Chapter - 14

Statistics

Question 1: The median of a data set is:

A) The value that appears most frequently

B) The arithmetic mean of all the values

C) The middle value when the data is arranged in ascending order

D) The sum of all the values divided by the number of values

Answer: C) The middle value when the data is arranged in ascending order

Question 2: The mode of a data set is:

A) The value that appears most frequently

B) The arithmetic mean of all the values

C) The middle value when the data is arranged in ascending order

D) The sum of all the values divided by the number of values

Answer: A) The value that appears most frequently

Question 3: The range of a data set is:

A) The value that appears most frequently

B) The arithmetic mean of all the values

C) The difference between the highest and lowest values

D) The sum of all the values divided by the number of values

Answer: C) The difference between the highest and lowest values

Question 4: Which measure of central tendency is affected by extreme values in a data set?

A) Mean

B) Median

C) Mode

D) Range

Answer: A) Mean

Question 5: The standard deviation measures the:

A) Variability of the data

B) Middle value of the data

C) Most frequently occurring value in the data

D) Difference between the highest and lowest values

Answer: A) Variability of the data

Question 6: Which of the following is not a measure of central tendency?

A) Mean

B) Median

C) Mode

D) Standard deviation

Answer: D) Standard deviation

Question 7: If the mean of a data set is 20 and the sum of the data set is 100, how many values are there in the data set?

A) 5

B) 10

C) 15

D) 20

Answer: B) 10

Question 8: The formula for calculating the mean of grouped data is:

A) Sum of all the values divided by the number of values

B) Sum of all the values multiplied by the number of values

C) Sum of the products of each value and its frequency, divided by the total frequency

D) Difference between the highest and lowest values

Answer: C) Sum of the products of each value and its frequency, divided by the total frequency

Question 9: The value that divides a data set into four equal parts is called the:

A) Mean

B) Median

C) Quartile

D) Range

Answer: C) Quartile

Question 10: The bar graph is used to represent:

A) Continuous data

B) Discrete data

C) Grouped data

D) None of the above

Answer: B) Discrete data

Question 11: Which of the following is not a measure of dispersion?

A) Mean

B) Range

C) Variance

D) Standard deviation

Answer: A) Mean

Question 12: The sum of the deviations of all the values in a data set from their mean is always:

A) Zero

B) Positive

C) Negative

D) Cannot be determined

Answer: A) Zero

Question 13: The interquartile range is calculated as the difference between:

A) The mean and the median

B) The first and third quartiles

C) The maximum and minimum values

D) The mode and the median

Answer: B) The first and third quartiles

Question 14: The cumulative frequency distribution is used to find:

A) The mean of the data set

B) The median of the data set

C) The range of the data set

D) The percentage of values below a certain point

Answer: D) The percentage of values below a certain point

Question 15: Which of the following measures of central tendency is the most affected by outliers?

A) Mean

B) Median

C) Mode

D) Range

Answer: A) Mean

Question 16: The mode can be found from the frequency distribution by selecting the:

A) Value with the highest frequency

B) Value with the lowest frequency

C) Value in the middle of the distribution

D) Value with the highest cumulative frequency

Answer: A) Value with the highest frequency

Question 17: The mean and standard deviation are most appropriate measures of central tendency and dispersion when the data follows a:

A) Normal distribution

B) Uniform distribution

C) Skewed distribution

D) Bimodal distribution

Answer: A) Normal distribution

Question 18: The coefficient of variation is a relative measure of dispersion and is calculated as the:

A) Range divided by the mean

B) Standard deviation divided by the mean

C) Mean divided by the standard deviation

D) Standard deviation divided by the range

Answer: B) Standard deviation divided by the mean

Question 19: A stem-and-leaf plot is used to represent:

A) Continuous data

B) Discrete data

C) Grouped data

D) Cumulative frequency

Answer: B) Discrete data

Question 20: If the range of a data set is 40 and the maximum value is 80, then the minimum value is:

A) 40

B) 60

C) 80

D) 120

Answer: B) 60

Question 21: The upper quartile is the value below which:

A) 25% of the data lies

B) 50% of the data lies

C) 75% of the data lies

D) 100% of the data lies

Answer: C) 75% of the data lies

Question 22: Which of the following is a measure of relative dispersion?

A) Mean absolute deviation

B) Range

C) Standard deviation

D) Coefficient of variation

Answer: D) Coefficient of variation

Question 23: The formula for calculating the median of grouped data is:

A) (L + (N/2 - F) * c) / f

B) L + (N/2 - F) * c

C) (L + U) / 2

D) (f1 + f2 + f3 + ... + fn) / N

Answer: A) (L + (N/2 - F) * c) / f

Question 24: The Ogive graph is used to represent:

A) Continuous data

B) Discrete data

C) Grouped data

D) Cumulative frequency

Answer: D) Cumulative frequency

Question 25: The value that occurs the maximum number of times in a data set is called the:

A) Mean

B) Median

C) Mode

D) Range

Answer: C) Mode

Question 26: The formula for calculating the mean of ungrouped data is:

A) Sum of all the values divided by the number of values

B) Sum of all the values multiplied by the number of values

C) Sum of the products of each value and its frequency, divided by the total frequency

D) Difference between the highest and lowest values

Answer: A) Sum of all the values divided by the number of values

Question 27: The empirical relation between mean, median, and mode in a moderately skewed distribution is:

A) Mean = Median = Mode

B) Mean < Median < Mode

C) Mean > Median > Mode

D) Mode < Median < Mean

Answer: D) Mode < Median < Mean

Question 28: The box plot represents which quartiles of a data set?

A) First quartile, second quartile, and third quartile

B) Second quartile, third quartile, and fourth quartile

C) First quartile, third quartile, and fifth quartile

D) Third quartile, fourth quartile, and fifth quartile

Answer: A) First quartile, second quartile, and third quartile

Question 29: The interquartile range is a measure of:

A) Central tendency

B) Dispersion

C) Skewness

D) Variability

Answer: B) Dispersion

Question 30: If the mean of a data set is 25 and the sum of the data set is 150, how many values are there in the data set?

A) 4

B) 5

C) 6

D) 7

Answer: C) 6

Question31. The formula for finding the mode of grouped data is:

a) Mode = l + ((f1 - f0)/(2f1 - f0 - f2)) × h

b) Mode = l + ((f1 + f0)/(2f1 - f0 - f2)) × h

c) Mode = l + ((f1 - f0)/(2f1 + f0)) × h

d) Mode = l + ((f1 + f0)/(2f1 - f0 + f2)) × h

Answer: a) Mode = l + ((f1 - f0)/(2f1 - f0 - f2)) × h

32. The formula for finding the median of grouped data is:

a) Median = l + ((n/2 - cf)/f) × h

b) Median = l + ((n/2 + cf)/f) × h

c) Median = l + ((n/2 - cf + f)/f) × h

d) Median = l + ((n/2 + cf - f)/f) × h

Answer: a) Median = l + ((n/2 - cf)/f) × h

33. The difference between the largest and smallest observations in a data set is called the:

a) Mean

b) Median

c) Mode

d) Range

Answer: d) Range

34. The value that occurs most frequently in a data set is called the:

a) Mean

b) Median

c) Mode

d) Range

Answer: c) Mode

35. The formula for finding the mean of ungrouped data is:

a) Mean = $\Sigma x/N$

b) Mean = $\Sigma x/n$

c) Mean = $N/\Sigma x$

d) Mean = $n/\Sigma x$

Answer: a) Mean = $\Sigma x/N$

36. The formula for finding the standard deviation of a data set is:

a) $\sqrt{(\Sigma(x - \mu)^2/N)}$

b) $\sqrt{(\Sigma(x - \mu)^2/n)}$

c) $\sqrt{(\Sigma(x - \mu)/N)}$

d) $\sqrt{(\Sigma(x - \mu)/n)}$

Answer: a) $\sqrt{(\Sigma(x - \mu)^2/N)}$

37. If the mean of a data set is 20 and the standard deviation is 5, what is the coefficient of variation?

a) 0.25

b) 0.20

c) 0.05

d) 0.25%

Answer: d) 0.25%

38. The formula for finding the quartile deviation is:

a) Q.D. = (Q3 - Q1)/2

b) Q.D. = (Q3 - Q1)/4

c) Q.D. = (Q3 + Q1)/2

d) Q.D. = (Q3 + Q1)/4

Answer: b) Q.D. = (Q3 - Q1)/4

39. The formula for finding the interquartile range is:

a) IQR = Q3 - Q1

b) IQR = Q3 + Q1

c) IQR = Q3/Q1

d) IQR = Q1/Q3

Answer: a) IQR = Q3 - Q1

40. The value that divides the lower 50% of a data set from the upper 50% is called the:

a) Mean

b) Median

c) Mode

d) Quartile

Answer: b) Median

41. The formula for finding the range of a data set is:

a) Range = (n - 1) × h

b) Range = (n + 1) × h

c) Range = l + ((f1 - f0)/(2f1 - f0 - f2)) × h

d) Range = highest value - lowest value

Answer: d) Range = highest value - lowest value

42. The formula for finding the variance of a data set is:

a) $\Sigma(x - \mu)^2/N$

b) $\Sigma(x - \mu)^2/n$

c) $\Sigma(x - \mu)/N$

d) $\Sigma(x - \mu)/n$

Answer: b) $\Sigma(x - \mu)^2/n$

43. The formula for finding the geometric mean of a data set is:

a) $\sqrt{(x1 \times x2 \times ... \times xn)}$

b) $(x1 + x2 + ... + xn)/n$

c) $\Sigma x/N$

d) $\Sigma x/n$

Answer: a) $\sqrt{(x1 \times x2 \times ... \times xn)}$

44. The formula for finding the harmonic mean of a data set is:

a) $n/\Sigma(1/x)$

b) $\Sigma x/N$

c) $\Sigma x/n$

d) $\sqrt{(x1 \times x2 \times ... \times xn)}$

Answer: a) $n/\Sigma(1/x)$

45. The formula for finding the coefficient of variation is:

a) (Standard Deviation/Mean) × 100

b) (Mean/Standard Deviation) × 100

c) (Range/Mean) × 100

d) (Mean/Range) × 100

Answer: a) (Standard Deviation/Mean) × 100

46. The formula for finding the mean deviation about median is:

a) Σ|xi - x̃ |/n

b) Σ|xi - x̃ |/N

c) Σ|xi - μ|/n

d) Σ|xi - μ|/N

Answer: a) Σ|xi - x̃ |/n

47. The formula for finding the mean deviation about mean is:

a) Σ|xi - x̃ |/n

b) Σ|xi - x̃ |/N

c) Σ|xi - μ|/n

d) Σ|xi - μ|/N

Answer: c) Σ|xi - μ|/n

48. The formula for finding the standard deviation of a data set is:

a) $\sqrt{[\Sigma(x - \mu)^2/N]}$

b) $\sqrt{[\Sigma(x - \mu)^2/n]}$

c) $\sqrt{(\Sigma x/N)}$

d) $\sqrt{(\Sigma x/n)}$

Answer: b) $\sqrt{[\Sigma(x - \mu)^2/n]}$

49. The formula for finding the mode of a data set is:

a) (2 × Median) - Mean

b) (3 × Median) - (2 × Mean)

c) The value that occurs most frequently

d) (Mean + Median) ÷ 2

Answer: c) The value that occurs most frequently

50. The formula for finding the mean of a data set is:

a) $\Sigma x/N$

b) $\Sigma x/n$

c) $\Sigma(x - \mu)^2/N$

d) $\Sigma(x - \mu)^2/n$

Answer: a) $\Sigma x/N$