Straightforward Statistics 1st edition Bowen Test Bank

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Chapter 2 Test Bank

Multiple Choice

1. Data are factual information presented in _____ form.
a. alphabetic
b. processed
c. numerical
d. unfiltered
Ans: C
Learning Objective: 2-1
Cognitive Domain: Knowledge
Answer Location: What You Know and What is New
Question Type: MC

2. A frequency distribution table lists all distinct values or categories along with their _____ in a variable.
a. average
b. tally counts
c. distribution shapes
d. total
Ans: B
Learning Objective: 2-1
Cognitive Domain: Knowledge
Answer Location: Organizing and Summarizing Categorical Variables
Question Type: MC

3. What kinds of variables can be organized in frequency distribution tables?
a. Only interval variables
b. Only categorical variables
c. Only numerical variables
d. Both categorical and numerical variables
Ans: D
Learning Objective: 2-1
Cognitive Domain: Knowledge
Answer Location: Frequency Table Distribution
Question Type: MC

4. Frequency distribution tables are often simply referred to as _____.
a. frequency tables
b. multiplication tables
c. summary tables
d. categorical tables
Ans: A

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Learning Objective: 2-1
Cognitive Domain: Knowledge
Answer Location: Frequency Distribution Tables
Question Type: MC

5. To calculate relative frequency which equation is correct?
a. Divide frequency by total frequency, then multiply by 100.
b. Multiply total frequency by frequency of a category.
c. Divide frequency of the value or category by the sample size.
d. Multiply frequency of a category by 100.
Ans: C
Learning Objective: 2-1
Cognitive Domain: Knowledge
Answer Location: Organizing and Summarizing Categorical Variables
Question Type: MC

6. The sum of all relative frequencies should equal _____.
a. the sample size
b. 100
c. the sum of all frequencies
d. 1.00
Ans: D
Learning Objective: 2-1
Cognitive Domain: Knowledge
Answer Location: Organizing and Summarizing Categorical Variables
Question Type: MC

7. What is the relationship between frequency and sample size in a frequency distribution table?
a. $\Sigma n = f$
b. $\Sigma X = n$
c. $\Sigma n = X$
d. $\Sigma f = n$
Ans: D
Learning Objective: 2-2
Cognitive Domain: Knowledge
Answer Location: Organizing and Summarizing Numerical Variables
Question Type: MC

8. Calculate $\sum X$ using the frequency table below.

X	f
2	4
5	5
7	8
9	3
10	1

a. 127

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b.123
c. 126
d. 125
Ans: C
Learning Objective: 2-1
Cognitive Domain: Application
Answer Location: Organizing and Summarizing Numerical Variables
Question Type: MC

9. You must summate the values from an equal interval frequency table. To get the best estimate you must first calculate _____.
a. the range of the data
b. the order of the data
c. the midpoint of each equal interval
d. the sum of every value
Ans: C
Learning Objective: 2-2
Cognitive Domain: Knowledge
Answer Location:
Question Type: MC

10. Calculate the value of ∑X using the following frequency table.

X	F
1	10
2	3
3	7
4	5

a. 58
b. 57
c. 25
d. 10
Ans: B
Learning Objective: 2-1
Cognitive Domain: Application
Answer Location: Organizing and Summarizing Numerical Variables
Question Type: MC

11. Based on the frequency table, what is the sample size (n)?

X	F
1	10
2	3
3	7
4	5

a. 58
b. 57
c. 10
d. 25

Ans: D
Learning Objective: 2-1
Cognitive Domain: Application
Answer Location: Organizing and Summarizing Categorical Variables
Question Type: MC

12. Calculate the value of ∑X using the following frequency table.

X	F
1	7
2	5
3	4
6	3
8	2

a. 63
b. 53
c. 272
d. 61
Ans: A
Learning Objective: 2-1
Cognitive Domain: Application
Answer Location: Organizing and Summarizing Categorical Variables
Question Type: MC

13. Bar graphs can represent which type/s of data?
a. Discrete and continuous
b. Discrete and categorical
c. Only categorical
d. Ratio
Ans: B
Learning Objective: 2-3
Cognitive Domain: Knowledge
Answer Location: Bar Graphs and Histograms
Question Type: MC

14. The y axis of a bar graph represents _____.
a. the sum of the frequencies multiplied by the values
b. the sample size
c. the frequency or relative frequency of each value
d. the values or categories
Ans: C
Learning Objective: 2-3
Cognitive Domain: Knowledge
Answer Location: Bar Graphs and Histograms
Question Type: MC

15. A histogram is defined as a graphical representation of a _____.
a. nominal variable
b. discrete variable

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c. continuous variable
d. categorical variable
Ans: C
Learning Objective: 2-3
Cognitive Domain: Knowledge
Answer Location: Bar Graphs and Histograms
Question Type: MC

16. Pie charts can be a powerful visual aid to present information only when the data
a. are negatively skewed.
b. are positively skewed.
c. add to a meaningful sum.
d. are normally distributed.
Ans: C
Learning Objective: 2-3
Cognitive Domain: Knowledge
Answer Location: Pie Charts
Question Type: MC

17. What chart type uses its 360º shape to represent 100%?
a. Circular bar graphs
b. Pie charts
c. Histograms
d. Bar charts
Ans: B
Learning Objective: 2-3
Cognitive Domain: Comprehension
Answer Location: Pie Charts
Question Type: MC

18. The disadvantage of a pie chart is that it does not present any statistical information other than _____.
a. visual data
b. number of categories
c. averages
d. frequency or proportion
Ans: D
Learning Objective: 2-3
Cognitive Domain: Knowledge
Answer Location: Pie Charts
Question Type: MC

19. You are working as an intern for a company that deals with statistics and are asked to create a histogram out of an equal interval frequency table. From this information you know you are dealing with what kind of variable?
a. Continuous variable
b. Nominal variable
c. Discrete variable

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d. Ordinal variable
Ans: A
Learning Objective: 2-3
Cognitive Domain: Comprehension
Answer Location: Bar Graphs and Histograms
Question Type: MC

20. A _____ refers to the number of times every value occurs in a sample or a population.
a. pie chart
b. skew
c. distribution
d. probability
Ans: C
Learning Objective: 2-4
Cognitive Domain: Knowledge
Answer Location: Common Distribution Shapes
Question Type: MC

21. Common shapes of distributions include uniform distribution, normal distribution, and _____ distribution.
a. perfect
b. skewed
c. random
d. total
Ans: B
Learning Objective: 2-4
Cognitive Domain: Knowledge
Answer Location: Common Distribution Shapes
Question Type: MC

22. A common example of a uniform distribution is _____.
a. an unfair die
b. ages in a university
c. cards
d. car prices
Ans: C
Learning Objective: 2-4
Cognitive Domain: Knowledge
Answer Location: Uniform Distribution
Question Type: MC

23. When constructing a frequency table you notice that the relative frequencies for all of the values are approximately the same. What type of distribution shape would the data have in this case?
a. Negatively skewed distribution
b. Normal distribution
c. Uniform distribution
d. Positively skewed distribution
Ans: C

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Learning Objective: 2-4
Cognitive Domain: Comprehension
Answer Location: Uniform Distribution
Question Type: MC

24. What is the relative frequency (probability) of throwing a 4 on a fair six-sided die?
a. .167
b. .20
c. .04
d. .05
Ans: A
Learning Objective: 2-4
Cognitive Domain: Application
Answer Location: Uniform Distribution
Question Type: MC

25. Many statistical procedures require that data come from a population that has a _____ distribution.
a. random
b. normal
c. skewed
d. uniform
Ans: B
Learning Objective: 2-4
Cognitive Domain: Knowledge
Answer Location: Normal Distribution
Question Type: MC

26. When a distribution peaks in the middle and tapers off symmetrically on both sides what kind of distribution is it?
a. Probability distribution
b. Skewed distribution
c. Uniform distribution
d. Normal distribution
Ans: D
Learning Objective: 2-4
Cognitive Domain: Knowledge
Answer Location: Normal Distribution
Question Type: MC

27. What type of distribution occurs when values are not symmetrically distributed and concentrate on one side or the other?
a. Skewed distribution
b. Normal distribution
c. Uniform distribution
d. Probability distribution
Ans: A
Learning Objective: 2-4

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Cognitive Domain: Knowledge
Answer Location: Skewed Distribution
Question Type: MC

28. When the concentration of values is on the left side of a distribution with a long tail on the right side of the distribution this is known as a _____ distribution.
a. normal
b. uniform
c. positively skewed
d. negatively skewed
Ans: C
Learning Objective: 2-4
Cognitive Domain: Knowledge
Answer Location: Skewed Distribution
Question Type: MC

29. When the concentration of values is on the right side of a distribution with a long tail on the left side the distribution is known as a _____ distribution.
a. normal
b. uniform
c. positively skewed
d. negatively skewed
Ans: D
Learning Objective: 2-4
Cognitive Domain: Knowledge
Answer Location: Skewed Distribution
Question Type: MC

30. Looking at the frequencies in the table below you can tell that the distribution is _____.

X	F
1	1
2	2
3	2
4	7
5	12
6	20
7	19
8	18

a. negatively skewed
b. positively skewed
c. normal
d. uniform
Ans: A
Learning Objective: 2-5
Cognitive Domain: Application
Answer Location: Skewed Distribution
Question Type: MC

Straightforward Statistics 1st edition Bowen Test Bank

31. Looking at the frequencies in the table below you can tell that the distribution is _____.

X	F
1	42
2	45
3	25
4	10
5	5
6	2
7	1
8	2

a. negatively skewed
b. positively skewed
c. normal
d. uniform
Ans: B
Learning Objective: 2-5
Cognitive Domain: Application
Answer Location: Skewed Distribution
Question Type: MC

32. A _____ is a graphical display of quantitative information with a line or curve that connects a series of adjacent data points.
a. histogram
b. line graph
c. bar graph
d. pie chart
Ans: B
Learning Objective: 2-4
Cognitive Domain: Knowledge
Answer Location: Normal Distribution
Question Type: MC

33. Looking at the frequencies in the table below you can tell that the distribution is _____.

X	F
1	2
2	2
4	2
5	2
6	2
7	2
8	2

a. negatively skewed
b. positively skewed
c. normal
d. uniform
Ans: D
Learning Objective: 2-4
Cognitive Domain: Application

Straightforward Statistics 1st edition Bowen Test Bank

Answer Location: Uniform Distribution
Question Type: MC

34. Looking at the frequencies in the table below you can tell that the distribution is _____.

X	F
2	2
3	3
4	4
5	5
6	4
7	3
8	2

a. negatively skewed
b. positively skewed
c. normal
d. uniform
Ans: C
Learning Objective: 2-4
Cognitive Domain: Knowledge
Answer Location: Normal Distribution
Question Type: MC

35. If n = 20 solve for k.

X	F
1	5
2	2
3	3
4	K
5	3
6	1
7	4

a. 5
b. 2
c. 3
d. 6
Ans: B
Learning Objective: 2-1
Cognitive Domain: Application
Answer Location: Organizing and Summarizing Categorical Variables
Question Type: MC

36. To calculate the range of a distribution you must _____.
a. add the minimum value to the maximum value
b. add the minimum and maximum values and divide by two
c. subtract the minimum value from the maximum value
d. divide the maximum value by 2
Ans: C

Straightforward Statistics 1st edition Bowen Test Bank

Learning Objective: 2-4
Cognitive Domain: Knowledge
Answer Location: Organizing and Summarizing Numerical Variables
Question Type: MC

37. Calculate n for the table below.

X	F
1	5
2	4
3	6
4	8
5	4
6	1
7	2

a. 28
b. 30
c. 39
d. 31
Ans: B
Learning Objective: 2-1
Cognitive Domain: Application
Answer Location: Organizing and Summarizing Categorical Variables
Question Type: MC

38. $\frac{f}{n}$ is the formula for _____.
a. calculating sample size
b. calculating relative frequency
c. calculating total frequency
d. calculating percentage of a frequency
Ans: B
Learning Objective: 2-1
Cognitive Domain: Knowledge
Answer Location: Organizing and Summarizing Categorical Variables
Question Type: MC

39. The graphical representation of a continuous variable is known as a _____.
a. line graph
b. bar chart
c. pie chart
d. histogram
Ans: D
Learning Objective: 2-2
Cognitive Domain: Knowledge
Answer Location: Bar Graphs and Histograms
Question Type: MC

40. The x axis of a bar graph represents _____.

Straightforward Statistics 1st edition Bowen Test Bank

a. the sum of the frequencies multiplied by the values
b. the sample size
c. the frequency or relative frequency of each value
d. the values or categories of the variable
Ans: D
Learning Objective: 2-3
Cognitive Domain: Knowledge
Answer Location: Organizing and Summarizing Categorical Variables
Question Type: MC

41. Solve for k in the frequency table below.

X	F	Relative f
1	2	.1
2	4	.2
3	8	k
4	4	.2
5	2	.1
	n=20	1.00

a. .5
b. .2
c. .3
d. .4
Ans: D
Learning Objective: 2-2
Cognitive Domain: Application
Answer Location: Organizing and Summarizing Categorical Variables
Question Type: MC

42. $\frac{f}{n} * 100\%$ is the formula to calculate _____.
a. cumulative relative frequency
b. percentage of a category relative to the sample size
c. percentage of a category relative to the population size
d. frequency
Ans: B
Learning Objective: 2-2
Cognitive Domain: Knowledge
Answer Location: Organizing and Summarizing Categorical Variables
Question Type: MC

43. For a given value X with f = 6 and n = 30, what is the relative frequency for value X?
a. .167
b. .5
c. .2
d. .6
Ans: C
Learning Objective: 2-2
Cognitive Domain: Application

Straightforward Statistics 1st edition Bowen Test Bank

Answer Location: Organizing and Summarizing Categorical Variables
Question Type: MC

44. The capacity for human short-term memory is _____.
a. 5±3
b. 5±2
c. 9±1
d. 7±2
Ans: D
Learning Objective: 2-2
Cognitive Domain: Knowledge
Answer Location: Organizing and Summarizing Numerical Variables
Question Type: MC

45. Why is short-term memory used as the standard to determine the appropriate number of categories in a frequency table?
a. To make sure that the information is too detailed to be absorbed quickly, forcing examination.
b. Psychologists accept short-term memory as a universal standard.
c. So that the information is able to be absorbed quickly with enough distinction between categories.
d. So that the table is ordered in a logical fashion.
Ans: C
Learning Objective: 2-2
Cognitive Domain: Comprehension
Answer Location: Organizing and Summarizing Numerical Variables
Question Type: MC

46. In an equal interval frequency table, $X_{midpoint}$ for each interval is calculated as
a. the low-end value plus the high-end value.
b. the high-end values minus the low-end value.
c. the low-end value plus the high-end value then divided by 2.
d. the high-end value minus the low-end value then divided by 2.
Ans: C
Learning Objective: 2-2
Cognitive Domain: Knowledge
Answer Location: Organizing and Summarizing Numerical Variables
Question Type: MC

47. $X_{midpoint}$ is useful because _____.
a. it can be used to calculate the skewness of a distribution
b. knowing the midpoints of values is useful for procedures
c. equal interval frequency tables do not allow for exact calculations of fX
d. estimated values are of higher value than exact values
Ans: C
Learning Objective: 2-2
Cognitive Domain: Comprehension
Answer Location: Organizing and Summarizing Numerical Variables
Question Type: MC

Straightforward Statistics 1st edition Bowen Test Bank

48. To obtain percentage for a category _____.
a. multiply the relative frequency by ∑X
b. divide the relative frequency by 100%
c. multiply the relative frequency by 100%
d. multiply the relative frequency by the sample size
Ans: C
Learning Objective: 2-1
Cognitive Domain: Knowledge
Answer Location: Organizing and Summarizing Categorical Variables
Question Type: MC

49. Even though no calculation errors are made in the relative frequencies, the sum of the relative frequencies is 1.01. What is the possible cause of this sum?
a. Calculator malfunction
b. The sum of relative frequencies do not have to equal 1
c. A skewed distribution
d. Rounding
Ans: D
Learning Objective: 2-1
Cognitive Domain: Knowledge
Answer Location: Organizing and Summarizing Categorical Variables
Question Type: MC

50. To make sure that there is no overlap between two adjacent intervals in an equal interval frequency table, each interval actually includes _____.
a. lower limit ≤ X ≤ upper limit
b. lower limit < X ≤ upper limit
c. lower limit ≤ X < upper limit
d. lower limit < X < upper limit
Ans: C
Learning Objective: 2-2
Cognitive Domain: Knowledge
Answer Location: Organizing and Summarizing Numerical Variables
Question Type: MC

51. In the frequency table of professions below, solve for k in the relative frequency column.

X	f	Relative f
Labor	35	0.50
Managerial	5	0.07
Marketing	7	k
Service	20	0.29
Human Resources	3	0.04
	n=70	

a. 0.15
b. 0.20
c. 0.10
d. 0.11
Ans: C

Learning Objective: 2-1
Cognitive Domain: Application
Answer Location: Organizing and Summarizing Categorical Variables
Question Type: MC

52. Calculate the value of ∑X using the following frequency table.

X	F
5	5
6	3
7	5
8	5
9	1

a. 102
b. 130
c. 125
d. 127
Ans: D
Learning Objective: 2-1
Cognitive Domain:
Answer Location:
Question Type: MC

53. Calculate the value of ∑X using the following frequency table.

X	F
2	4
4	4
7	3
8	3
9	3
10	4

a. 137
b. 126
c. 136
d. 125
Ans: C
Learning Objective: 2-1
Cognitive Domain: Application
Answer Location: Organizing and Summarizing Categorical Variables
Question Type: MC

54. In a case where pounds are the unit used to measure an individual's weight and the individual's weight is 140 lbs, what are the real limits of the variable?
a. 139, 140
b. 139, 141
c. 138, 142
d. 139.5, 140.5
Ans: D
Learning Objective: 2-1

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Cognitive Domain: Application
Answer Location: Organizing and Summarizing Numerical Variables
Question Type: MC

55. What is the midpoint for the equal interval: 169–172?
a. 170.5
b. 171.5
c. 171
d. 170
Ans: A
Learning Objective: 2-2
Cognitive Domain: Application
Answer Location: Organizing and Summarizing Numerical Variables
Question Type: MC

56. What is the formula for calculating midpoints for equal intervals?
a. (low value + high value)/4
b. (low value + high value)/2
c. high value/2
d. low value x 2
Ans: B
Learning Objective: 2-2
Cognitive Domain: Knowledge
Answer Location: Organizing and Summarizing Numerical Variables
Question Type: MC

57. For the table below, calculate the sample size

X	F
2	2
3	6
4	8
5	7
6	4
7	3
8	1

a. 39
b. 30
c. 31
d. 35
Ans: C
Learning Objective: 2-1
Cognitive Domain: Application
Answer Location: Organizing and Summarizing Categorical Variables
Question Type: MC

58. For the equal interval table below, which is the correct value for the blank in the column, $fX_{midpoint}$.

X	F	$X_{midpoint}$	$fX_{midpoint}$

1–10	2	5.5	11
11–20	4	15.5	62
21–30	5	25.5	
31–40	4	35.5	142
41–50	2	45.5	91

a. 127.5
b. 125
c. 127
d. 126
Ans: A
Learning Objective: 2-2
Cognitive Domain: Application
Answer Location: Organizing and Summarizing Categorical Variables
Question Type: MC

59. For the equal interval table below, what is the correct value for the blank in the column, $X_{midpoint}$.

X	F	$X_{midpoint}$
1–5	2	3
6–10	4	8
11–15	5	
16–20	4	18

a. 14.5
b. 13.5
c. 14
d. 13
Ans: D
Learning Objective: 2-2
Cognitive Domain: Application
Answer Location: Organizing and Summarizing Numerical Variables
Question Type: MC

60. When a distribution is referred to as positively skewed, this means that _____.
a. the concentration of values is on the right side of the distribution
b. the concentration of values is in the middle of the distribution
c. the values are evenly distributed
d. the concentration of values is on the left side of the distribution
Ans: D
Learning Objective: 2-5
Cognitive Domain: Knowledge
Answer Location: Skewed Distribution
Question Type: MC

61. When a distribution is referred to as negatively skewed, this means that _____.
a. the concentration of values is on the right side of the distribution
b. the concentration of values is in the middle of the distribution
c. the values are evenly distributed
d. the concentration of values is on the left side of the distribution
Ans: A
Learning Objective: 2-5

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Cognitive Domain: Knowledge
Answer Location: Skewed Distribution
Question Type: MC

62. Another term for positively skewed is _____.
a. left skewed
b. right skewed
c. normally skewed
d. correctly skewed
Ans: B
Learning Objective: 2-5
Cognitive Domain: Knowledge
Answer Location: Skewed Distribution
Question Type: MC

63. For the frequency table below, calculate ∑X.

X	F
2	3
4	5
6	7
8	5
10	3
12	1

a. 150
b. 147
c. 66
d. 67
Ans: A
Learning Objective: 2-1
Cognitive Domain: Application
Answer Location: Organizing and Summarizing Categorical Variables
Question Type: MC

64. For the frequency table below, calculate ∑X.

X	F
2	4
4	7
6	10
8	8
10	7
12	5

a. 292
b. 289
c. 291

Straightforward Statistics 1st edition Bowen Test Bank

d. 290
Ans: D
Learning Objective: 2-1
Cognitive Domain: Application
Answer Location: Organizing and Summarizing Categorical Variables
Question Type: MC

65. For the equal interval frequency table below, fill in the blank in the $X_{midpoint}$ column.

X	F	$X_{midpoint}$	$fX_{midpoint}$
46-49	2	47.5	95
50–53	5	51.5	257.5
54–57	7	55.5	388.5
58–61	7		416.5
62–65	5	63.5	317.5
66–69	2	67.5	135

a. 60.5
b. 55.5
c. 58.5
d. 59.5
Ans: D
Learning Objective: 2-1
Cognitive Domain: Application
Answer Location: Organizing and Summarizing Categorical Variables
Question Type: MC

66. In the frequency table below, what type of distribution shape does the distribution have?

X	F
1	24
2	28
3	18
4	9
5	5
6	2
7	1

a. Positively skewed
b. Negatively skewed
c. Uniform
d. Normal
Ans: A
Learning Objective: 2-5
Cognitive Domain: Comprehension
Answer Location: Skewed Distribution
Question Type: MC

67. In the frequency table below, what type of distribution shape does the distribution have?

X	F
1	2

Straightforward Statistics 1st edition Bowen Test Bank

2	2
3	3
4	13
5	18
6	25
7	24

a. Positively skewed
b. Negatively skewed
c. Uniform
d. Normal
Ans: B
Learning Objective: 2-5
Cognitive Domain: Comprehension
Answer Location: Skewed Distribution
Question Type: MC

68. In the frequency table below, what type of distribution shape does the distribution have?

X	F
1	10
2	10
3	10
4	10
5	10
6	10
7	10

a. Positively skewed
b. Negatively skewed
c. Uniform
d. Normal
Ans: C
Learning Objective: 2-4
Cognitive Domain: Comprehension
Answer Location: Uniform Distribution
Question Type: MC

69. In the frequency table below, what type of distribution shape does the distribution have?

X	F
1	3
2	7
3	11
4	15
5	11
6	7
7	3

a. Positively skewed
b. Negatively skewed
c. Uniform
d. Normal
Ans: D
Learning Objective: 2-4
Cognitive Domain: Comprehension

Straightforward Statistics 1st edition Bowen Test Bank

Answer Location: Normal Distribution
Question Type: MC

70. In the table below, what is the percentage of the "service" category in the frequency distribution?

X	f
Labor	8
Managerial	7
Marketing	10
Service	7
Human Resources	3

a. 21%
b. 15%
c. 20%
d. 25%
Ans: C
Learning Objective: 2-1
Cognitive Domain: Application
Answer Location: Organizing and Summarizing Categorical Variables
Question Type: MC

True/False

1. When you add up all the frequencies in each category, the sum of all frequencies is equal to the sample size.
Ans: True
Learning Objective: 2-1
Cognitive Domain: Knowledge
Answer Location: Organizing and Summarizing Categorical Variables
Question Type: TF

2. When thinking of the concept of "orderly fashion" there is only one kind of order.
Ans: False
Learning Objective: 2-2
Cognitive Domain: Knowledge
Answer Location: Organizing and Summarizing Numerical Variables
Question Type: TF

3. It is possible to create bar graphs with multiple bars to show subcategories within categories.
Ans: True
Learning Objective: 2-3
Cognitive Domain: Knowledge
Answer Location: Bar Graphs and Histograms
Question Type: TF

Straightforward Statistics 1st edition Bowen Test Bank

4. A histogram is a graphical representation of a continuous variable.
Ans: True
Learning Objective: 2-3
Cognitive Domain: Comprehension
Answer Location: Bar Graphs and Histograms
Question Type: TF

5. The shape of a distribution can be shown graphically using bar charts or histograms.
Ans: True
Learning Objective: 2-4
Cognitive Domain: Knowledge
Answer Location: Common Distribution shapes
Question Type: TF

6. A uniform distribution gets its name from the fact that it peaks in the middle then tapers off symmetrically on both sides of the distribution.
Ans: False
Learning Objective: 2-4
Cognitive Domain: Knowledge
Answer Location: Uniform Distribution
Question Type: TF

7. Many statistical procedures require that a population has a skewed distribution.
Ans: False
Learning Objective: 2-4
Cognitive Domain: Knowledge
Answer Location: Normal Distribution
Question Type: TF

8. The labeling of the skewness of a distribution depends on the direction of the tail.
Ans: True
Learning Objective: 2-5
Cognitive Domain: Knowledge
Answer Location: Skewed Distribution
Question Type: TF

9. If feasible, an interval of 5–10 should be used when constructing an equal interval table.
Ans: True
Learning Objective: 2-2
Cognitive Domain: Knowledge
Answer Location: Organizing and Summarizing Numerical Variables
Question Type: TF

Straightforward Statistics 1st edition Bowen Test Bank

10. Relative frequency is the same as proportion.
Ans: True
Learning Objective: 2-1
Cognitive Domain: Comprehension
Answer Location: Organizing and Summarizing Categorical Variables
Question Type: TF

Short Answer

1. Relative frequency is similar to percentage. With percentage all categories will add up to 100%. What do all relative frequencies add up to?
Ans: 1, 1.0, 1.00
Learning Objective: 2-1
Cognitive Domain: Knowledge
Answer Location: Organizing and Summarizing Categorical Variables
Question Type: SA

2. When labeling a skewed distribution, the direction of the _____ is used.
Ans: Tail
Learning Objective: 2-5
Cognitive Domain: Knowledge
Answer Location: Skewed Distribution
Question Type: SA

3. What type of distribution peaks at the center and symmetrically tapers off on both sides?
Ans: Normal, normal distribution
Learning Objective: 2-4
Cognitive Domain: Knowledge
Answer Location: Normal Distribution
Question Type: SA

4. The number of occurrences of each distinct value or each category is reported as _____ in a distribution table.
Ans: Frequency
Learning Objective: 2-1
Cognitive Domain: Knowledge
Answer Location: Organizing and Summarizing Categorical Variables
Question Type: SA

5. What type of graphical representation would be appropriate to use in the case of categorical data?
Ans: Bar chart, bar graph, or pie chart
Learning Objective: 2-3

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Cognitive Domain: Knowledge
Answer Location: Bar Charts
Question Type: SA

Essay

1. For the equal interval table below, calculate the approximate sum of X. Note that to do this, you will have to first calculate $X_{midpoint}$ and $fX_{midpoint}$. Please show your work.

X	f	$X_{midpoint}$	$fX_{midpoint}$
1–5	2		
6–10	6		
11–15	7		
16–20	10		
21–25	12		
26–30	13		
31–35	10		
36–40	9		

Ans: 1637 ($X_{midpoint}$ = 3, 8, 13, 18, 23, 28, 33, 38) ($fX_{midpoint}$ = 6, 48, 91, 180, 276, 364, 330, 342)
Learning Objective: 2-2
Cognitive Domain: Application
Answer Location: Organizing and Summarizing Numerical Variables
Question Type: ESS

2. With distribution shape in mind, how is it important that a data set is in ascending order when graphically represented?
Ans: Answers may vary. Without proper ascending order the shape of the distribution will not be apparent.
Learning Objective: 2-4
Cognitive Domain: Comprehension
Answer Location: Common Distribution Shapes
Question Type: ESS

3. For the frequency table of student GPAs below calculate the values for the relative frequency column. Please show your work.

X, GPA	f	Relative frequency
2.9	7	
3.0	12	
3.1	10	
3.2	4	
3.3	6	
3.4	5	
3.5	3	
3.6	0	
3.7	2	

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3.8	1	

Ans: Relative Frequencies = 0.14, 0.24, 0.20, 0.08, 0.12, 0.10, 0.06, 0.00, 0.04, 0.02
Learning Objective: 2-1
Cognitive Domain: Application
Answer Location: Organizing and Summarizing Numerical Variables
Question Type: ESS

4. You are asked to create a frequency distribution table with equal intervals and continuous data. The range of your data is 125 and n= 2000, far too large to put into a frequency table individually. You know the range for human short-term memory. How do you go about determining the size for your equal intervals?
Ans: Divide the range (125) by 7 ± 2. Since the range is a multiple of 5, 5 works best for division and equal intervals of 25 are reasonable.
Learning Objective: 2-2
Cognitive Domain: Comprehension
Answer Location: Organizing and Summarizing Numerical Variables
Question Type: ESS

5. Calculate the total quiz scores from the following frequency table. Please show your work.

X	f
0	2
1	2
2	3
3	12
4	13
5	14

Ans: 166
Learning Objective: 2-1
Cognitive Domain: Comprehension
Answer Location: Organizing and Summarizing Categorical Variables
Question Type: ESS

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