



Biostatistics

-دفعة أثر-

Midterm Exam

With archives-based practice questions



Lecture #1

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. 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

13. 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

14. 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.

15. 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

16. 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

Lecture #2

1. 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

2. 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

3. 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

4. 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

5. The following type of graph/ diagram is specifically used when we are dealing with a certain observation that varies according to time:
 - a. Bimodal
 - b. Dot plot
 - c. Line

d. Frequency polygon

Answer: c. Line

6. The type of data best represented by histograms is:

- a. Continuous
- b. Discrete
- c. Nominal
- d. Ordinal

Answer: a. Continuous

7. 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

8. 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

9. 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

10. 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

11. 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

12. 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

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:

13. 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

14. 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

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- b. 13
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- d. 0.195
- e. 31.7%
- f. 0.317

Answer: e. 31.7%

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- a. 8
- b. 13
- c. 19.5 %
- d. 0.195
- e. 31.7%
- f. 0.317

Answer: f. 0.317

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- a. 8
- b. 13
- c. 19.5 %
- d. 0.195

- e. 31.7%
- f. 0.317

Answer: a. 8

18. The percent 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: c. 19.5%

19. 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

20. 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

21. 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

22. 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

23. 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

24. For a quantitative continuous variable interval of weight in kg (60- 70), the midpoint is? Select one:

- a. 65
- b. 60
- c. 70
- d. 65.5
- e. 66.5

Answer: a. 65

25. 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

26. 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

27. 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

28. 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

29. 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

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

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

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

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

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- 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

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- a. The median of ages for the African American children is twice for the white children
- 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

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)

Lecture #4

29. 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

30. 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

31. 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

32. 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

33. 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

34. 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

35. 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

36. 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

37. 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

38. 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)

39. 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.

40. In a test of physics, the following set of scores was obtained: 4, 6, 8, 9, 11, 13, 16, 24, 24, 24, 26. The teacher computed all of the descriptive indices of central tendency and variability on these data, and then discovered that an error was made, and one of the 24's is actually an 18. One of the following indices will be changed from the original computation:
- A. Median
 - B. Mode

- C. Frequency
- D. Standard Deviation
- E. Range

Answer: D. Standard deviation

41. 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

42. 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

43. If 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

44. All 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

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Lectures #5 & #6:

1. One of the following is not correct regarding the normal distribution curve:

- a. It is determined by SD and mean
- b. It is determined by SD and mode
- c. It is a bell- shaped curve
- d. It is used for calculating CI
- e. It is used for justifying CI

Answer: B. It is determined by SD and mode

2. One of the following statements is incorrect regarding symmetrical distributions:

- a. If a distribution is asymmetrical it is considered to be skewed
- b. The tail of a distribution indicates the type of skewness
- c. The symmetry of variation indicated by skewness
- d. If the tail goes to the left, the distribution is skewed to the right and it is positively skewed
- e. A symmetrical distribution has no skewness

Answer: D. If the tail goes to the left, the distribution is skewed to the right and it is positively skewed

3. One of the following statements regarding standard normal distribution is incorrect:

- a. Standard normal distribution may not be symmetrical
- b. For a distribution to be normal, a certain proportion of the entire area must occur between specific values of the SD
- c. Standard normal distribution has a graph and an equation
- d. None of the above is incorrect

Answer: A. Standard normal distribution may not be symmetrical

4. If the birth weight of each of the 100 babies born in a hospital during April was found to be 2.25 kgs. The SD of this sample will be:

- a. 2.25
- b. 0
- c. 1
- d. 0.025
- e. 0.0025

Answer: B. 0

5. In a normal distribution curve, the mean + - 3 SDs cover:

- a. 67%
- b. 60%
- c. 95%
- d. 99%
- e. 5%

Answer: D. 99%

6. Normal distribution curve is determined by:

- a. IQR and mean
- b. Mode and SD
- c. Mean and SD
- d. Mode and median
- e. SD and median

Answer: C. Mean and SD

7. Given a distribution with a mean of 32 and a SD of 4. The score that will be associated with a standard score of 1.5:

- a. 42
- b. 40
- c. 26
- d. 32
- e. 38

Answer: E. 38

A real score = (its standard score * SD) + mean

8. In a normal distribution curve, the area of more than 2 SDs is:

- a. 68%
- b. 99%
- c. 95%
- d. 5%
- e. 97%

Answer: D. 5%

9. The area under the standard normal distribution curve between the mean and minus 3 SD is:

- a. 99.7%

- b. 49.85%
- c. 45%
- d. 68%

Answer: B. 49.85%

10. A 95% confidence interval for a population mean will be _____ a 99% confidence interval for the same population means. (Both calculations are based on the same set of data)

- a. Longer than
- b. Shorter than
- c. As long as
- d. Can't decide, it depends on the particular sets of data
- e. No decision can be given

Answer: B. Shorter than

11. A 99% confidence interval for a population mean will be _____ a 95% confidence interval for the same population means. (Both calculations are based on the same set of data)

- a. Longer than
- b. Shorter than
- c. As long as
- d. Can't decide, it depends on the particular sets of data
- e. No decision can be given

Answer: A. Longer than

12. The area under the standard normal curve between 1 and 2 SD (from both side) in the population is:

- a. 13.6%
- b. 27.2%
- c. 95%
- d. 68%
- e. 34.1%

Answer: B. 27.2%

13. The area under the standard normal distribution curve between the mean and minus 2 SD is:

- a. 45%

- b. 49.85%
- c. 47.7%
- d. 27.2%

Answer: c. 47.7%

14. If you are told the students' mark has a mean of 65 and a variance of 0, we conclude:

- a. All the students have marks of 65
- b. There are no marks for the students
- c. There are 65 students
- d. Only one mark is available
- e. Someone has made a mistake

Answer: A. All the students have marks of 65

15. In a group of 100 women the mean weigh is 60 kgs and the standard deviation is 2.5 kgs. One of the following is correct:

- a. 95% of all women weigh between 55 and 65 kgs
- b. 95% of all women weigh between 57.5 and 62.5 kgs
- c. 99% of all women weigh between 55 and 65 kgs
- d. 99% of all women weigh between 57.5 and 62.5 kgs
- e. 68% of all women weigh between 55 and 65 kgs

Answer: A. 95% of all women weigh between 55 and 65 kgs

16. The mean body weight of 70 children is 15 kgs and the standard deviation is 1.5 kgs. One of the following statements is correct:

- a. 95% of all children weigh between 10.5 and 19.5 kgs
- b. 95% of all children weigh between 13.5 and 16.5 kgs
- c. 99% of all children weigh between 12 and 18 kgs
- d. 99% of all children weigh between 13.5 and 16.5 kgs
- e. 99% of all children weigh between 10.5 and 19.5 kgs

Answer: E. 99% of all children weigh between 10.5 and 19.5 kgs

17. The mean body weight in a group of 100 adult males is 170 lb with a SD of 1.5 lb.

The correct statement is:

- a. 95% of population weights full between 167- 173 lb
- b. 95% of population weights full between 168.5- 171.5 lb
- c. 68% of population weights full between 167- 173 lb
- d. None of the population weighs more than 175 lb

e. None of the population weights less than 165 lb

Answer: A. 95% of population weights full between 167- 173 lb

18. Characteristics of a population are called _____, while those of sample are termed _____:

- a. Statistics, measures
- b. Statistics, parameters
- c. Parameters, statistics
- d. Measures, statistics
- e. Parameters, variables

Answer: C. Parameters, statistics

19. Mean hemoglobin level of 64 females was 10 gm % with a SD of 1 gm %. The standard error will be:

- a. 0.0156 gm%
- b. 10 gm%
- c. 1 gm%
- d. 0.1 gm%
- e. 0.125 gm%

Answer: E. 0.125 gm%

20. "Standard deviation divided by square root of sample size", the previous statement is the mathematical definition of:

- a. CV
- b. σ
- c. SE
- d. \bar{X}
- e. μ

Answer: C. SE

21. AUC in an NDC by more than 3 SDs on both sides is:

- a. 0%
- b. 68%
- c. 5%
- d. 95%
- e. 1%

Answer: E. 1%

22. Standard error is the measure of:

- a. Chance
- b. Central tendency
- c. Deviation of the population mean from the sample mean value
- d. Measures between highest and lowest values
- e. Deviation of the sample mean from the population mean value

Answer: E. Deviation of the sample mean from the population mean value

23. The average deviation of the sample's mean from the population mean is well known as:

- a. Range
- b. Sampling error
- c. Standard deviation
- d. Standard error
- e. Coefficient of variation

Answer: D. Standard error

24. In Gaussian distribution, one of the following characteristics is incorrect:

- a. It is a bell-shaped, continuous curve
- b. The tail never touches the base
- c. The mean, mode and median values are equal to one
- d. It is described by two parameters; the mean and the standard deviation
- e. About 95% of the probability under the curve fall within two standard deviations around the mean

Answer: C. The mean, mode and median values are equal to one

25. Variation in the results of sampling in the same population is due to:

- a. Standard error
- b. Coefficient of variation
- c. Range
- d. Sampling error
- e. Standard deviation

Answer: D. Sampling error

26. In a sample of 16 adolescent females the mean hemoglobin level was estimated to be 10 mg/dl with a SD of 1 mg/dl. The SE will be:

- a. 0.625 mg/dl
- b. 0.0625 mg/dl
- c. 2.5 mg/dl

- d. 0.25 mg/dl
- e. 1 mg/dl

Answer: D. 0.25 mg/dl

27. In Gaussian distribution, one of the following characteristics is incorrect:

- a. It is a bell- shaped, continuous curve
- b. The tail never touches the base
- c. The mean, mode and median values coincide
- d. It is described by two parameters; the mean and the standard deviation
- e. About two thirds of the AUC fall are covered by more than one SD around the mean

Answer: E. About two thirds of the AUC fall are covered by more than one SD around the mean

28. Suppose we are interested in the average cholesterol level measurements of the population at Al- Karak Governorate: the set of cholesterol measurements of people at Mu'tah district comprise:

- a. Parameters
- b. Statistics
- c. A sample
- d. An element
- e. A population

Answer: C. A sample

29. The standard error of the mean is affected by:

- a. Median of the data
- b. Mean of the data
- c. Population size
- d. Type of the sample
- e. Sample size

Answer: E. Sample size

30. A population is:

- a. A subset of a population
- b. A subset of a sample
- c. A number of measurements collected as a result of observation
- d. A complete set of individuals, objects or measurements having some common observable characteristics

e. A characteristic of a population which is measurable

Answer: D. A complete set of individuals, objects or measurements having some common observable characteristics

31. To cover 95% of the population under the normal distribution curve we have to:

- a. Move one SE above and below mean
- b. Move 1.645 SE above and below mean
- c. Move 1.96 SE above and below mean
- d. Move 2.58 SE above and below mean
- e. Move 3 SE above and below mean

Answer: C. Move 1.96 SE above and below mean

32. In Gaussian distribution, one of the following characteristics is incorrect:

- a. It is a bell-shaped, continuous curve
- b. The tail never touches the base
- c. The mean equals one and the SD equals zero
- d. It is described by two parameters; the mean and the standard deviation
- e. About 95% of the probability under the curve fall within two standard deviations around the mean

Answer: C. The mean equals one and the SD equals zero

33. If we want to cover 99% of the population under the normal distribution curve we have to:

- a. Move one SD above and below the mean
- b. Move 2.58 SE above and below the mean
- c. Move 1.96 SD above and below the mean
- d. Move 2.58 SD above and below the mean
- e. Shift 2 SD above and below the mean

Answer: B. Move 2.58 SE above and below the mean

34. AUC in an NDC by more than 2.58 SE on both sides is:

- a. 0%
- b. 68%
- c. 5%
- d. 95%
- e. 1%

Answer: E. 1%

35. The characteristics of Normal Distribution curve include the following EXCEPT?

Select one:

- a. It can be used for normal and abnormal values in medicine
- b. Mean, median and mode are identical
- c. All the variable distributed in area under the curve in a homogenous form
- d. It is bell shaped
- e. It is bimodal

Answer: E. it is bimodal

36. The standard error is:

- a. Directly affected by the variance of the data
- b. Directly affected by the sample mean
- c. Directly affected by the sample size
- d. Indirectly affected by the sample mean
- e. None of the above

Answer: A. Directly affected by the variance of the data

37. CI is calculated by using:

- a. The mean and its SE
- b. The mean and its SD
- c. The median and its SD
- d. The median and its range
- e. The mean and its range

Answer: A. The mean and its SE

38. The mean Systolic blood pressure, of 100 teachers is 110 :10 mmHg. The standard error equal:

- A. 1
- B. 10
- C. 11
- D. 100
- E. Cannot be calculated using the given info

Answer: A. 1

39. Standard deviation of the sampling distribution of averages (means) is:

- a. S
- b. σ

- c. V
- d. SE

Answer: D. SE

40. Covering 95% of the population mean under the normal distribution curve we have to:

- a. Move 1.96 SD above and below the mean
- b. Move 2 SD above and below the mean
- c. Move 1 Sd above and below the mean
- d. Move 1.96 SD and one below the mean
- e. Move 2.58 SD above and below the mean

Answer: B. Move 2 SD above and below the mean

41. Consider the following data set: 10, 15, 20, 25, 30. The coefficient of variation (CV) for this data set knowing that the SD is 7 will be:

- a. CV = 20%
- b. CV = 33.33%
- c. CV = 50%
- d. CV = 66.67%
- e. CV = 100%

Answer: B. CV= 33.33%

42. "sample size minus 1" this is the humble definition of:

- a. DF
- b. CV
- c. CI
- d. SE

Answer: a. DF

43. For a symmetrical distribution, the mean and the median are:

- a. Equal
- b. Preset at equal distances on opposite sides of the mode
- c. Always different
- d. Possibly the same and possibly different
- e. None of the above

Answer: A. Equal

44. If the size of the sample being used to assess blood pressure at Al- Karak is increased. The width of a 0.95 CI estimate of the mean of blood pressure for Al-Karak population:
- Won't change, as there is no relationship between the size of the sample and the CI.
 - Will become narrower
 - Will become wider
 - Can't decide, the effect on the width cannot be determined from the given information

Answer: B. Will become narrower

الطبيب والجراحة
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Lecture #7:

(Not a single question was related to this lecture in our exam, all are archives)

1. **If you want to compare the presence of cancer risk factors between residents in Amman and Aqaba. The best way to collect data is:**
 - a. Experiments
 - b. Surveys
 - c. Both of the above
 - d. None of the above

Answer: B. Surveys

2. **The purposes of collecting random samples from a population include all of the following except:**
 - a. To obtain a sample that will be representative for the population
 - b. To determine the sample size, for selecting a small one for example
 - c. To give every member in the population an equal chance to appear in the study
 - d. To give all members in the population the same probability of selection
 - e. To eliminate the selection bias

Answer: B. To determine the sample size, for selecting a small one for example

3. **Methods of data collection include all of the following except:**
 - a. Collecting data through comprehensive surveys
 - b. Collecting data through sample surveys
 - c. Collecting data through population census
 - d. Collecting data through hotel records
 - e. Collecting data through hospital records

Answer: D. Collecting data through hotel records

4. **One of the following is not a source of secondary data:**
 - a. Vital events registration
 - b. Hospital records
 - c. Online questionnaire
 - d. Disease registration
 - e. Environmental health

Answer: C. Online questionnaire

5. **One of the following is not a method used to collect primary data:**
 - a. Interviews

- b. Questionnaires
- c. Surveys
- d. Experimentations
- e. Census

Answer: E. Census

المطب و الجراحة
لجنة

Lectures #8 & #9:

1. All of the following is correct regarding snowball sampling technique except:
 - a. It may introduce sampling bias.
 - b. It is a non-probability sampling technique.
 - c. Mostly used in cases with social stigma like people with AIDS or those with narcotics addiction.
 - d. It helps in generalizing the results to the whole population

Answer: D. It helps in generalizing the results to the whole population

2. Hidden periodicities lead to bias in _____ type of sampling:
 - a. Simple random
 - b. Stratified random
 - c. Systematic random
 - d. Cluster

Answer: C. Systematic random

3. A researcher is conducting a study on the prevalence of a rare disease in a small community. Due to limited resources and difficulty in identifying individuals with the disease, the researcher decides to recruit participants through referrals from the few known cases. The type of sampling method is most likely being used in this study is:
 - a. Probability sampling
 - b. Convenience sampling
 - c. Snowball sampling
 - d. Stratified sampling

Answer: C. Snowball sampling

4. A group of researchers wants to investigate the preferences of college students regarding their study habits. They decide to visit a nearby university campus and approach students who are available in the library during a specific time frame. The type of sampling method is most likely being used in this study:
 - a. Probability sampling
 - b. Convenience sampling
 - c. Snowball sampling
 - d. Cluster sampling

Answer: B. Convenience sampling

5. When you invite people to participate in a certain biostatistical research, the type of sampling you are using is:
- a. Probability sampling
 - b. Convenience sampling
 - c. Snowball sampling
 - d. Stratified sampling

Answer: B. Convenience sampling

6. One of the following is incorrect regarding stratified sampling technique:
- a. Each stratum is considered an independent sub- population.
 - b. We do not take each stratum as a whole.
 - c. In this technique we ensure adequate representation of minorities.
 - d. We use the same sampling fraction for all strata.
 - e. This sampling technique can affect the statistical power of our study.

Answer: B. we do not take each stratum as a whole

7. When you ask people if they are willing to participate in a certain biostatistical research, the type of sampling you are using is:
- e. Probability sampling
 - f. Convenience sampling
 - g. Snowball sampling
 - h. Stratified sampling

Answer: B. Convenience sampling

8. The following is incorrect regarding cluster sampling:
- a. Sampling units are groups rather than individuals
 - b. It is the best technique to use when a certain criterion is to be studied
 - c. Random subjects from each cluster are selected
 - d. It is based on the geographical contiguity
 - e. Both b and c.

Answer: E. Both b and c

9. One of the following is not a probability sampling:
- a. Systematic sampling
 - b. Cluster sampling
 - c. Stratified random sampling
 - d. Simple random sampling

e. Convenient sampling

Answer: E. Convenient sampling

10. One of the following is a necessary condition for a sample to be random:

- a. Every person in the population has the same likelihood of being included in the sample.
- b. The characteristics of the sample are the same as the characteristics of the population.
- c. The choice of the method of selecting individuals from the population is governed entirely by chance.
- d. Choosing the persons who are close to us
- e. Proportions of various groups selected are equal to corresponding proportions in the population.

Answer: a. Every person in the population has the same likelihood of being included in the sample

11. A Simple random sample is a one where:

- a. you use the random digit
- b. you apply a pre-defined system
- c. you decide a sample size and sample proportionately from the population
- d. you have to categorize the area into sectors
- e. you choose each item with no regard to previous choices

Answer: a. you use the random digit

12. A (simple) random sample is defined by:

- a. quantity of selection
- b. the method of selection
- c. duration of selection
- d. its degree of resemblance to the population
- e. outcome of selection

Answer: b. the method of selection

13. A random sample is used to:

- a. Make the sample representative to the population
- b. Be suitable for an inferential test
- c. Minimize the cost of a study
- d. Eliminate a selection of bias
- e. Give every member in the population the same probability of selection

Answer: a. Make the sample representative to the population

14. Instead of having a sample scattered over the entire coverage area, the sample is more localized in relatively few centers". This is the main advantage of:

- a. Simple random sampling
- b. Convenient sampling
- c. Cluster random sampling
- d. Stratified random sampling
- e. Systematic random sampling

Answers: C. Cluster random sampling

15. A sample of 150 will be selected to represent the population of 5000 subjects in the following table:

Education Level	Frequency
Illiterate	1000
School Education	3000
University Graduate	1000
Total	5000

using the method of proportional allocation. The sampling method is:

- a. Multistage sample
- b. Stratified random sample
- c. Cluster sample
- d. Systematic random sample
- e. Simple random sample

Answer: b. Stratified random sample

16. We have decided to conduct a study on smoking among students of Mutah University. We randomly selected every 4th student in the university. The type of this sampling will be:

- a. Simple random sampling
- b. Systematic random sampling
- c. Stratified random sampling
- d. Cluster random sampling
- e. Multi- stage random sampling

Answer: B. Systematic random sampling

17. We have decided to conduct a study on smoking among students of Mutah University. If we selected the first five students entering each faculty. The type of this sampling will be:

- a. Simple random sampling
- b. Systematic random sampling
- c. Stratified random sampling
- d. Cluster random sampling
- e. Multi- stage random sampling

Answer: C. Stratified random sampling

University was divided into faculties (strata) and we chose them all. Then by a way of random sampling we carried on

18. We have decided to conduct a study on smoking among students of Mutah University. By using the random digit, we collected samples from 100 students from the main library. The type of this sampling will be:

- a. Simple random sampling
- b. Systematic random sampling
- c. Stratified random sampling
- d. Cluster random sampling
- e. Multi- stage random sampling

Answer: D. Cluster random sampling

Random digit is used for simply random sampling. However, it can be used with other methods. For simple random sampling to be the one used ALONE, all the population should be given numbers and this sounds to be impracticable for a university. Moreover, "from the main library" suggest a cluster (i.e. university building, then we picked this sub-element).