Chapter 02: Multiple Choice

Multiple Choice

1. A _____ is a data point that has not yet been transformed or analyzed.
   a. frequency table
   b. raw score
   c. frequency distribution
   d. grouped frequency distribution

ANSWER: b

2. Raw data are observations or data points that:
   a. are in their original form.
   b. have been manipulated in some way.
   c. have been plotted on a graph.
   d. are discarded because they appear in error.

ANSWER: a

3. A _____ is a visual depiction of data that shows how often each value occurred.
   a. frequency distribution
   b. frequency table
   c. grouped frequency table
   d. frequency polygon

ANSWER: b

4. Which of these is NOT displayed in a frequency table?
   a. the frequency of observations at each variable value
   b. values outside of the variable's range of observed values
   c. all observed variable values
   d. values in the range for which the frequency is zero

ANSWER: b

5. What is the correct method for calculating a percentage?
   a. Divide the total number of participants by the total number of participants in a group and then multiply by 100.
   b. Divide the total number of participants in a group by the total number of participants and then multiply by 100.
   c. Subtract the total number of participants in a group from the total number of participants and then multiply by 100.
   d. Add the total number of participants in all groups and divide by 100.

ANSWER: b

6. When constructing a frequency table, the first step is to:
   a. count the number of scores at each value and write those numbers in the frequency column.

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    b. create two columns.

    c. label one column *Name* and another column *Frequency*.

    d. determine the highest and the lowest score.

ANSWER: d

7. When constructing a frequency table, the final step is to:

    a. count the number of scores at each value and write those numbers in the frequency column.

    b. create two columns.

    c. label one column *Name* and another column *Frequency.*

    d. determine the highest and the lowest score.

ANSWER: a

8. A teacher calculated her students' test scores and found that overall they did very well. She found that out of the 23 students in the class, 19 of them got a 95 on her test. What percentage of students got a 95?

    a. 82.61

    b. 88.00

    c. 90.61

    d. 95.00

ANSWER: a

9. Imagine that 18 out of every 33 homes have a dog in the household. What percentage of homes has a dog?

    a. 35.29

    b. 18.00

    c. 54.55

    d. 45.45

ANSWER: c

10. Imagine that 180 people out of a total of 705 people surveyed reported owning a smartphone. What percentage of these individuals surveyed own a smartphone?

    a. 18.94

    b. 20.34

    c. 25.53

    d. 34.29

ANSWER: c

11. If 2 out of 3 dentists recommend a certain kind of gum, what percentage of dentists recommend that gum, rounded to the nearest whole number?

    a. 23 percent

    b. 33 percent

    c. 40 percent

    d. 67 percent

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ANSWER: d

This table represents the fictional scores of a set of participants who rated their happiness on a scale from 1 to 7, with 1 indicating *very unhappy* and 7 indicating *very happy*.

Table: Happiness

X	Frequency
7	3
6	5
5	11
4	10
3	2
2	1
1	2

12. (Table: Happiness) The most frequently occurring score in this data set is:
    a. 3.
    b. 4.
    c. 5.
    d. 7.
ANSWER: c

13. (Table: Happiness) How many participants rated their happiness as 4 or lower?
    a. 5
    b. 9
    c. 10
    d. 15
ANSWER: d

14. (Table: Happiness) How many people participated in this study (i.e., how many people provided happiness ratings)?
    a. 26
    b. 28
    c. 34
    d. 38
ANSWER: c

15. (Table: Happiness) How many participants rated their happiness as 6 or higher?
    a. 5
    b. 8

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   c. 9

   d. 14

ANSWER: b

16. (Table: Happiness) How many participants did not rate their happiness as either 4 or 5?

   a. 5

   b. 13

   c. 21

   d. 32

ANSWER: b

17. (Table: Happiness) Based on the frequency distribution, what can be said about the level of happiness in this sample of individuals?

   a. Most people are very unhappy.

   b. Most people are very happy.

   c. Most people are neither very unhappy nor very happy.

   d. No conclusion about happiness can be drawn.

ANSWER: c

18. (Table: Happiness) What percentage of participants rated their happiness as 7?

   a. 7.00

   b. 8.82

   c. 14.29

   d. 33.00

ANSWER: b

19. (Table: Happiness) What percentage of participants rated their happiness as 5?

   a. 11.00

   b. 23.53

   c. 32.35

   d. 47.83

ANSWER: c

This table represents the fictional scores of a set of participants who rated their level of depression on a scale from 0 to 10, with 0 indicating *no feelings of depression* and 10 indicating *very depressed*.

Table: Depression

Score	Frequency	Percent
10	1	2.86
9	6	17.14
8	1	2.86

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7	1	2.86
6	4	11.43
5	2	5.71
4	1	2.86
3	1	2.86
2	11	31.43
1	5	?
0	2	5.71

20. (Table: Depression) How many participants rated their depression levels?
   a. 10
   b. 35
   c. 44
   d. 100
ANSWER: b

21. (Table: Depression) How many participants rated their depression as 1?
   a. 1
   b. 2
   c. 5
   d. 11
ANSWER: c

22. (Table: Depression) What percent of participants rated their depression as 1?
   a. 5.00
   b. 14.29
   c. 15.11
   d. 70.00
ANSWER: b

23. (Table: Depression) What percent of participants rated their depression as a 5?
   a. 11.43
   b. 2.00
   c. 5.71
   d. 18.00
ANSWER: c

24. (Table: Depression) How many participants reported their level of depression at 5 or above?
   a. 11
   b. 15

    c. 19

    d. 31

ANSWER: b

25. (Table: Depression) What was the most frequently reported level of depression?

    a. 0

    b. 2

    c. 11

    d. 15

ANSWER: b

26. A _____ visually depicts data based on intervals rather than frequencies for specific values.

    a. grouped frequency table

    b. frequency table

    c. frequency polygon

    d. normal distribution

ANSWER: a

27. For which situation is a grouped frequency table appropriate?

    a. data set on the weights of 50 adolescents ages 12 to 18

    b. data set on the political affiliation of the students in your statistics class

    c. data set on the number of siblings of 50 adolescents ages 12 to 18

    d. data set on the letter grades of the students in your statistics class

ANSWER: a

28. A grouped frequency table is most useful when the:

    a. scores in the data set vary over a small range of discrete values.

    b. data are ordinal.

    c. data are measured on an interval scale and vary over a large range of continuous values.

    d. data are nominal.

ANSWER: c

This table shows tests scores for a cumulative final in a general education, social science course, such as an introduction to psychology course.

Table: Test Scores

Interval	Frequency
90–99	23
80–89	41
70–79	78
60–69	36

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50–59	18
40–49	7
30–39	12
20–29	3

29. (Table: Test Scores) What kind of frequency distribution is this?
    a. frequency table
    b. histogram
    c. grouped frequency table
    d. frequency polygon

ANSWER: c

30. (Table: Test Scores) Based on this table, how many people passed this test if passing is 60 percent and higher?
    a. 40
    b. 166
    c. 178
    d. 218

ANSWER: c

31. (Table: Test Scores) If passing is a 60 percent and higher, what percent of the class failed this test?
    a. 15.39
    b. 18.35
    c. 19.11
    d. 81.65

ANSWER: b

32. (Table: Test Scores) If grades are further sorted into plus and minus letter grades, for example, the scores from 80–89 are sorted into groupings of B, B+, and B– based on order, how many people would you estimate received a B+?
    a. 0
    b. 13
    c. 41
    d. This cannot be determined based on the information provided.

ANSWER: d

This table depicts the scores of 83 students on an exam that was worth 65 points.

Table: Grouped Frequency Table

Exam Score	Frequency
60–62	3

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57–59	9
54–56	21
51–53	18
48–50	14
45–47	10
42–44	8

33. (Table: Grouped Frequency Table) What seems to be the shape of the distribution represented in this grouped frequency table?

    a. symmetrical

    b. positively skewed

    c. rectangle

    d. negatively skewed

ANSWER: d

34. (Table: Grouped Frequency Table) Which interval has the most common exam score?

    a. 45–47

    b. 48–50

    c. 51–53

    d. 54–56

ANSWER: d

35. (Table: Grouped Frequency Table) Which interval has the least common exam score?

    a. 42–44

    b. 45–47

    c. 57–59

    d. 60–62

ANSWER: d

36. (Table: Grouped Frequency Table) How many students scored below 60?

    a. 71

    b. 74

    c. 80

    d. 83

ANSWER: c

37. Histograms are typically used to depict _____, whereas bar graphs are typically used to depict _____.

    a. scale data; nominal data

    b. nominal data; interval data

    c. means; frequencies

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    d. interval data; scale data

ANSWER: a

38. Histograms typically provide frequencies for _____ data.

    a. nominal

    b. ordinal

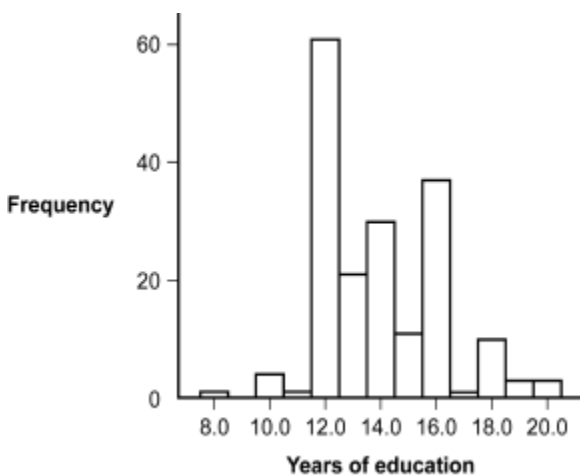   c. scale

    d. discrete

ANSWER: c

39. Bar graphs typically provide scores for _____ data.

    a. nominal

    b. ordinal

    c. interval

    d. ratio

ANSWER: a

This histogram represents the distribution of the number of years of education completed by twins who attended the 16th Annual Twins Day Festival in Twinsburg, Ohio, in August of 1991.

Figure: Years of Education

40. (Figure: Years of Education) Based on the distribution, what is the number of years of education that was completed by most twins?

    a. 12.0

    b. 13.0

    c. 14.0

    d. 16.0

ANSWER: a

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41. (Figure: Years of Education) Based on the distribution, how many twins completed 13 years of education?
    a. 11
    b. 12
    c. 20
    d. 65

ANSWER: c

42. (Figure: Years of Education) What seems to be the shape of this distribution?
    a. negatively skewed
    b. positively skewed
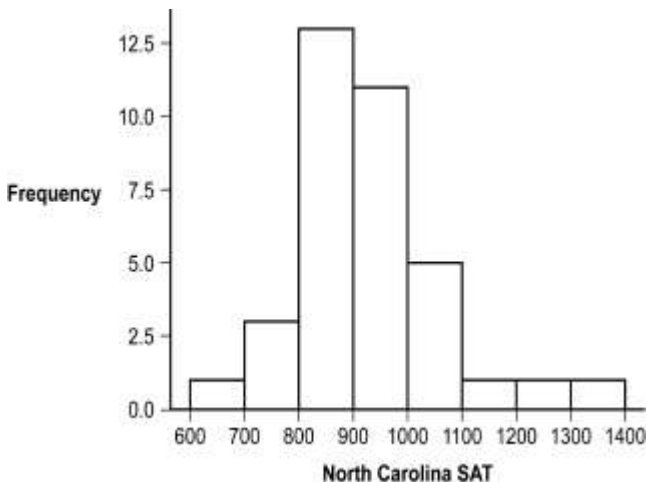   c. rectangle
    d. symmetrical

ANSWER: b

This table and figure depict the average SAT scores for entering freshmen in the year 1995 at 36 North Carolina colleges.

Table: North Carolina SAT

825	922	870	1121
990	1230	1302	926
1054	845	826	956
840	923	818	867
600	1030	831	935
890	879	1005	842
780	757	1002	774
915	921	1071	921
915	848	915	813

Figure: Histogram of SAT

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43. (Figure: Histogram of SAT) Based on the frequency distribution, approximately how many participants scored 1000 or above?

    a. 3

    b. 5

    c. 8

    d. 19

ANSWER: c

44. (Figure: Histogram of SAT) Based on the frequency distribution, what was the interval with the most common score?

    a. 700–799

    b. 800–899

    c. 900–999

    d. 1000–1099

ANSWER: b

45. (Figure: Histogram of SAT) What seems to be the shape of the distribution represented in this histogram?

    a. symmetrical

    b. positively skewed

    c. rectangle

    d. negatively skewed

ANSWER: b

46. In a frequency polygon, the *x*-axis represents the:

    a. midpoint for every interval.

    b. frequencies.

    c. raw scores.

    d. total number of participants.

ANSWER: a

47. In a frequency polygon, the *y*-axis represents the:

    a. midpoint for every interval.

    b. frequencies.

    c. raw scores.

    d. total number of participants.

ANSWER: b

48. A frequency polygon is similar to a histogram EXCEPT that:

    a. a frequency polygon can be drawn for a greater range of data values.

    b. the polygon is typically used for ordinal rather than interval data.

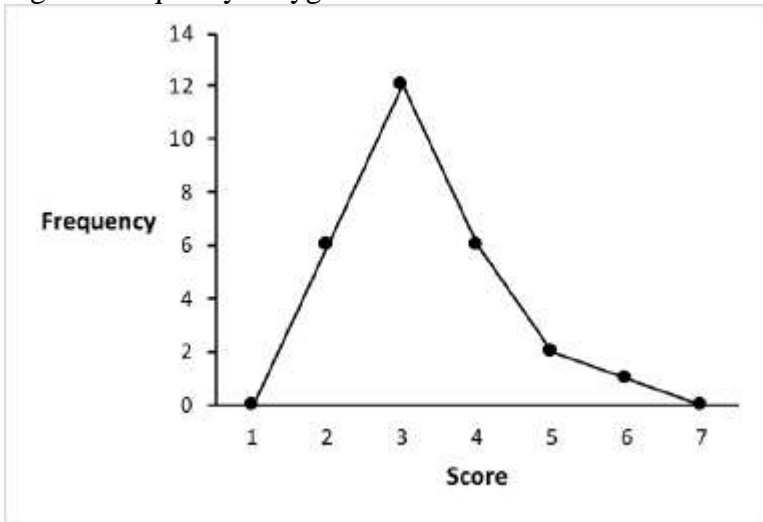   c. lines are used to connect the midpoint of each interval.

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    d. in the polygon, frequencies appear on the *x*-axis.
ANSWER: c

This polygon represents a fictional distribution of scores.

Figure: Frequency Polygon

49. (Figure: Frequency Polygon) Based on the distribution, how many participants scored 3?
    a. 5
    b. 11.5
    c. 12
    d. 18
ANSWER: c

50. (Figure: Frequency Polygon) Based on the frequency distribution, how many participants scored between 1 and 3?
    a. 2
    b. 3
    c. 6
    d. 18
ANSWER: d

51. (Figure: Frequency Polygon) Based on the frequency distribution, how many participants scored a 6?
    a. 0
    b. 1
    c. 6
    d. 18
ANSWER: b

52. (Figure: Frequency Polygon) Based on the frequency distribution, how many participants scored a 4 or

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above?

    a. 4

    b. 6

    c. 8

    d. 9

ANSWER: d
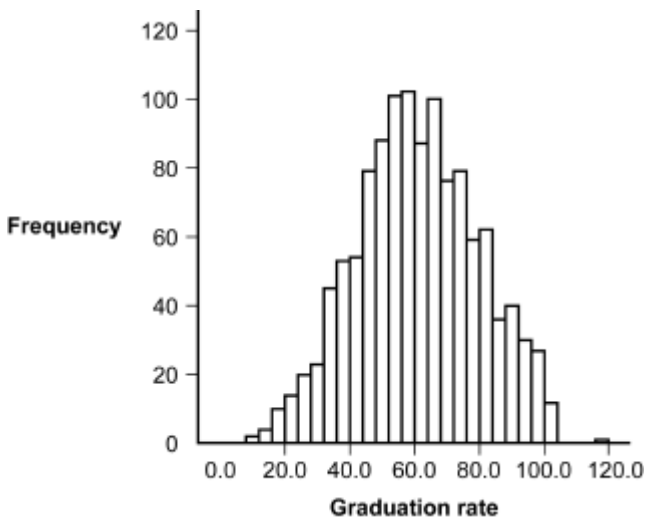
53. (Figure: Frequency Polygon) What seems to be the shape of the distribution represented in this frequency polygon?

    a. symmetrical

    b. positively skewed

    c. rectangle

    d. negatively skewed

ANSWER: b

This histogram represents the frequency of graduation rates for all U.S. colleges (data collected by *U.S. News & World Report*, 1995).

Figure: Graduation Rates

54. (Figure: Graduation Rates) The shape of the distribution of graduation rates appears to be:

    a. normal.

    b. rectangular.

    c. positively skewed.

    d. negatively skewed.

ANSWER: a

55. A normal distribution is also known as a _____ distribution.

    a. nonsymmetrical

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    b. symmetrical

    c. skewed

    d. negative

ANSWER: b

56. A bell-shaped curve is similar to all EXCEPT which type of distribution?

    a. symmetric

    b. normal

    c. unimodal

    d. positively skewed

ANSWER: d

57. When one tail of the distribution is pulled away from the center, it is known as a(n) _____ distribution.

    a. normal

    b. nominal

    c. skewed

    d. interval

ANSWER: c

58. The technical term for a distribution that is lopsided, off-center, or otherwise nonsymmetrical is _____.

    a. skewed

    b. normal

    c. bell-shaped

    d. floor-shaped

ANSWER: a

59. Katrina observes and records the number of people who purchase breakfast at a hospital cafeteria. The cafeteria is open from 7:00 A.M. to 11:00 A.M. and employees typically eat breakfast at 9:00 A.M. What type of distribution should Katrina expect to see in her data?

    a. normal distribution

    b. positively skewed distribution

    c. negatively skewed distribution

    d. nonsymmetric distribution

ANSWER: a

60. Professor Kellogg calculates the grades on the first exam for her statistics class. She finds that students did really well, with most students scoring 98 or higher. What type of distribution is Professor Kellogg MOST likely to have?

    a. normal

    b. positively skewed

    c. nominal

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    d. negatively skewed

ANSWER: d

61. In a _____, the tail of the distribution extends to the right.

    a. negatively skewed distribution

    b. positively skewed distribution

    c. ceiling effect

    d. normal distribution

ANSWER: b

62. In a _____, the tail of the distribution extends to the left.

    a. negatively skewed distribution

    b. positively skewed distribution

    c. normal distribution

    d. floor effect

ANSWER: a

63. A positive skew may have a tail that indicates extreme scores _____ the center of the distribution.

    a. around

    b. below

    c. above

    d. on either side of

ANSWER: c

64. A negative skew may have a tail that indicates extreme scores _____ the center of the distribution.

    a. around

    b. below

    c. above

    d. on either side of

ANSWER: b

65. Positively skewed distributions often result from:

    a. a ceiling effect.

    b. a floor effect.

    c. unimodal curves.

    d. a symmetrical distribution.

ANSWER: b

66. Negatively skewed distributions often result from:

    a. a ceiling effect.

    b. a floor effect.

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    c. unimodal curves.

    d. a symmetrical distribution.

ANSWER: a

67. Johanna is trying to measure the vertical leap of athletes on the women's basketball team at her university. Unfortunately, the ruler she is using is only 15 inches long and many women can jump much higher than the length of her ruler. If she records all women who jump higher than 15 inches as jumping 15 inches, this will likely create a _____.

    a. normal distribution

    b. floor effect

    c. ceiling effect

    d. positive skew

ANSWER: c

68. A researcher wanted to find the tallest person in a group of 20 women. Although he found that the tallest woman in the group measured 6 feet tall, his measurement was compromised by the fact that his scale reached only 6 feet. This example BEST illustrates which concept?

    a. the floor effect

    b. a skewed distribution

    c. the ceiling effect

    d. a negative skew

ANSWER: c

69. Professor Kellogg calculates the grades on the first exam for her statistics class. She finds that students did really well, with most students scoring 98 or higher. What type of effect, which often corresponds to a negatively skewed distribution, is MOST likely to be influencing the shape of the distribution of scores?

    a. floor effect

    b. ceiling effect

    c. raw score effect

    d. interval score effect

ANSWER: b

70. Coach Kelly records all first and second place finishes for athletes on the track team. Most athletes don't ever finish in first or second place. As a result, the distribution of finishes is constrained in a manner known as a(n) _____ effect.

    a. floor

    b. ceiling

    c. raw score

    d. interval score

ANSWER: a

71. The class average on Professor Bhatt's midterm for statistics was a 68. Because this score was unexpectedly

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low, she has decided to award every student an additional 5 points. Adding these 5 points will _____ the distribution of scores.

    a. help to normalize the shape of

    b. negatively skew

    c. have no effect on the shape of

    d. positively skew

ANSWER: c