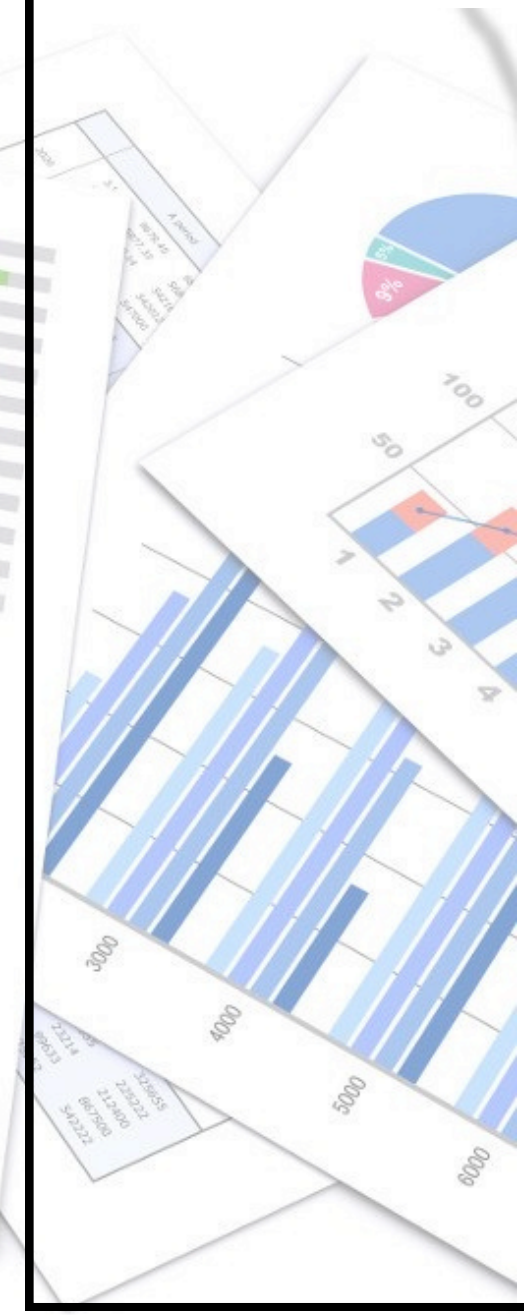
Biostatistics

Archive

Lecture 1 & 2



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Biostatistics

Lecture 1 & 2

1. Data of age resembles the following type of variables:
a. Continuous
b. Discrete
c. Nominal
d. Ordinal

Answer: a. Continuous

2. A crowd of 20 people was sorted into groups based on their ABO blood subgroups. Such groups contain _____ variables.
a. Continuous
b. Discrete
c. Nominal
d. Ordinal

Answer: c. Nominal

3. The number of your fingers is considered a(an):
a. Constant
b. Nominal variable
c. Ordinal variable
d. Metric variable

Answer: a. Constant

4. Data of family size resembles the following type of variables:
a. Continuous
b. Discrete
c. Nominal
d. Ordinal

Answer: b. Discrete

5. Data of cholesterol level resembles the following type of variables:
a. Continuous
b. Discrete
c. Nominal
d. Ordinal

Answer: a. Continuous

6. Data of time spent on waiting resembles the following type of variables:
a. Continuous
b. Discrete
c. Nominal
d. Ordinal

Answer: a. Continuous

7. The type of the information (number of kidneys in the population) is? Select one
a. Quantitative discrete
b. Constant data
c. Qualitative nominal
d. Quantitative continuous
e. Qualitative Ordinal

Answer: b. Constant data

8. Number of students is a? Select one
a. Nominal data
b. Ordinal data
c. Continuous data
d. Discrete data

Answer: d. Discrete data

9. All of the following about discrete quantitative values are true EXCEPT:
a. Mathematical operations can be applied to it
b. Its values do not have to be integers
c. It possesses interval data
d. Heart rate is an example of this data
e. It is obtained by counting

Answer: B. Its values do not have to be integers

10. Number of patients is considered a(an):
a. Nominal data
b. Interval data
c. Ordinal data
d. Continuous data
e. Discrete data

Answer: E. Discrete data

11. Discrete variable is:
a. Its value is not necessarily limited to the set of integers
b. Its value is limited to the set of integers
c. Its value is not limited to the set of integers
d. Its value is not real number
e. It is best represented diagrammatically by histograms

Answer: B. Its value is limited to the set of integers

12. Obtaining sound generalized information about population depending on the evidence of the sample is termed:
a. Presentation of data
b. Descriptive biostatistics
c. Confidence interval
d. Inferential biostatistics
e. Collection of data

Answer: D. Inferential biostatistics

13. One of the following statements is INCORRECT regarding frequency distributions:
a. There is always a termination or end for quantitative continuous data
b. Measurements are like fingerprints, no two are exactly alike
c. Continuous distributions are formed because everything in the world that can be measured varies to some degree
d. The more precise the instrument, the more variation will be detected
e. The degree of variation will depend on the precision of the measuring instrument used

Answer: A. There is always a termination or end for quantitative continuous data.

14. Educational level is considered:
a. Quantitative continuous variable
b. Quantitative discrete variable
c. Qualitative nominal variable
d. Qualitative ordinal variable
e. Interval variable

Answer: d. Qualitative ordinal variable

15. Number of bacteria, the type of variable is:
a. Quantitative continuous variable
b. Quantitative discrete variable
c. Qualitative nominal variable
d. Qualitative ordinal variable
e. Interval variable

Answer: B. Quantitative discrete variable

16. Type of data in biochemistry (never,always, sometimes...) is considered:
a. Ordinal b. Nominal
c. Continuous d. Discrete

Answer: A. Ordinal

17. Type of data in Medical specialty is:
a. Ordinal b. Nominal
c. Continuous d. Discrete

Answer: B. Nominal

18. The following table shows the distribution of infants attending a primary health care center in one month based on their height and sex, as follows:

Height (in inches)	Male	Female
50 - 55	10	15
55 - 60	20	25
60 - 65	30	35
65 - 70	25	20
70 - 75	15	10

The types of observations in this table are:
a. Both discrete
b. Both ordinal
c. Height is continuous and sex is nominal
d. Height is continuous and sex is ordinal
e. Height is discrete and sex is nominal

Answer: C. Height is continuous and sex is nominal

19. Normal distribution curve is a special form of:
a. Frequency polygon
b. Bell- shaped histogram
c. Skewed histogram
d. Rectangular histogram

Answer: a. Frequency polygon

20. Bar charts are suitable for representing data of the following subtype(s) exclusively:
a. Qualitative data
b. Quantitative data
c. Qualitative and quantitative discrete data
d. Qualitative and quantitative continuous data

Answer: c. Qualitative and quantitative discrete data

21. Pie chart is consistent with all of the following except:
a. It is used to represent quantitative data only
b. It displays data as percentages
c. “pie” comes from the name of each divided sector
d. It can only represent one variable at a time

Answer: a. It is used to represent quantitative data only

22. As per frequency distribution tables, one of the following is not really necessary for constructing such a table:
a. Class interval b. Width
c. Upper and lower limits d. Mean value

Answer: d. Mean value

23. By looking at the following set of data: (67, 67, 67, 70, 70, 61, 66, 64, 65, 63) the representing histogram will be:
a. Symmetrical
b. Uniform
c. Positively Skewed
d. Negatively Skewed

Answer: d. negatively skewed

24. By looking at the following set of data: (67, 67, 67, 70, 70, 61, 66, 64, 65, 63) the data are:
a. Bimodal
b. Skewed
c. trimodal
d. Of no mode

Answer: b. Skewed

25. Number of class intervals should be between:
a. 5- 15
b. 5- 25
c. 1- 15
d. None of the above

Answer: a. 5- 15

26.Imports and exports of the Jordanian economy over the past 3 years can be represented the best by:
a. Simple bar chart
b. Stacked bar chart
c. Clustered bar chart
d. Any of the above

Answer: c. Clustered bar chart

27. The optimal number of class intervals is:
a. Less than 5
b. More than 15
c. 5- 15
d. Any of the above

Answer: c. 5- 15

28. Family income over a year can be represented the best by:
a. Bar chart
b. Histogram
c. Line graph
d. Frequency polygon

Answer: c. Line graph

Biostatistics

Lecture 1 & 2

In a grouped frequency distribution, the class intervals and their corresponding frequencies are given as follows:

Class Interval Frequency
10 - 20 5
20 - 30 8
30 - 40 12
40 - 50 10
50 - 60 6

Answer questions 13- 18:

29. The cumulative frequency for the class interval 20 – 30 will be:
a. 8
b. 13
c. 19.5 %
d. 0.195
e. 31.7%
f. 0.317

Answer: b. 13

30. The relative frequency for the class interval 20 – 30 will be:
a. 8
b. 13
c. 19.5 %
d. 0.195
e. 31.7%
f. 0.317

Answer: d. 0.195

31. The percent cumulative frequency for the class interval 20 – 30 will be:
a. 8
b. 13
c. 19.5 %
d. 0.195
e. 31.7%
f. 0.317

Answer: e. 31.7%

32. The cumulative relative frequency for the class interval 20 – 30 will be:
a. 8 b. 13
c. 19.5 % d. 0.195
e. 31.7% f. 0.317

Answer: f. 0.317

33. The best graph to display patients' temperature chart is? Select one
a. Clustered bar chart
b. Stacked bar chart
c. Pie chart
d. Line graph
e. Histogram

Answer: d. Line graph

34. For a quantitative discrete variable interval of family size (3-5), the width is? Select one
a. 4.5
b. 5
c. 4
d. 2
e. 3

Answer: e. 3

35. 17. In this set of data 4 9 6 3 1 7, which of the following is the mean? Select one
a. 5.5
b. 5 c. 6
d. 8 e. 4.5

Answer: b. 5

36. For a quantitative continuous variable interval of weight in kg (60- 70), the width is? Select one
a. 9
b. 10
c. 8
d. 11
e. 9.5

Answer: d. 11

37. For quantitative continuous variable interval of weight in kg (60- 70). the real limit is? Select one:
a. 60-70
b. 61-59
c. 60.5-70.5
d. 59.5-70.5
e. 59.5 – 70

Answer: d. 59.5- 70.5,
To find the real limit, we add 0.5 to the upper limit and subtract 0.5 from the lower limit

38. A distribution with a tail that goes to the right is called:
a. Positively skewed
b. Unimodal
c. Negatively skewed
d. None of the above

Answer: A. Positively skewed

39. In frequency polygon, the point corresponding to the reading on the X-axis is:
a. The width of the corresponding interval
b. Lower limit of the corresponding interval
c. Upper limit of the corresponding interval
d. Midpoint of the corresponding interval
e. The frequency of each interval

Answer: D. Midpoint of the corresponding interval

40. The best graphical representation of the COVID- 19 in Jordan in the past 5 months is:
a. Line graph
b. Histogram
c. Frequency polygon
d. Pie chart
e. Bar graph

Answer: A. Line graph

41. Linear representation of frequency distribution by joining the midpoint of class intervals is:
a. Bar chart
b. Frequency distribution table
c. Pie chart
d. Frequency polygon
e. Histogram

Answer: D. Frequency polygon

42. A distribution with a tail that goes to the left is called:
a. Positively skewed
b. Unimodal
c. Negatively skewed
d. None of the above

Answer: C. Negatively skewed

43. Sales of a company over the past ten years is best represented by:
a. line graph b. bar chart
c. histogram d. pie chart

Answer: A. line graph

Biostatistics

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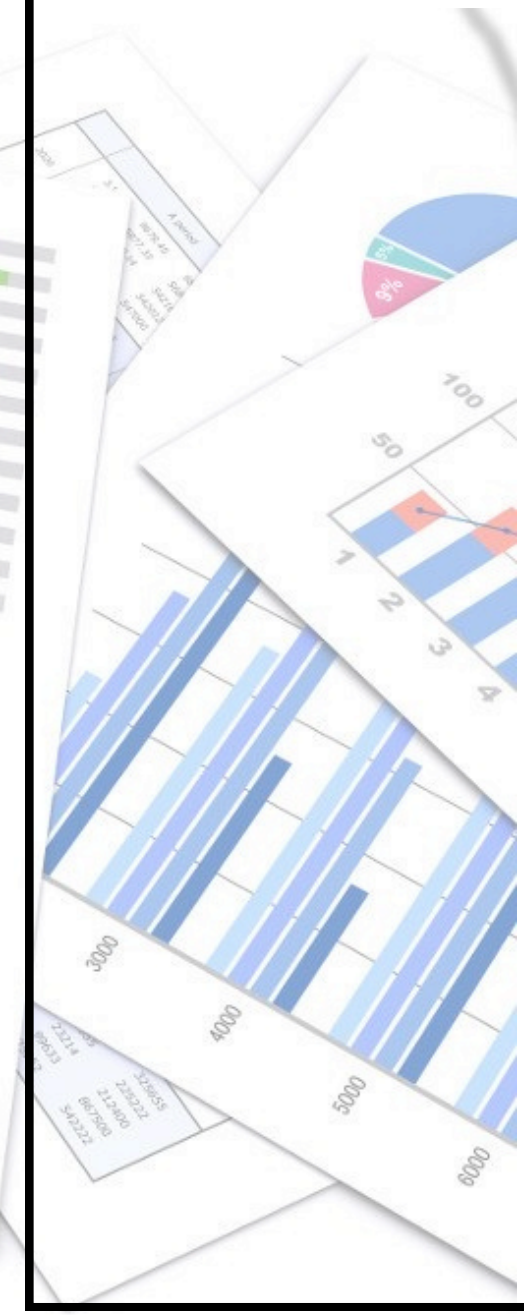
Lecture 3



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Biostatistics

Lecture 3

1. One of the following measures of tendency need(s) data organization:
a. Mean
b. Median
c. Mode
d. Two of the above

Answer: b. Median

2. Average of values when each value has a degree of importance is called:
a. Arithmetic mean
b. Weighted mean
c. Geometric mean
d. Harmonic mean

Answer: b. Weighted mean

3. The median of this set of data (2, 4, 3, 6, 1, 8, 9, 2, 5, 7) is:
a. 2
b. 4
c. 4.5
d. 4.7

Answer: c. 4.5

4. One of the following is true regarding arithmetic mean:
a. It is not always easily handled
b. It does not exist all the time
c. It summarizes the data by only one representative value
d. It is not affected by skewness nor outliers

Answer: c. It summarizes the data by only one representative value

5. Grouped mean uses all of the following except:
a. Sum of the observations' values
b. Number of the observations
c. Frequencies of the observations
d. Cumulative frequency of the observations

Answer: d. Cumulative frequency of the observations

6. One of the following we do not need to measure grouped mean:
a. Midpoints of intervals
b. Class intervals
c. Frequency of the class
d. Cumulative frequency

Answer: d. Cumulative frequency of the observations

Biostatistics

Lecture 3

7. During 10 months, the numbers of cholera cases in an area were: (20, 20, 50, 56, 60, 5000, 678, 858, 345, 456) The Desk central tendency measurement is? Select one
a. Mean
b. Range c. Median
d. Mode e. SD

Answer: c. Median

8. A distribution which has more than one point of concentration is called? Select one
a. Positively skewed
b. Multi modal
c. bimodal
d. Symmetrical

Answer: b. Multi modal

9. A distribution which has two points of concentration is called? Select one
a. Positively skewed
b. Multi modal
c. bimodal
d. Symmetrical

Answer: c. bimodal

10. The median is? Select one
a. The difference between the largest and the smallest value of observations
b. The values that occurs most frequently in a set of data
c. It is the sum of all observation divided by number of observations
d. It is the middle value in ordered array data
e. A measure of variation

Answer: d. It is the middle value in ordered array data

11. In this set of data 8, 4, 6, 2, 6, 9, which of the followings is the median? Select one
a. 5.5
b. 6.5 c. 6
d. 8 e. 4.5

Answer: c. 6

12. The correct answer regarding the marks of 9 students, 30, 51, 51, 51, 35, 58, 45, 38, 41 is? Select one
a. Mean is 31
b. Range is 30-58
c. Median is 15
d. Mode is 15
e. Mode is 58

Answer: b. Range is 30-58

Biostatistics

Lecture 3

13. The value in a series of data with a highest frequency is termed as? Select one
a. Mean
b. Standard error c. Median
d. Mode e. Range

Answer: d. Mode

14. Variation between the highest and lowest values in a set of data is termed as? Select one:
a. Mid-point
b. Standard Deviation c. Class Interval
d. Range e. Standard error

Answer: d. Range

15. A distribution of 6 scores has a median of 21. If the highest score increases 3 points, the median will be:
a. 24 b. 18
c. 21.5 d. 21
e. Further information is needed

Answer: D. 21

16. The median for the following set of data: "2, 7, 50, 14, 2, 50, 34, 50, 12, 39 and 40" is:
a. 7
b. 50 c. 34
d. 2 e. 14

Answer: C. 34

17. All of the following are false regarding arithmetic mean Except:
a. It is not necessarily a unique value
b. It is not affected by extreme values
c. It is the most commonly used measure of central tendency in statistical analysis
d. It can be used with all types of variables
e. It is not affected by skewed data

Answer: C. It is the most commonly used measure of central tendency in statistical analysis

18. In a group of 12 scores, the largest score has increased by 36 points. The effect of such a change on the mean will be:
a. Nothing, it will remain unchanged.
b. There is no way of knowing exactly how many points the mean will increase.
c. It will increase by 36 points.
d. It will increase by 12 points.
e. It will increase by 3 points.

Answer: E. It will increase by 3 points

Biostatistics

Lecture 3

19. The following are weights in kilograms for six children: 5, 9, 9, 8, 7 and 5. The median weight for these children is:
a. 8 kgs and 9 kgs
b. 7.5 kgs
c. 9 kgs only
d. 6.5 kgs

Answer: B. 7.5 kgs

20. One of the following is not true regarding the mode:
a. It is not practically used for continuous data
b. It can be used for all types of data
c. It is the observation that has the highest frequency
d. It is possible to have two or more modes for the same data
e. It is not affected by extreme values

Answer: B. It can be used for all types of data

21. In one city five white children and seven African American children are bitten by rats. The white children are aging 3, 6, 4, 5, and 3 years. The African American children are aging 4, 2, 5, 3, 2, 4, and 1 years. Based on this information, it can be determined that:
a. The range of ages for the African American children is twice for the white children
b. The range of ages for the African American children and the white ones cannot be compared
c. The range of ages for the African American children is greater than that of the white ones
d. The range of ages for the African American children is smaller than that of the white ones
e. The range of ages for the African American children equals that of the white ones

Answer: C. The range of ages for the African American children is greater than that of the white ones

22. In one city five white children and seven African American children are bitten by rats. The white children are aging 3, 6, 4, 5, and 3 years. The African American children are aging 4, 2, 5, 3, 2, 4, and 1 years. Based on this information, it can be determined that:
a. The mean of ages for the African American children is twice for the white children
b. The mean of ages for the African American children and the white ones cannot be compared

c. The mean of ages for the African American children is greater than that of the white ones
d. The mean of ages for the African American children is smaller than that of the white ones
e. The mean of ages for the African American children equals that of the white ones

Answer: D. The mean of ages for the African American children is smaller than that of the white ones

.23
In one city five white children and seven African American children are bitten by rats. The white children are aging 3, 6, 4, 5, and 3 years. The African American children are aging 4, 2, 5, 3, 2, 4, and 1 years. Based on this information, it can be :determined that
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b. The median of ages for the African American children and the white ones cannot be compared
c. The median of ages for the African American children is greater than that of the white ones
d. The median of ages for the African American children is smaller than that of the white ones
e. The median of ages for the African American children equals that of the white ones

Answer: D. The median of ages for the African American children is smaller than that of the white ones

24. The mean is? Select one
a. The difference between the largest and the smallest value of observations
b. The values that occurs most frequently in a set of data
c. It is the sum of all observation divided by number of observations
d. It is the middle value in ordered array data

Answer: c. It is the sum of all observation divided by number of observations

25. The mode is:
a. The values the occur most often in a set of data
b. The difference between the largest and the smallest value of observations
c. The sum of all observation divided by number of observations
d. The middle value in an ordered array data
e. The middle value in a set of data

Answer: The values the occur most often in a set of data

Biostatistics

Lecture 3

26. Regarding continuous variables, one of the following is wrong:
a. It is best represented by mode
b. BP is an example
c. Histogram is a suitable diagram for it
d. Its values do not have to be integers

Answer: A. It is best represented by mode

27. As per the following data set:
13, 27, 29, 5, 11, 5, 11, 2, 2, 11, 11, 2, 2
The best description will be:
a. Of no mode
b. Bimodal
c. Unimodal
d. Trimodal
e. Tetra- modal

Answer: B. Bimodal

28. In a sample of 520 pregnant women who gained weight during pregnancy, the mean was 2.5 Kgs, the median was 3.75 Kgs and mode was 2.1 Kgs. The curve for this data will be:
a. Skewed to the right
b. Skewed to the left
c. A uniform curve
d. A symmetrical curve
e. Cannot be determined with the given data

Answer: b. Skewed to the left (Dr. Waqar's answer)

29. To compare between two or more data with different units of measurements we better use:
a. SD
b. CV
c. CI
d. S

Answer: B. CV

30. For the following set of data: 1, 2 ,2 ,2 ,3 ,4, 6 ,6, 7. The mean, mode and median will be, respectively:
a. 3.67, 2 and 3
b. 3.67, 3 and 2
c. 4.67, 2 and 3.5
d. 4, 2 and 3.5

Answer: A. 3.67, 2 and 3

Biostatistics

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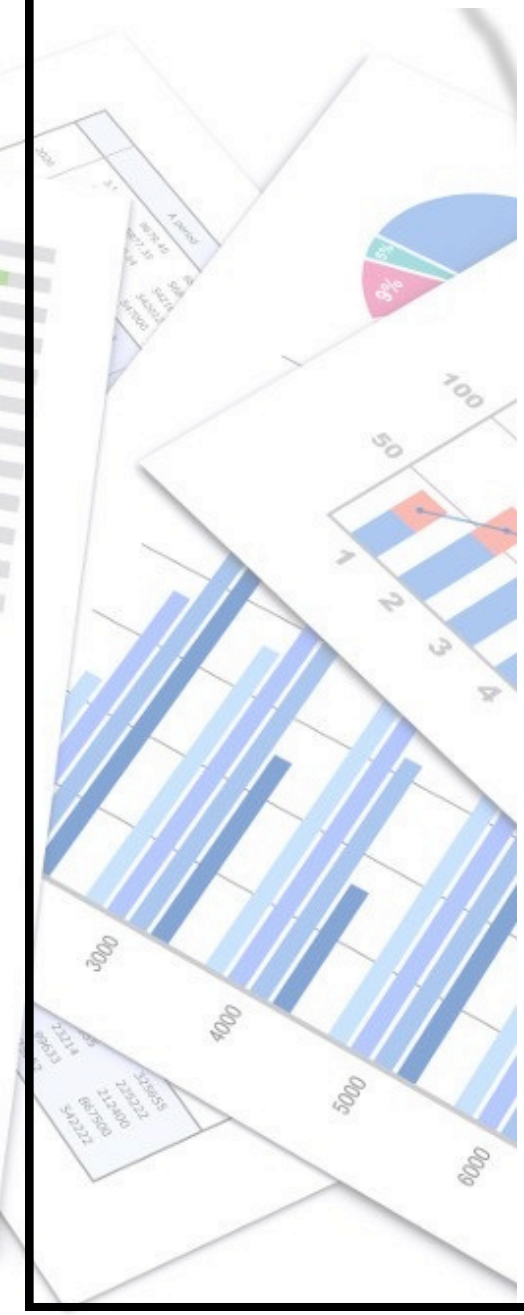
Lecture 4



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Biostatistics

Lecture 4

1. The following measure(s) do(es) not provide info about the amount of spread in a set of data:
a. Mean
b. Mode
c. Variance
d. More than one of the above

Answer: d. More than one of the above

2. One of the following is not a measurement of dispersion:
a. Median
b. Coefficient of variation
c. Variance
d. None of the above

Answer: a. Median

3. The readings of pulmonary pressures were as follows: (40, -40, 20, 35, -34, 12, 10). The calculated range will be:
a. 80
b. -80
c. 30
d. -30

Answer: a. 80

4. In a hospital 19 births were occurred during one month, 9 babies weighed over 2.5 kg and same number weighed less than 2.5 kg What value does 2.5 represent? Select one
a. Range
b. SD
c. Median
d. Mode
e. 50th percentile
f. More than one answer is correct

Answer: f. More than one answer is correct
Median is the 50th percentile

5. The body weight of 60 students are arranged in ascending order middle value is? Select one
a. Arithmetic Mean
b. Median
c. 30th percentile
d. 31st percentile
e. Mode

Answer: b. Median

6. Standard deviation is the measure of? Select one
a. Difference between highest and lowest values
b. Central tendency
c. Deviation from mean value
d. Chance e Measure of value with highest frequency

Answer: c. Deviation from mean value

Biostatistics

Lecture 4

7. What percent of the area of a distribution lies between the first and third Quartiles? Select one
a. 25
b. 50
c. 68
d. 75

Answer: b. 50

8. On the same test. Sara scored at the 95th percentile, and Dina scored at the 87th This means that? Select one
a. Dina is 8% better than Sara
b. Sara is 8% better than Dina
c. Sara scored 8 more points than Dina
d. 8% of those taking the test got scores ranging between Sara's and Dina's
e. There were only 8 people smarter than both Sara and Dina

Answer: d. 8% of those taking the test got scores ranging between Sara's and Dina's

9. In assessment of Intelligence Quotient of 240 primary school children one child had a score greater than 60 of the total children. What is the percentile rank of this child? Select one
a. 90th
b. 75th
c. 25th
d. 44th
e. Can't be calculated

Answer: c. 25th

10. The following data are the weights of under-five children in Kgs: 3, 7, 4, 6, 2, 8,
19. Half (50%) of the values in a distribution are:
a. Between the mode and the lowest value
b. Between Q (1) and Q (3)
c. Included in the range
d. Between the mode and the highest value
e. Between the mean and the mode

Answer: B. Between Q (1) and Q (3)

Biostatistics

Lecture 4

11. A standardized biostatistics test was carried on two classes (A and B). The marks showed; Class A had a standard deviation of 2.4, while class B had a standard deviation of 1.2 on the same test. What can be said about these two :classes? Select one

a. Class B marks are less heterogenous than class A marks
b. Class B did less well on the test than class A
c. Class A marks are more homogenous than class B marks
d. It is not possible to give an idea
e. Class A performed twice as well on the test as class B

Answer: A. Class B marks are less heterogenous than class A marks.

12. In assessment of Intelligence Quotient of 180 primary school children, one child had a score greater than 135 of the total children. The percentile rank for :this child is

a. 25th
b. 44th
c. 75th
d. 90th
e. Cannot be calculated

Answer: C. 75th

13. In assessment of Intelligence Quotient of 360 primary school children, one child had a score greater than 90 of the total children. The percentile rank of :this child is

a. 90th
b. 25th
c. 10th
d. 5th
e. 75th

Answer: B. 25th

14If the birth weight of each of the 15 babies born in a hospital in a day was found :to be 2.55. The standard deviation of this sample will be

a. 0
b. 0.28
c. 3.8
d. 2.8
e. 1

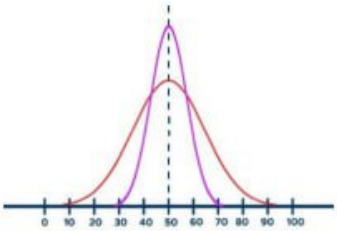
Answer: A. 0

:15All of the following are true about IQR EXCEPT .

a. It is used with median
b. It is used with metric variables
c. It is used with nominal variables
d. It is not affected by outliers, extremes nor skewness
e. It has a disadvantage of not conveying all the information in a data set

Answer: C. It is used with nominal variables

16. One of the following measurements can be used to distinguish between the curves:
a. Mean
b. Mode
c. Median
d. SD
e. Sample size



Answer: D. SD

17. One of the following statements is correct regarding the following curve:
a. It is skewed to the right
b. Mean is less than median
c. Mean, median and mode are equal
d. mode is more than mean

Answer: B. Mean is less than median