# Biostatistics

# Archive Questions

# Lectures 1-9/ Sorted

الطب والجراحة لجنة

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

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 qualitative 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

<p align="right">**Answer: E. Discrete data**</p>

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

<p align="right">**Answer: B. Its value is limited to the set of integers**</p>

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

<p align="right">**Answer: C. Height is continuous and sex is nominal**</p>

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

<p align="right">**Answer: D. Inferential biostatistics**</p>

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.**

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

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

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

15. **The percent cumulative frequency for the class interval 20 – 30 will be:**

    a. 8

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16. **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

17. **The 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

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

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

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

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

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**

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

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

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

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

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

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

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

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

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.

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

<span style="color:red">**Answer: B. 7.5 kgs**</span>

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

<span style="color:red">**Answer: B. It can be used for all types of data**</span>

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

<span style="color:red">**Answer: C. The range of ages for the African American children is greater than that of the white ones**</span>

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:

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**

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. 50$^{th}$ percentile
   f. More than one answer is correct

   **Answer: f. More than one answer is correct**

   **Median is the 50$^{th}$ percentile**

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

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

<p style="text-align:right; color:red;">**Answer: c. 25th**</p>

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

<p style="text-align:right; color:red;">**Answer: B. Between Q (1) and Q (3)**</p>

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

<p style="color:red;">**Answer: A. Class B marks are less heterogenous than class A marks.**</p>

12. 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

<span style="color:red">**Answer: D. Standard deviation**</span>

13. 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. 25$^{th}$

b. 44$^{th}$

c. 75$^{th}$

d. 90$^{th}$

e. Cannot be calculated

<span style="color:red">**Answer: C. 75$^{th}$**</span>

14. 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. 90$^{th}$

b. 25$^{th}$

c. 10$^{th}$

d. 5$^{th}$

e. 75$^{th}$

<span style="color:red">**Answer: B. 25$^{th}$**</span>

15. 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

<span style="color:red">**Answer: A. 0**</span>

**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 in 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%

<span style="color:red">**Answer: D. 99%**</span>

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

<span style="color:red">**Answer: C. Mean and SD**</span>

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

<span style="color:red">**Answer: E. 38**</span>

<span style="color:red">**A real score= (its standard score \*SD) + mean**</span>

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

    a. 68%

    b. 99%

    c. 95%

    d. 5%

    e. 97%

<span style="color:red">**Answer: D. 5%**</span>

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%

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. 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%

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

a. 45%

b. 49.85%

c. 47.7%

d. 27.2%

Answer: c. 47.7%

13. 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

14. 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

15. 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

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

The correct statement is:

a.  95% of population weights full between 167- 173 Ib

b.  95% of population weights full between 168.5- 171.5 Ib

c.  68% of population weights full between 167- 173 Ib

d.  None of the population weighs more than 175 Ib

e.  None of the population weights less than 165 Ib

17. 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

18. **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%**

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

    a. CV

    b. σ

    c. SE

    d. X̄

    e. μ

**Answer: C. SE**

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

    a. 0%

    b. 68%

    c. 5%

    d. 95%

    e. 1%

**Answer: A. 0%**

21. **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**

22. 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**

23. 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**

24. 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**

25. 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**

26. 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**

27. 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**

28. 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**

29. 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**

30. 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**

31. 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**

32. 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**

33. 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%**

34. 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

35. **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

36. **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

37. **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

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

   a. S
   b. σ
   c. V
   d. SE

39. **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**

40. **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%**

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

    a. DF

    b. CV

    c. CI

    d. SE

    **Answer: a. DF**

**Lecture #7:**

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

    <span style="color:red">**Answer: B. Surveys**</span>

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

    <span style="color:red">**Answer: B. To determine the sample size, for selecting a small one for example**</span>

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

    <span style="color:red">**Answer: D. Collecting data through hotel records**</span>

**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

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**