UNIT 1 : Concept of Statistics

1. A numerical value used as a summary measure for a sample, such as a sample mean, is known as a_____
   a) Population Parameter
   b) Sample Parameter
   c) Sample Statistic
   d) Population Mean
Answer: c

2. Statistics branches include_____
   a) Applied Statistics
   b) Mathematical Statistics
   c) Industry Statistics
   d) Both A and B
Answer: d

3. To enhance a procedure the control charts and procedures of descriptive statistics are classified into_____
   a) Behavioural Tools
   b) Serial Tools
   c) Industry Statistics
   d) Statistical Tools
Answer: a

4. Sample statistics are also represented as_____
   a) Lower Case Greek Letter
   b) Roman Letters
   c) Associated Roman Alphabets
   d) Upper Case Greek Letter
Answer: b

5. Individual respondents, focus groups, and panels of respondents are categorized as_____
   a) Primary Data Sources
   b) Secondary Data Sources
   c) Itemised Data Sources
   d) Pointed Data Sources
Answer: a

6. The variables whose calculation is done according to the weight, height and length and weight are known as:_____
   a) Flowchart Variables
   b) Discrete Variables
   c) Continuous Variables
   d) Measuring Variables
Answer: c

7. A method used to examine inflation rate anticipation, unemployment rate and capacity utilisation to produce products is classified as_____
   a) Data Exporting Technique
   b) Data Importing Technique
   c) Forecasting Technique
   d) Data Supplying Technique
Answer: c

8. Graphical and numerical methods are specialized processes utilized in_____
   a) Education Statistics
   b) Descriptive Statistics
   c) Business Statistics
   d) Social Statistics
Answer: b

9. The scale applied in statistics which imparts a difference of magnitude and proportions is considered as_____
   a) Exponential Scale
   b) Goodness Scale
   c) Ratio Scale
   d) Satisfactory Scale
Answer: c

10. Review of performance appraisal, labour turnover rates, planning of incentives and training programs and are examples of _____
   a) Statistics in Production
   b) Statistics in Marketing
   c) Statistics in Finance
   d) Statistics in Personnel Management
Answer: d

11. The number of accidents in a city during 2010 is_____
   a) Discrete variable
   b) Continuous variable
   c) Qualitative variable
   d) Constant

Answer: b

12. The mean of a distribution is 23, the median is 24, and the mode is 25.5. It is most likely that this distribution is_____
   a) Positively Skewed
   b) Symmetrical
   c) Asymptotic
   d) Negatively Skewed

Answer: c

13. According to the empirical rule, approximately what percent of the data should lie within $\mu \pm 2\sigma$?_____
   a) 75%
   b) 68%
   c) 99.7%
   d) 90%

Answer: c

14. Census reports used as a source of data is_____
   a) Primary source
   b) Secondary source
   c) Organized data
   d) None

Answer: d

15. The first hand and unorganized form of data is called_____
   a) Secondary data
   b) Organized data
   c) Primary data
   d) None of these

Answer: c

16. If a distribution is abnormally tall and peaked, then is can be said that the distribution is_____
   a) Leptokurtic
   b) Pyrokurtic
   c) Platykurtic
   d) Mesokurtic
Answer: b

17. A chance variation in an observational process is_____
   a) Dispersion/ Variability
   b) Measurement error
   c) Random error
   d) Instrument error
Answer: a

18. Given $X_1=12, X_2=19, X_3=10, X_4=7$, then $\sum_{i=1}^4 X_i$ equals?_____
   a) 36
   b) 48
   c) 41
   d) 29
Answer: c

19. Questionnaire survey method is used to collect_____
   a) Secondary data
   b) Qualitative variable
   c) Primary data
   d) None of these
Answer: c

20. The mean of a distribution is 14 and the standard deviation is 5. What is the value of the coefficient of variation?_____
   a) 60.4%
   b) 48.3%
   c) 35.7%
   d) 27.8%
Answer: b

21. Sum of dots when two dice are rolled is_____
    a) A discrete variable
    b) A continuous variable
    c) A constant
    d) A qualitative variable
Answer: c

22. The data which have already been collected by someone are called_____
    a) Raw data
    b) Array data
    c) Secondary data
    d) Fictitious data
Answer: c

23. Data collected by NADRA to issue computerized identity cards (CICs) are_____
    a) Unofficial data
    b) Qualitative data
    c) Secondary data
    d) Primary data
Answer: b

24. A parameter is a measure which is computed from_____
    a) Population data
    b) Sample data
    c) Test statistics
    d) None of these
Answer: b

25. The grouped data is also called_____
    a) Raw data
    b) Primary data
    c) Secondary data
    d) Qualitative data
Answer: d

26. Primary data and _____ data are same
    a) Grouped
    b) Secondary data
    c) Ungrouped
    d) None of these

Answer: b

27. A constant variable can take values_____
    a) Zero
    b) Fixed
    c) Not fixed
    d) Nothing
Answer: c

28. Cumulative frequency is_____
    a) Decreasing
    b) Increasing
    c) Different
    d) None of these
Answer: d

29. Data Classified by attributes are called_____
    a) Qualitative Data
    b) Quantitative Data
    c) Ungrouped Data
    d) Geographical Data
Answer: a

30. Statistics results are_____
    a) Absolutely Correct
    b) Not True
    c) True on Average
    d) Universally True
Answer: c

31. Measurements usually provide_____
    a) Discrete Data
    b) Continuous Data
    c) Qualitative Data
    d) Primary Data
Answer: b

32. Which one is the not measure of dispersion._____
   a) The Range
   b) 50th Percentile
   c) Inter-Quartile Range
   d) Variance
Answer: b

33. Statistic is a numerical quantity, which is calculated from_____
   a) Population
   b) Sample
   c) Data
   d) Observations
Answer: b

34. In statistics, a sample means_____
   a) A portion of the sample
   b) A portion of the population
   c) All the items under investigation
   d) None of the above
Answer: b

35. Data in the Population Census Report is_____
   a) Grouped data
   b) Ungrouped data
   c) Secondary data
   d) Primary data
Answer: c

36. When data are collected in a statistical study for only a portion or subset of all elements of interest we are using_____
   a) A sample
   b) A Parameter
   c) A Population
   d) Both b and c
Answer: a

37. The algebraic sum of deviations from mean is_____
   a) Maximum
   b) Zero
   c) Minimum

  d) Undefined

Answer: b

38. In inferential statistics, we study_____
  a) The methods to make decisions about the population based on sample results
  b) How to make decisions about mean, median, or mode
  c) How a sample is obtained from a population
  d) None of the above

Answer: d

39. The height of a student is 60 inches. This is an example of_____
  a) Qualitative data
  b) Categorical data
  c) Continuous data
  d) Discrete data

Answer: a

40. In statistics, a population consists of_____
  a) All People living in a country
  b) All People living in the area under study
  c) All subjects or objects whose characteristics are being studied
  d) None of the above

Answer: c

41. In descriptive statistics, we study_____
  a) The description of the decision-making process
  b) The methods for organizing, displaying and describing data
  c) How to describe the probability distribution
  d) None of the above

Answer: b

42. Which one of the following measurement does not divide a set of observations into equal parts?_____
  a) Quartiles
  b) Standard Deviations
  c) Percentiles
  d) Deciles

Answer: c

43. In statistics, conducting a survey means_____
    a) Collecting information from elements
    b) Making mathematical calculations
    c) Drawing graphs and pictures
    d) None of the above
Answer: b

44. You asked five of your classmates about their height. On the basis of this information, you stated that the average height of all students in your university or college is 67 inches. This is an example of_____
    a) Descriptive statistics
    b) Inferential Statistics
    c) Parameter
    d) Population
Answer: b

45. Which branch of statistics deals with the techniques that are used to organize, summarize, and present the data_____
    a) Advanced Statistics
    b) Probability Statistics
    c) Inferential Statistics
    d) Descriptive Statistics
Answer: c

46. Which of the following is not based on all the observations?_____
    a) Arithmetic Mean
    b) Geometric Mean
    c) Harmonic Mean
    d) Mode
Answer: c

47. The weights of students in a college/ school is a_____
    a) Discrete Variable
    b) Continuous Variable
    c) Qualitative Variable
    d) None of these
Answer: b

48. Life of a T.V picture tube is a_____
    a) Discrete variable
    b) Continuous variable
    c) Qualitative variable
    d) Constant
Answer: b

49. Population census is conducted through_____
    a) Sample survey
    b) Accounting
    c) Investigation
    d) Complete enumeration
Answer: d

50. Which of these represent qualitative data_____
    a) Height of a student
    b) Liking or disliking of (500) persons of a product
    c) The income of a government servant in a city
    d) Yield from a wheat plot
Answer: b

UNIT 2 : Measures of Central Tendency and Dispersion

1. What is the arithmetic mean of the data set: 4, 5, 0, 10, 8, and 3?_____
4
a) 5
b) 6
c) 7
    Answer b

2. What is the geometric mean of: 1, 2, 8, and 16?_____
a) 4
b) 5
c) 6
d) 7
Answer a

3. The arithmetic mean of all possible outcomes is known as_____
a) expected value
b) critical value
b) variance
d) standard deviation
Answer a

4. What is the average of 3%, 7%, 10%, and 16% ?_____
a) 8%
b) 9%
c) 10%
d) 11%
Answer b

5. The mean, mode, and median of the data set: 5, 4, 10, 12, 1, 5, 3, 7, 15, and 8 is respectively_____
a) 5, 6, 7
b) 7, 6, 5
c) 6, 5, 7
d) 7, 5, 6
Answer d

6. Harmonic men gives more weigntage to_____
a) Small Values
b) Large Values
c) Positive Values
d) Negative Values
Answer a

7. If the distribution is symmetric about mean then the skewness is_____.
0
a) 1
b)   Positive
c)   negative
Answer a

8. Standard deviation is calculated from the Harmonic Mean (HM)_____
a) Always
b) Sometimes
c) Never
d) None of these
Answer b

9. In statistics, a sample means_____
a) A portion of the sample
b) A portion of the population
c) All the items under investigation
d) None of the above
Answer: b

10. The algebraic sum of deviations from mean is_____
a) Maximum
b) Zero
c) Minimum
d) Undefined
Answer: b

11. Sum of deviations will be zero if it is taken from_____
a) Mean
b) Mode
c) Median

d) Standard Deviation

Answer: a

12. Arithmetic Mean is _____ affected by extreme values

a) Not
b) Highly
c) Less
d) None of these

Answer: b

13. The sum of squared deviation is least from_____

a) Median
b) Mean
c) Mode
d) Standard Deviation

Answer: b

14. _____ is based on all observations of data

a) Median
b) Mode
c) Mean
d) None of these

Answer: c

15. The mean of 10 numbers is 9, then the sum (total) of these numbers will be_____

a) 9
b) 0.9
c) 70
d) 90

Answer: d

16. Arithmetic Mean is _____ affected by extreme values

a) Not
b) Highly
c) Less
d) None of these

Answer: b

17 The sum of values divided by their number is called_____
a) Median
b) Harmonic Mean
c) Mean
d) Mode
Answer: c

18. The calculation of mean and variance is based on_____
a) Small values only
b) Large values only
c) Extreme values only
d) All values
Answer: d

19. The Geometric Mean of -2, 4, 03, 6, 0 will be_____
a) -3
b) 0
c) Cannot be Computed
d) None of these
Answer: c

20. The most repeated (popular) value in a data set is called_____
a) Median
b) Mean
c) Mode
d) Geometric Mean
Answer: c

21. Which of the following Measure of Averages is not based on all the values given in the data set_____
a) Arithmetic Mean
b) Geometric Mean
c) Median
d) Mode
Answer: c

22. Which of the following Measure of averages is affected by extreme (very small or very large) values in the data set?_____
a) Geometric Mean
b) Median

c) Arithmetic Mean
d) Harmonic Mean
Answer: c

23. Data must be arranged either in ascending or descending order if some want to compute_____
a) Mode
b) Median
c) Harmonic Mean
d) Median
Answer: d

24. If any of the value in data set is negative then it is impossible to compute_____
a) Arithmetic Mean
b) Harmonic Mean
c) Geometric Mean
d) Mode
Answer: c

25. If any of the value in the data set is zero then it is not possible (i.e. impossible) to compute_____
a) Mode
b) Median
c) Mean
d) Harmonic Mean
Answer: d

26. To find the average speed of a journey which is the appropriate measure of central tendency_____
a) Mean
b) Geometric Mean
c) Harmonic Mean
d) Weighted Mean
   Answer: c

27. Which of the following cannot be less than zero (negative)?_____
a) Median
b) Geometric Mean
c) Arithmetic Mean
d) Harmonic Mean
Answer: b

28. _____ is the measure of average which can have more than one value_____
a) Mean
b) Median
c) Harmonic Mean
d) Mode
Answer: d

29. Find the median of the following data: 160, 180, 200, 280, 300, 320, 400_____
a) 140
b) 300
c) 180
d) 280
Answer: d

30. Which of the following describe the middle part of a group of numbers?_____
a) The Measure of Variability
b) The Measure of Central Tendency
c) The Measure of Association
d) The Measure of Shape
Answer: b

31. The middle value of an ordered array of numbers is the_____
a) Mode
b) Mean
c) Median
d) Mid-Point
Answer: c

32. If mean, median, and mode are all equal then distribution will be_____
a) Positive Skewed
b) Negative Skewed
c) Symmetrical
d) None of these
Answer: c

33. The values of mean, median and mode can be_____
a) Some time equal
b) Never equal
c) Always equal

d) None of these

Answer: a

34. In symmetrical distribution, mean, median, and mode are_____

a) Equal
b) Different
c) Zero
d) None of these

Answer: a

35. The empirical relation between mean, median, and mode is_____

a) $3 \text{ mean} - 2 \text{ median}$
b) $3 \text{ median} - 2 \text{ mean}$
c) $2 \text{ mean} - 3 \text{ median}$
d) $\text{mean} = \text{median} = \text{mode}$

Answer: b

36. In a symmetrical distribution, mean is _____ mode

a) Equal to
b) Less than
c) Greater than
d) Not equal to

Answer: a

37. If in a distribution left tail is longer than right tail, then the distribution will be_____

a) Symmetrical
b) Positive skewed
c) Negative skewed
d) None of these

Answer: c

38. In Uni-model distribution, if mode is less than mean, then the distribution will be_____

a) Symmetrical
b) Normal
c) Positively skewed
d) Negatively skewed

Answer: c

39. The shape of symmetrical distribution is _____

a) U shaped

b) Bell Shaped
c) J Shaped
d) None of these
Answer: b

40. The distribution in which mean = 60 and mode = 50, will be _____
a) Symmetrical
b) Positive skewed
c) Negative skewed
d) None of these
Answer: b

41. If mean is less than mode, the distribution will be_____
a) Positively skewed
b) Negatively skewed
c) Symmetrical
d) None of these
Answer: b

42. A symmetrical distribution has mean equal to 4. Its mode will be_____
a) Equal to 4
b) Less than 4
c) Greater than 4
d) Not equal to 4
Answer: a

43. A set of values is said to be relatively uniform if it has_____
a) High Dispersion
b) Zero Dispersion
c) Littel Dispersion
d) Negative Dispersion
Answer: c

44. The measures of dispersion are changed by the change of_____
a) Scale
b) Origin
c) Unit
d) None of these
Answer: a

45. Statistics are aggregates of_____
a) Methods
b) Calculations
c) Facts
d) Data
Answer: d

46. The appropriate average for calculating average percentage increase in population is_____
a) Arithmetic Mean
b) Harmonic Mean
c) Mode
d) Geometric Mean
Answer: d

47. Which mean is most affected by extreme values?_____
a) Geometric Mean
b) Harmonic Mean
c) Arithmetic mean
d) Trimmed Mean
Answer: c

48. When mean, median, and mode are identical, the distribution is_____
a) Positively Skewed
b) Negatively Skewed
c) Symmetrical Bivariate
d) Uniform
Answer: c

49.Sum of absolute deviations about median is_____
a) Zero
b) Maximum
c) Minimum
d) One
Answer: c

50. Sum of square of the deviations about mean is_____
a) Maximum

b) Minimum
c) Zero
d) None of these
Answer: b

51. The extreme values in negatively skewed distribution lie in the_____
a) Middle
b) Right Tail
c) Left Tail
d) Whole Curve
Answer: c

UNIT 3 :   Measures of Dispersion

1. Study of scatteredness of observations is known as _____

a) Measure of dispersion
b) Standard deviation
c) Measure of central tendency
d) None of the above

Answer a

2. Standard deviation of first 50 natural number is_____

a) 12.43
b) 10.43
c) 14.43
d) 16.43

Answer c

3. Calculate coefficient of variation c)V.) for the following data 2,4,8,6,10 and 12 is_____

a) 48.86
b) 42.86
c) 40.86
d) 0.49

Answer a

4. Calculate Standard deviation for the following sample data 2,4,6,8,10 and 12. Is_____

a) 4.42
b) 2.42
c) 3.42
d) 5.42

Answer c

5. Standard deviation is always_____

a) Negative
b) Positive
c) Zero

d) None of the above

Answer b

6. The arithmetic average of the absolute deviation of a series known as the_____

a) Standard deviation
b) Coefficient of mean deviation
c) Mean deviation
d) None of the above

Answer c

7. The average of the squared deviations about the arithmetic mean for a set of numbers is_____

a) Standard deviation
b) Coefficient of mean deviation
c) Mean deviation
d) Variance

Answer d

8. The measure of dispersion which is expressed in terms of the nits of observations_____

a) Absolute measure
b) Variance
c) Relative measure
d) None of the above

Answer a

9. If the difference of the third and first quartiles is divided by the sum of the third and first quartiles then it is known as _____

a) Quartile
b) Coefficient of mean deviation
c) Coefficient of quartile deviation
d) None of the above

Answer c

10. The average of squared deviations about the arithmetic mean for a set of numbers is called_____

a) Standard deviation

b) Coefficient of mean deviation

c) Mean deviation

d) Variance

Answer d

11. The measure of dispersion which is expressed in terms of the units of the observations I called_____

Absolute measure

a) Variance

b) Relative measure

c) None of the above

d) All of the Above

Answer a

12. If the difference of the third and first quartile is divided by the sum of the third and first quartile then it is known as_____

a) Quartile

b) Coefficient of mean deviation

c) Coefficient of quartile deviation

d) None of the above

Answer c

13. The scatter in a series of values about the average is called_____
a) Central tendency
b) Dispersion
c) Skewness
 d) Symmetry

Answer b

14. The measurements of spread or scatter of the individual values around the central point is called_____
a) Measures of dispersion
b) Measures of central tendency
c) Measures of skewness
d) Measures of kurtosis

   Answer a

15. 3. The measures used to calculate the variation present among the observations in the unit of the variable is called_____
a) Relative measures of dispersion
b) Coefficient of skewness
c) Absolute measures of dispersion
d) Coefficient of variation
Answer c

16. The measures used to calculate the variation present among the observations relative to their average is called_____
a) Coefficient of kurtosis
 b) Absolute measures of dispersion
c) Quartile deviation
d) Relative measures of dispersion

Answer d

17. 5. The degree to which numerical data tend to spread about an average value called_____
     a) Constant
     b) Flatness
     c) Variation
     d) Skewness

   Answer c

18. 6. The measures of dispersion can never be_____
     a) Positive
      b) Zero
      c) Negative
      d) Equal to

   Answer c

19. If all the scores on examination cluster around the mean, the dispersion is said to be_____
      a) Small
       b) Large
       c) Normal
       d) Symmetrical
    Answer a

20. If there are many extreme scores on all examination, the dispersion is_____
    a) Large
    b) Small
    c) Normal
    d) Symmetric

Answer a

21. Given below the four sets of observations. Which set has the minimum variation?_____
    a) 46, 48, 50, 52, 54
    b) 30, 40, 50, 60, 70
    c) 40, 50, 60, 70, 80
    d) 48, 49, 50, 51, 52

Answer d

22. Which of the following is an absolute measure of dispersion?_____
    a) Coefficient of variation
    b) Coefficient of dispersion
    c) Standard deviation
    d) Coefficient of skewness

Answer c

23. The measure of dispersion which uses only two observations is called_____-
    a) Mean
    b) Median
    c) Range
    d) Coefficient of variation

Answer c

24. The measure of dispersion which uses only two observations is called_____
    a) Range
    b) Quartile deviation
    c) Mean deviation
    d) Standard deviation

Answer a

25. In quality control of manufactured items, the most common measure of dispersion is_____
    a) Range
    b) Average deviation
    c) Standard deviation

    d) Quartile deviation

Answer a

26. The range of the scores 29, 3, 143, 27, 99 is_____
    a) 140
    b) 143
    c) 146
    d) 70

Answer b

27. If the observations of a variable X are, -4, -20, -30, -44 and -36, then the value of the range will
    be_____
    a) -48
    b) 40
    c) -40
    d) 48

Answer d

28. The range of the values -5, -8, -10, 0, 6, 10 is_____
    a) 0
    b) 10
    c) -10
    d) 20

Answer d

29. If $Y = ax \pm b$, where a and b are any two numbers and a is not equal to 0, then the range of Y values will be_____
    a) Range(X)
    b) a range(x) + b
    c) a range(x) - b
    d) |a| range(x)

Answer a

30. If the maximum value in a series is 25 and its range is 15, the maximum value of the series is_____
    a) 10
    b) 15
    c) 25
    d) 35

Answer b

31. Half of the difference between upper and lower quartiles is called_____
    a) Interquartile range
     b) Quartile deviation
    c) Mean deviation
    d) Standard deviation

Answer c

32. If Q3=20 and Q1=10, the coefficient of quartile deviation is_____
    a) 3
    b) 1/3
     c) 2/3
    d) 1

Answer b

33. Which measure of dispersion can be computed in case of openend classes?_____
    a) Standard deviation
    b) Range
    c) Quartile deviation
    d) Coefficient of variation

Answer c

34. If $Y = ax \pm b$, where a and b are any two constants and a is not equal to 0, then the quartile deviation of Y values is equal to_____
     a) a Q.D(X) + b
    b) |a| Q.D(X)
    c) Q.D(X) – b
    d) |b|. Q.D(X)

Answer c

35. The sum of absolute deviations is minimum if these deviations are taken from the_____
     a) Mean
    b) Mode
    c) Median
     d) Upper quartile

Answer c

36. The mean deviation is minimum when deviations are taken from_____
    a) Mean

b) Mode

c) Median

d) Zero

Answer d

37. If $Y = ax \pm b$, where a and b are any two numbers but a 0, then M.D(Y) is equal to_____

a) M.D(X)

b) M.D(X) $\pm$ b

c) a M.D(X)

d) M.D(Y) + M.D(X)

Answer d

38. The mean deviation of the scores 12, 15, 18 is_____

a) 6

b) 0

c) 3

d) 2

Answer b

39. Mean deviation computed from a set of data is always_____

a) Negative

b) Equal to standard deviation

c) More than standard deviation

d) Less than standard deviation

Answer a

40. The average of squared deviations from mean is called_____

a) Mean deviation

b) Variance

c) Standard deviation

d) Coefficient of variation

Answer b

41. The sum of squares of the deviations is minimum, when deviations are taken from_____

a) Mean

b) Mode

c) Median

d) Zero

Answer c

42. Which of the following measures of dispersion is expressed in the same units as the units of observation?_____
   a) Variance
   b) Standard deviation
   c) Coefficient of variation
   d) Coefficient of standard deviation

Answer c

43. Which measure of dispersion has a different unit other than the unit of measurement of values_____
   a) Range
   b) Standard deviation
   c) Variance
   d) Mean deviation

Answer b

44. Which of the following is a unit free quantity_____
   a) Range
   b) Standard deviation
   c) Coefficient of variation
   d) Arithmetic mean

Answer d

45. If the dispersion is small, the standard deviation is_____
   a) Large
   b) Zero
   c) Small
   d) Negative

Answer c

46. The value of standard deviation changes by a change of_____
   a) Origin
   b) Scale
   c) Algebraic signs
   d) None

Answer d

47. The standard deviation one distribution divided by the mean of the distribution and expressing in percentage is called_____
   a) Coefficient of Standard deviation

b) Coefficient of skewness

c) Coefficient of quartile deviation

d) Coefficient of variation

Answer a

48. The positive square root of the mean of the squares of the deviations of observations from their mean is called_____

a) Variance

b) Range

c) Standard deviation

d) Coefficient of variation

Answer d

49. The variance is zero only if all observations are the_____

a) Different

b) Square

c) Square root

d) Same

Answer d

50. The standard deviation is independent of_____

a) Change of origin

b) Change of scale of measurement

c) Change of origin and scale of measurement

d) Difficult to tell

Answer b

51. If there are ten values each equal to 10, then standard deviation of these values is_____

a) 100

b) 20

c) 10

d) 0

Answer c

UNIT 4 : Corelation and Regression

1. Which is a method of measuring correlation?_____
   a) Graphic correlation
   b) Scatter diagrams
   c) None of these
   d) Both of these
      Answer d

2. A scatter diagram is_____
   a) A statistical test
   b) Linear
   c) Curvilinear
   d) A graph showing x and y values
      Answer d

3. If there exists any relation between the sets of variables, it is called_____
   a) Regression
   b) Skewness
   c) Correlation
   d) All of these
      Answer c

4. Perfect correlation is one Perfect correlation is one in which_____
   a) Area of a circle is in definite constant relationship with radius
   b) When area of the circle is ½ radius
   c) None of these
   d) All of these
      Answer C

5. Which of the following measurement scales is required for the valid calculation of Karl Pearson's correlation coefficient?_____
   a) Ordinal
   b) Interval
   c) Ratio
   d) Nominal
      Answer a

6. Which of the following point is not related with the utility of correlation?_____
   a) Relation between two variables
   b) Help in decision making

c) Useful in research work
d) All of these
   Answer d

7. Which of the following is not cause of the correlation?_____
a) Direct relationship
b) Correlation due to any other common cause
c) Mutual Reaction
d) None of these
   Answer d

8. Which of the following is the highest range of r?_____
a) 0 and 1
b) -1 and 0
c) -1 and 1
d) None of these
   Answer c

9. When the correlation coefficient between x and y is positive, then as variable x decreases, variable y
Remains the same_____
a) Increases
b) Decreases
c) Changes linearly
   Answer b

10. Which of the following is most likely to be an inverse relationship?_____
a) Between income and expenditure on education
b) Between price increase and demand for a certain product
c) Between average number of hours studied per day and the performance of the students in the examination
d) Between advertising expenditure and sales of a product.
   Answer b

11. Which of the following measurement scales is required for the valid calculation of spearman correlation
   coefficient?_____
a) Ordinal
b) Interval
c) Nominal
d) Ratio
   Answer b

12. The ratio of the average deviations is called_____
a) Regression
b) Correlation
c) Skewness
d) All of these
   Answer a

13. What will be the range of r when we find that the dependent variable increases as the independent variable increases?_____
a) 0 to -0.05
b) 1 to 2
c) 0 .1 to 1
d) None of these
   Answer c

14. Which of the following is true if the estimating equation has to be a perfect estimator of the dependent variable?_____
a) The coefficient of determination is -1
b) All the data points are on the regression line.
c) The standard error of the estimate is zero
d) B and C
   Answer d

15. When a multiple correlation coefficient R 1.23 =1 , then R 2.13 is_____
a) 1
b) -1
c) 0
d) None of these
   Answer a

16. When a multiple correlation coefficient r 1.2=1, then it shows _____
a) Reasonably good relationship
b) Lack of linear relationship
c) Perfect relationship
d) None of these
   Answer C

17. When the two regression line coincide, then r is_____
a) 1
b) -1

c) 0
d) None of these
    Answer C

18. Statistics branches include_____
a) Applied Statistics
b) Mathematical Statistics
c) Industry Statistics
d) Both A and B
    Answer d

19. The variables whose calculation is done according to the weight, height and length and weight are known
    as_____
a) Flowchart Variables
b) Discrete Variables
c) Continuous Variables
d) Measuring Variables
    Answer C

20. The number of accidents in a city during 2010 is_____
a) Discrete variable
b) Continuous variable
c) Qualitative variable
d) Constant
    Answer b

21. The correlation coefficient is used to determine_____
a) A specific value of the y-variable given a specific value of the x-variable
b) A specific value of the x-variable given a specific value of the y-variable
c) The strength of the relationship between the x and y variables
d) None of these
     Answer c

22. If there is a very strong correlation between two variables then the correlation coefficient must be _____
a) any value larger than 1
b) much smaller than 0, if the correlation is negative
c) much larger than 0, regardless of whether the correlation is negative or positive
d) None of these alternatives is correct.
    Answer b

23. In regression, the equation that describes how the response variable (y) is related to the explanatory variable (x) is_____
a) the correlation model
b) the regression model
c) used to compute the correlation coefficient
d) None of these alternatives is correct.
    Answer b

24. The relationship between number of beers consumed (x) and blood alcohol content (y) was studied in 16 male college students by using least squares regression. The following regression equation was obtained from this study: != -0.0127 + 0.0180x The above equation implies that_____
a) each beer consumed increases blood alcohol by 1.27%
b) on average it takes 1.8 beers to increase blood alcohol content by 1%
c) each beer consumed increases blood alcohol by an average of amount of 1.8%
d) each beer consumed increases blood alcohol by exactly 0.018
    Answer c

25. SSE can never be _____
a) larger than SST
b) smaller than SST
c) equal to 1
d) equal to zero
    Answer a

26. Regression modeling is a statistical framework for developing a mathematical equation that describes how _____
a) one explanatory and one or more response variables are related
b) several explanatory and several response variables response are related
c) one response and one or more explanatory variables are related
d) All of these are correct.
    Answer c

27. In regression analysis, the variable that is being predicted is the _____
a) response, or dependent, variable
b) independent variable
c) intervening variable
d) is usually x
    Answer a

28. Regression analysis was applied to return rates of sparrowhawk colonies. Regression analysis was used to study the relationship between return rate (x: % of birds that return to the colony in a given year) and

immigration rate (y: % of new adults that join the colony per year). The following regression equation was obtained) ! = 31.9 – 0.34x Based on the above estimated regression equation, if the return rate were to decrease by 10% the rate of immigration to the colony would_____

a) increase by 34%
b) increase by 3.4%
c) decrease by 0.34%
d) decrease by 3.4%

   Answer b

29. In least squares regression, which of the following is not a required assumption about the error term ε? _____

a) The expected value of the error term is one. b) The variance of the error term is the same for all values of x.
c) The values of the error term are independent.
d) The error term is normally distributed)

   Answer a

30. Larger values of r 2 (R2) imply that the observations are more closely grouped about the _____

a) average value of the independent variables
b) average value of the dependent variable
c) least squares line
d) origin

   Answer c

31. In a regression analysis if r 2 = 1, then _____

a) SSE must also be equal to one
b) SSE must be equal to zero
c) SSE can be any positive value
d) SSE must be negative

   Answer b

32. The coefficient of correlation_____

a) is the square of the coefficient of determination
b) is the square root of the coefficient of determination
c) is the same as r-square
d) can never be negative

   Answer b

33. In regression analysis, the variable that is used to explain the change in the outcome of an experiment, or some natural process, is called _____

a) the x-variable
b) the independent variable

c) the predictor variable
d) the explanatory variable
e. all of the above (a-d) are correct
f. none are correct
    Answer e

34. In the case of an algebraic model for a straight line, if a value for the x variable is specified, then_____
a) the exact value of the response variable can be computed
b) the computed response to the independent value will always give a minimal residual
c) the computed value of y will always be the best estimate of the mean response
d) none of these alternatives is correct.
    Answer a

35. A regression analysis between sales (in $1000) and price (in dollars) resulted in the following equation: ! =
50,000 - 8X The above equation implies that an _____
a) increase of $1 in price is associated with a decrease of $8 in sales
b) increase of $8 in price is associated with an increase of $8,000 in sales
c) increase of $1 in price is associated with a decrease of $42,000 in sales
d) increase of $1 in price is associated with a decrease of $8000 in sales
    Answer d

36. In a regression and correlation analysis if r 2 = 1, then _____
a) SSE = SST
b) SSE = 1
c) SSR = SSE
d) SSR = SST
    Answer d

37. If the coefficient of determination is a positive value, then the regression equation_____
a) must have a positive slope
b) must have a negative slope
c) could have either a positive or a negative slope
d) must have a positive y intercept
     Answer c

38. If two variables, x and y, have a very strong linear relationship, then _____
a) there is evidence that x causes a change in y
b) there is evidence that y causes a change in x
c) there might not be any causal relationship between x and y
d) None of these alternatives is correct.
    Answer c

39. If the coefficient of determination is equal to 1, then the correlation coefficient _____
a) must also be equal to 1
b) can be either -1 or +1
c) can be any value between -1 to +1
d) must be -1
   Answer b

40. In regression analysis, if the independent variable is measured in kilograms, the dependent variable _____
a) must also be in kilograms
b) must be in some unit of weight
c) cannot be in kilograms
d) can be any units
   Answer d

41. The data are the same as for question 4 above. The relationship between number of beers consumed (x) and blood alcohol content (y) was studied in 16 male college students by using least squares regression. The following regression equation was obtained from this study: != -0.0127 + 0.0180x Suppose that the legal limit to drive is a blood alcohol content of 0.08. If Ricky consumed 5 beers the model would predict that he would be_____
a) 0.09 above the legal limit
b) 0.0027 below the legal limit
c) 0.0027 above the legal limit
d) 0.0733 above the legal limit
   Answer b

42. If the correlation coefficient is 0.8, the percentage of variation in the response variable explained by the variation in the explanatory variable is_____
a) 0.80%
b) 80%
c) 0.64%
d) 64%
   Answer b

43. If the correlation coefficient is a positive value, then the slope of the regression line _____
a) must also be positive b) can be either negative or positive
c) can be zero
d) can not be zero
   Answer d

44. If the coefficient of determination is 0.81, the correlation coefficient _____

a) is 0.6561
b) could be either + 0.9 or - 0.9
c) must be positive
d) must be negative
     Answer a

45. A fitted least squares regression line _____
a) may be used to predict a value of y if the corresponding x value is given
b) is evidence for a cause-effect relationship between x and y
c) can only be computed if a strong linear relationship exists between x and y
d) None of these alternatives is correct.
      Answer b

46. Regression analysis was applied between $ sales (y) and $ advertising (x) across all the branches of a major international corporation. The following regression function was obtained) ! = 5000 + 7.25x If the advertising budgets of two branches of the corporation differ by $30,000, then what will be the predicted difference in their sales? _____
a) $217,500
b) $222,500
c) $5000
d) $7.25
     Answer a

47. Suppose the correlation coefficient between height (as measured in feet) versus weight (as measured in pounds) is 0.40. What is the correlation coefficient of height measured in inches versus weight measured in ounces? [12 inches = one foot; 16 ounces = one pound] _____
a) 0.40
b) 0.30
c) 0.533
d) cannot be determined from information given e. none of these
     Answer a

48. Assume the same variables as in question 28 above; height is measured in feet and weight is measured in pounds. Now, suppose that the units of both variables are converted to metric (meters and kilograms). The impact on the slope is_____
a) the sign of the slope will change
b) the magnitude of the slope will change
c) both a and b are correct
d) neither a nor b are correct
     Answer a

49. Suppose that you have carried out a regression analysis where the total variance in the response is 133452 and the correlation coefficient was 0.85. The residual sums of squares is_____
a) 37032.92
b) 20017.8
c) 113434.2
d) 96419.07
e. 15% f. 0.15
   Answer b

50. In a regression analysis if SSE = 200 and SSR = 300, then the coefficient of determination is _____
a) 0.6667
b) 0.6000
c) 0.4000
d) 1.5000
   Answer b