
d.   50.000
e.   None of the above answers is correct.
ANSWER:

33.   Refer to Exhibit 3-4. The standard deviation is

a.   6.969
b.   7.071
c.   48.570
d.   50.000
e.   None of the above answers is correct.
ANSWER:

34.   Which of the following is **not** a measure of dispersion?

a.   the range
b.   the 50th percentile
c.   the standard deviation
d.   the interquartile range
e.   the variance
ANSWER:

35.   If the variance of a data set is correctly computed with the formula using n - 1 in the denominator, which of the following is true?

a.   the data set is a sample
b.   the data set is a population
c.   the data set could be either a sample or a population
d.   the data set is from a census
e.   None of the above answers is correct.
ANSWER:

36.   In computing descriptive statistics from grouped data,

a.   data values are treated as if they occur at the midpoint of a class
b.   the grouped data result is more accurate than the ungrouped result
c.   the grouped data computations are used only when a population is being analyzed
d.   All of the above answers are correct.
e.   None of the above answers is correct.
ANSWER:

37.   The measure of dispersion that is influenced most by extreme values is

a.   the variance
b.   the standard deviation
c.   the range
d.   the interquartile range
e.   None of the above answers is correct.
ANSWER:

38.   When should measures of location and dispersion be computed from grouped data rather than from individual data values?

a.   as much as possible since computations are easier
b.   only when individual data values are unavailable
c.   whenever computer packages for descriptive statistics are unavailable
d.   only when the data are from a population
e.   None of the above answers is correct.
ANSWER:

39.   The descriptive measure of dispersion that is based on the concept of a deviation about the mean is

        a.   the range
        b.   the interquartile range
        c.   both a and b
        d.   the standard deviation
        e.   None of the above answers is correct.
        ANSWER:

40.   **For Z =5, state the Chebychev's inequality.**