Exam

Name_____

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

1) Which of the following is the properly rounded mean for the given data? 1) _____
7, 8, 13, 9, 10, 11
A) 9.7 B) 9 C) 10 D) 9.67

2) Find the mean of the following data set? 2) _____
10, 5, 8, 3, 14
A) 5.0 B) 8.0 C) 9.0 D) 7.0

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

3) Find the mean of the following set of values. 3) _____
5, 12, 10, 8, 10

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

4) For the data set 1, 8, 7, 2, 9, 15, 18, the properly rounded mean is 9. 4) _____
A) False B) True

5) What is the mean of the following data set? 5) _____
4, 8, 11, 12, 13
A) 7.0 B) 14.4 C) 11.0 D) 9.6

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

6) Find the mean of the following data set. 6) _____
6, 8, 8, 8, 6, 12

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

7) Find the mean for the following data set: 7) _____
13 15 21 20 22
A) 9 B) 20 C) 18.2 D) 3.5

8) Find the mean for the following data set: 8) _____

32 15 29 15 25

A) 15 B) 23.2 C) 17 D) 25

9) Find the mean for the following data set: 9) _____

25 24 21 13 14 15

A) 18.7 B) 18 C) 12 D) 4.9

10) Find the mean for the following data set: 10) _____

28 25 23 34 14 14

A) 23.0 B) 20 C) 14 D) 24

11) What is the median of the following set of values? 11) _____

10, 8, 5, 3, 14

A) 7 B) 5 C) 9 D) 8

12) What is the median of the following data set? 12) _____

6, 9, 13, 14, 18

A) 14 B) 16 C) 13 D) 12

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

13) Find the median of the following data set. 13) _____

3, 10, 7, 6, 3

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

14) Find the median for the following data. 14) _____

6, 7, 4, 5, 3, 7, 4

A) 4 B) 7 C) 3 D) 5

15) What is the median of the following set of values? 15) _____

2, 16, 14, 10, 14, 9, 10, 14

A) 12 B) 8 C) 10 D) 14

16) Find the median for the following data set: 16) _____

21 12 31 27 15

A) 19 B) 21 C) 21.2 D) 7.1

17) Find the median for the following data set: 17) _____

27 21 15 25 15

A) 20.6 B) 12 C) 15 D) 21

18) Find the median for the following data set: 18) _____

25 20 24 14 10 15

A) 17.5 B) 5.4 C) 15 D) 18.0

19) Find the median for the following data set: 19) _____

27 22 25 10 10 16

A) 19 B) 17 C) 18.3 D) 10

20) Find the mode for the following data? 20) _____

5, 4, 3, 4, 5, 6, 5, 5, 3, 4

A) 4 B) 5 C) 3 D) 6

21) What is the mode of the following data set? 21) _____

5, 19, 17, 13, 17, 15, 12

A) 13 B) 17 C) 11 D) 15

22) Find the mode for the following data set: 22) _____

19 10 23 20 10

A) 10 B) 19 C) 13 D) 16.4

23) Find the mode for the following data set: 23) _____

10 30 10 36 26 22

A) 26 B) 10 C) 22.3 D) 24

24) The number of police officers in selected city districts is listed below. Find the mode. 24) _____

24, 26, 24, 30, 23, 28, 19, 31, 24, 26, 19

A) 26 B) 24 C) 28 D) 23

25) What is the midrange of the following data set? 25) _____

5, 11, 10, 12, 4, 12, 18, 18, 18

A) 11 B) 5 C) 18 D) 12

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

26) Find the mean, mode, median, and midrange for the following data set. 26) _____

12, 15, 18, 18, 15, 22, 15, 30, 12

27) Find the median of the following data set. 27) _____
9, 11, 11, 11, 9, 15

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

28) A random sample of weights (in carats) of sapphires in a jeweler's collection is shown. Find the mean of the sample. 28) _____

Class Boundaries	Frequency
0.95-2.95	10
2.95-4.95	15
4.95-6.95	10
6.95-8.95	10
8.95-10.95	9

A) 5.69 B) 5.95 C) 10.80 D) 5.55

29) A recent survey of a new diet cola reported the following percentages of people who liked the taste. Find the weighted mean of the percentages. 29) _____

Area	% Favored	Number surveyed
1	30	2500
2	25	1500
3	50	3000

A) 36 B) 38 C) 25 D) 35

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

30) Find the weighted mean for a particular student's scores on three exams if the first one was worth 75 points and the student received a score of 70%, the second was worth 50 points and the student received a score of 80%, and the third was worth 30 points and the student received a score of 95%? 30) _____

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

31) A student received the following grades last semester. Find the student's semester grade point average. 31) _____

Course	Credits	Grade/Points
Statistics	4	A / 4.0
Physics	5	F / 0.0
Sociology	3	B / 3.0
Literature	2	B / 3.0
Tennis	1	D / 1.0

A) 1.90 B) 2.40 C) 2.52 D) 2.13

32) Find the mode for the following data set: 32) _____

33 28 22 11 11 17

A) 20.3 B) 11 C) 19.5 D) 22

33) Use the given frequency distribution to approximate the mean. 33) _____

Class	Frequency
0 – 9	18
10 – 19	18
20 – 29	9
30 – 39	9
40 – 49	9

A) 12.6 B) 20.7 C) 14 D) 14.1

34) Following are heights, in inches, for a sample of college basketball players. 34) _____

83	77	83	84	84	81	79	83	83	77
77	82	78	80	83	83	81	84	81	81

Find the mean height of the basketball players.

A) 80.5 inches B) 81.2 inches C) 70 inches D) 5.7 inches

35) The table below lists the populations, in thousands, of several rural western counties. What is the mean population? 35) _____

County	Population (thousands)
Aldridge	17
Cleveland	20
McCarthy	12
Pope	22
Sorrell	19
Wilson	18

A) 18.5 thousand
B) 10 thousand
C) 17 thousand
D) 18.0 thousand

36) The table below lists the populations, in thousands, of several rural western counties. What is the median population? 36) _____

County	Population (thousands)
Aldridge	27
Cleveland	25
McCarthy	24
Pope	11
Sorrell	15
Wilson	19

A) 19 thousand
B) 20.2 thousand
C) 16 thousand
D) 21.5 thousand

37) The following data represent the total price, in dollars, of 20 randomly-selected gasoline purchases at a certain convenience store. 37) _____

21.65	32.07	39.46	42.22	14.00	43.02	47.81	41.60	11.99	42.34
16.40	44.80	30.04	45.22	42.16	49.39	29.51	33.42	43.97	46.61

Find the mean price for these purchases.

A) $41.88 B) $35.88 C) $130.84 D) $37.40

38) The following data represent the total price, in dollars, of 20 randomly-selected gasoline purchases at a certain convenience store. 38) _____

31.87	41.83	24.81	29.28	46.20	37.55	32.13	33.27	49.22	30.25
40.76	38.68	25.97	23.11	31.59	41.16	47.31	43.15	37.85	47.33

Find the median price for these purchases.

A) $60.14 B) $26.11 C) $37.70 D) $36.67

39) The following data represent the total price, in dollars, of 20 randomly-selected gasoline purchases at a certain convenience store. 39) _____

65.11	58.35	53.36	70.22	57.31	44.17	41.53	71.76	49.11	58.8
78.90	62.13	46.36	75.27	47.79	54.39	10.11	47.10	48.23	68.6

Which value in this data set is most accurately described as an extreme value?

A) $68.69 B) $78.90 C) $10.11 D) $68.79

40) The following data represent the ice cream flavor choices of 20 diners at a college cafeteria. 40) _____

Chocolate	Vanilla	Chocolate	Rocky Road	Vanilla
Rocky Road	Vanilla	Vanilla	Rocky Road	Vanilla
Rocky Road	Chocolate	Choc. Chip	Moose Tracks	Chocolate
Choc. Chip	Rocky Road	Vanilla	Vanilla	Choc. Chip

Which flavor ice cream is the mode?

A) Rocky Road B) Moose Tracks
C) Chocolate Chip D) Vanilla

41) Find the mean of the data in the following stem-and-leaf plot. The leaf represents the ones digit. 41) _____

1	223
2	34888
3	7
4	1

A) 24.6 B) 28 C) 26.9 D) 26

42) Find the median of the data in the following stem-and-leaf plot. The leaf represents the ones digit. 42) _____

1	223
2	34888
3	7
4	1

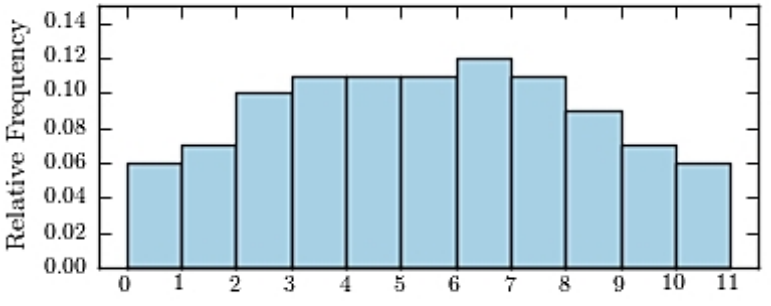
A) 28 B) 26 C) 21.2 D) 24.6

43) Find the mode of the data in the following stem-and-leaf plot. The leaf represents the ones digit. 43) _____

0	157
1	03448
2	68

A) 13.3 B) 13.8 C) 14 D) 12.3

44) For the data shown in the histogram, which of the following choices best describes the relationship between the median and the mean? 44) _____

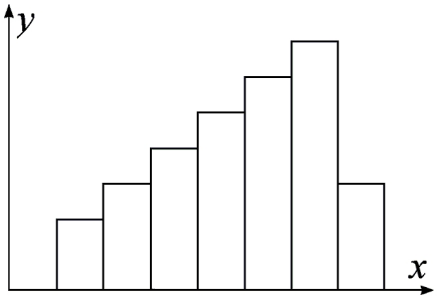


A) median ≈ mean B) median > mean C) median < mean

45) A report states that the mean household income last year for a certain rural county was $55,300 and the median was $62,800. If a histogram were constructed for the incomes of all households in the county, would you expect it to be skewed to the right, to the left, or approximately symmetric? 45) _____

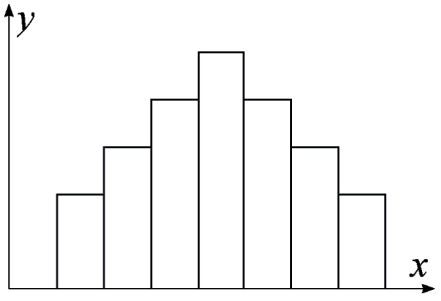
A) skewed left
B) approximately symmetric
C) skewed right

46) If a distribution is negatively skewed as shown in the figure below, the mean will fall to the right of the median and the mode will fall to the left of the median. 46) _____



A) False B) True

47) In a unimodal, symmetrical distribution as shown in the figure below, 47) _____



A) the mean is the same as the median, but the mode can be different.
B) the mean, the median, and the mode are different.
C) the mean, the median, and the mode are the same.
D) the median and the mode are the same, but the mean can be different.

48) A characteristic or measure obtained by using all the data values for a specific population is called a _____. 48) _____

A) parameter B) mode C) statistic D) variable

49) A weighted mean is used when the values of the data set are not all equally represented. 49) _____

A) False B) True

50) The median can be a more appropriate measure of central tendency if the distribution of the data is extremely skewed. 50) _____

A) True B) False

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

51) A _____ is the midpoint in a data array. 51) _____

52) The _____ is the mode for grouped data. 52) _____

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

53) A data set has a median of 84, and six of the numbers in the data set are less than median. The data set contains a total of *n* numbers. 53) _____

If *n* is odd, and exactly one number in the data set is equal to 84, what is the value of *n*?

A) 16 B) 17 C) 15 D) 13

54) A data set has a median of 76, and eighteen of the numbers in the data set are less than median. The data set contains a total of *n* numbers. 54) _____

If *n* is even, and none of the numbers in the data set is equal to 76, what is the value of *n*?

A) 40 B) 34 C) 37 D) 36

55) A student has an average of 78 on seven chapter tests. If the student's scores on six of the tests are 72, 82, 84, 66, 68, and 89, what was the score on the remaining test? 55) _____

A) 85 B) 78 C) 77 D) 96

56) A data set contains three unique values. Which of the following must be true? 56) _____

A) mean = median = midrange B) median = midrange

C) none of these D) mean = median

57) The variance of a data set is the square root of the standard deviation. 57) _____

A) True B) False

58) The range of a data set is the difference between the highest value and the lowest value. 58) _____

A) False B) True

59) Chebyshev's theorem can be used to find the minimum percentage of the values in a data set that will fall within a certain distance of the mean. 59) _____

A) False B) True

60) The coefficient of variation for a data set is the mean divided by the standard deviation, expressed as a percentage. 60) _____

A) False B) True

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

61) The _____ and _____ are two measures of variation used to describe the spread of the data in a data set. 61) _____

62) _____ identifies a minimum percentage of the data points that fall within a certain distance of the mean, and it applies to any distribution regardless of its shape. 62) _____

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

63) A distribution in which approximately 68% of the data values fall within one standard deviation of the mean behaves according to 63) _____

A) a symmetrical distribution. B) the empirical rule.
C) a boxplot. D) differential statistics.

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

64) The _____ is the average of the squares of the distance each value is from the mean. 64) _____

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

65) Determine the range for the following data set. 65) _____

4, 7, 3, 16, 5, 22, 8

A) 14 B) 4 C) 3 D) 19

66) Determine the range for the following data set. 66) _____

6, 19, 10, 8, 26

A) 6 B) 10 C) 26 D) 20

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

67) The range of the following data set is _____. 67) _____

9, 5, 14, 24, 12

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

68) Find the sample variance for the following data set: 68) _____

25 20 19 15 31

A) 16 B) 6.2 C) 38 D) 30.4

69) Find the sample standard deviation for the following data set: 69) _____

25 13 31 33 20

A) 66.8 B) 7.3 C) 8.2 D) 53.4

70) Find the population variance for the following data set: 70) _____

26 28 16 23 20

A) 12 B) 4.8 C) 22.8 D) 18.2

71) Find the population standard deviation for the following data set: 71) _____

20 18 15 12 24

A) 4.6 B) 21.2 C) 17 D) 4.1

72) The grades for the trigonometry exam are listed below. Find the range. 72) _____

85, 76, 93, 82, 84, 90, 75

A) 18 B) 76 C) 11 D) 9

73) What is the range of the set of values 5, 8, 3, 9, and 17. 73) _____

A) 14 B) 20 C) 5 D) 8

74) Find the range of the set of values 4, 13, 3, 10, and 5. 74) _____

A) 3 B) 10 C) 13 D) 8

75) The average age of Stokes County school board members over the last 40 years has been 46, but members have ranged from 29 to 67. Use the range rule of thumb to estimate the standard deviation of the members' ages. 75) _____

A) 9.5 B) 24 C) 19 D) 47.3

76) The costs per load (in cents) of 47 dish-washing detergents tested by a consumer organization are shown here. Find the standard deviation of the sample. 76) _____

Class limits	**Frequency**
20-28	12
29-37	10
38-46	14
47-55	11

A) 10.0 B) 6.2 C) 10.4 D) 10.1

77) Approximate the sample variance given the following frequency distribution. 77) _____

Class	Frequency
0 - 19	14
20 - 39	15
40 - 59	9
60 - 79	9
80 - 99	9

A) 28.2 B) 28.5 C) 810.4 D) 795.9

78) Approximate the sample standard deviation given the following frequency distribution. 78) _____

Class	Frequency
0 - 14	11
15 - 29	8
30 - 44	10
45 - 59	9
60 - 74	14

A) 512.0 B) 22.6 C) 22.4 D) 502.2

79) Approximate the population variance given the following frequency distribution. 79) _____

Class	Frequency
0 - 19	15
20 - 39	13
40 - 59	8
60 - 79	10
80 - 99	10

A) 29.5 B) 857.0 C) 872.6 D) 29.3

80) Approximate the population standard deviation given the following frequency distribution. 80) _____

Class	Frequency
0 - 9	11
10 - 19	13
20 - 29	19
30 - 39	12
40 - 49	14

A) 180.6 B) 13.5 C) 13.4 D) 183.3

81) For a set of data with a mean of 6 and a variance of 9, approximately 68% of the values will fall between 3 to 9. 81) _____

A) True B) False

82) The average resident of Metro City produces 570 pounds of solid waste each year, and the standard deviation is approximately 70 pounds. Use Chebyshev's theorem to find the weight range that contains at least 75% of all residents' annual garbage weights. 82) _____

A) Between 290 and 850 pounds B) Between 430 and 710 pounds
C) Between 360 and 780 pounds D) Between 500 and 640 pounds

83) Following are heights, in inches, for a sample of college basketball players. 83) _____

84	88	86	85	70	75	72	86	78	81
86	78	81	72	73	76	77	87	88	84

Find the sample standard deviation for the heights of the basketball players.

A) 80.4 B) 6 C) 18 D) 5.8

84) Following are the closing prices (in dollars) of a certain stock for the past 20 trading days. 84) _____

153.21	151.33	155.74	147.55	123.45	151.24	145.02	127.33	157.17	125.64
145.78	142.76	125.17	126.34	153.05	130.41	141.26	137.18	147.74	147.19

Find the population standard deviation for the closing prices.

A) $33.72 B) $11.10 C) $141.73 D) $11.39

85) The following table presents the heights (in inches) of a sample of college basketball players. 85) _____

Height (in.)	Frequency
68 - 71	3
72 - 75	5
76 - 79	2
80 - 83	2
84 - 87	2

Considering the data to be a population, approximate the variance of the heights.

A) 5.4 B) 5.6 C) 28.8 D) 31.0

86) The following table presents the heights (in inches) of a sample of college basketball players. 86) _____

Height (in.)	Frequency
68 - 71	11
72 - 75	56
76 - 79	54
80 - 83	40
84 - 87	13

Considering the data to be a population, approximate the standard deviation of the heights.

A) 77.7 B) 4.2 C) 17.6 D) 4

87) A paint manufacturer discovers that the mean volume of paint in a gallon-sized pail is 1 gallon with a standard deviation of 0.05 gallons. The paint volumes are approximately bell-shaped. Estimate the percent of pails with volumes between 0.95 gallons and 1.05 gallons. 87) _____

A) 32% B) 95%
C) 68% D) almost all (greater than 95%)

88) A consumer advocacy group tested the "on-air" lifetimes a random sample of 241 cell phone batteries. The mean lifetime was 3.2 hours with a standard deviation of 0.1 hours. The lifetimes are approximately bell-shaped. Estimate the number of batteries with lifetimes between 3.0 hours and 3.4 hours. 88) _____

A) 164 B) 12
C) 229 D) almost all (greater than 229)

89) According to Chebyshev's theorem, the maximum proportion of data values from a data set that are more than 1.5 standard deviations from the mean is _____. 89) _____

A) 0.17 B) 0.67 C) 1.33 D) 0.44

90) Given that the variance for a data set is 1.20, what is the standard deviation? 90) _____

A) 0.60 B) 1.10 C) 1.44 D) 1.20

91) If a set of data has 49 values with a variance of 4.4, then the standard deviation is _____. 91) _____

A) 0.3 B) 0.1 C) 2.1 D) 0.6

92) If a data set has 16 values and a standard deviation 9.4, then the variance is _____. 92) _____

A) 37.6 B) 88.4 C) 22.1 D) 2.4

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

93) If a set of data has mean 12 and variance 16, then it's coefficient of variation is _____. 93) _____

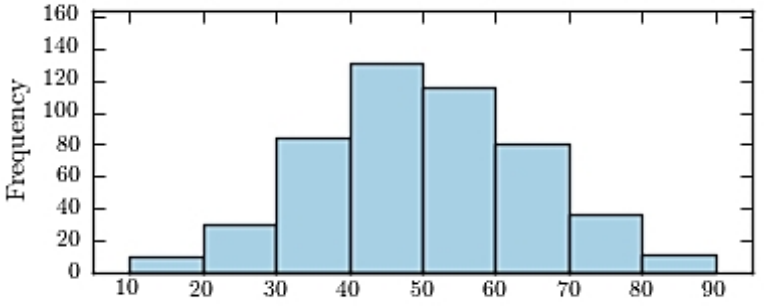
MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

94) Given that the mean of a set of data is 25 and the standard deviation is 3, what is the coefficient of variation? 94) _____

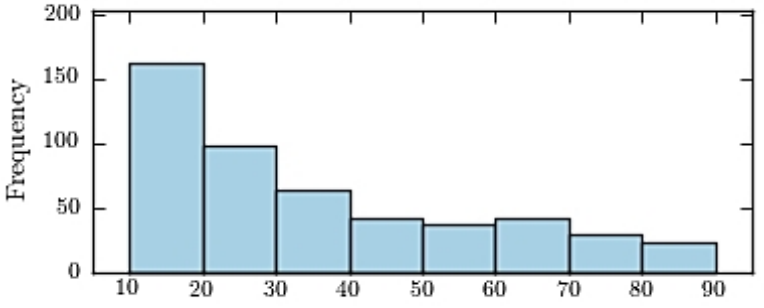
A) 12% B) 833% C) 0.12 D) 8.33

95) For which of the following histograms is it appropriate to use the Empirical Rule? 95) _____

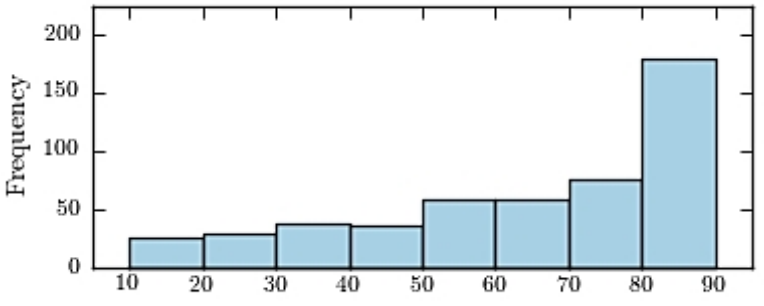
A)



B)



C)



D) all of these

96) The completion times for a certain marathon race was 3 hours with a standard deviation of 0.5 hours. What can you determine about these data by using Chebyshev's Inequality with $K = 2$? 96) _____

A) At most 88.9% of the completion times are between 2 hours and 4 hours.
B) At least 75% of the completion times are between 2 hours and 4 hours.
C) At least 88.9% of the completion times are between 2 hours and 4 hours.
D) No more than 75% of the completion times are between 2 hours and 4 hours.

97) A data set has a mean of 70 and a standard deviation of 10. Which of the following might possibly be true? 97) _____

A) More than 90% of the data values are between 40 and 100.
B) No more than 50% of the data values are between 50 and 90.
C) No less than 30% of the data values are less than 50 or greater than 90.
D) At least 15% of the data values are less than 40 or greater than 100.

98) A data set has a mean of 177 and a standard deviation of 20. Compute the coefficient of variation. 98) _____

A) 9.09 B) 20.00 C) 2.26 D) 0.11

1) A
2) B
3) 9.0
4) A
5) D
6) 8.0
7) C
8) B
9) A
10) A
11) D
12) C
13) 6
14) D
15) A
16) B
17) D
18) A
19) A
20) B
21) B
22) A
23) B
24) B
25) A
26) mean = 17.4
    mode = 15
    median = 15
    midrange = 21.0
27) 11
28) A
29) B
30) 78.1
31) D
32) B
33) B
34) B
35) D
36) D
37) B
38) C
39) C

40) D
41) A
42) B
43) C
44) A
45) A
46) A
47) C
48) A
49) B
50) A
51) median
52) modal class
53) D
54) D
55) A
56) C
57) B
58) B
59) B
60) A
61) Choose two of the following three: variance, standard deviation, and range.
62) Chebyshev's theorem
63) B
64) variance
65) D
66) D
67) 19
68) C
69) C
70) D
71) D
72) A
73) A
74) B
75) A
76) D
77) C
78) B
79) B
80) C
81) A

82) B
83) B
84) B
85) C
86) B
87) C
88) C
89) D
90) B
91) C
92) B
93) 33.3%
94) A
95) A
96) B
97) A
98) D