



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) Behavioral 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 it 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? _____

- a) 4
- b) 5
- c) 6
- d) 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 mean gives more weightage 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_____.

- a) 0
- b) 1
- c) Positive
- d) 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) $3 \text{ mean} - 2 \text{ median} = \text{mode}$
- b) $3 \text{ median} - 2 \text{ mean} = \text{mode}$
- c) $2 \text{ mean} - 3 \text{ median} = \text{mode}$
- 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-modal 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) Little 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 units 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. 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 $Q_3=20$ and $Q_1=10$, 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) $a \text{ Q.D}(X) + b$
- b) $|a| \text{ Q.D}(X)$
- c) $\text{Q.D}(X) - b$
- d) $|b|. \text{Q.D}(X)$

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 $a \neq 0$, then $\text{M.D}(Y)$ is equal to _____

- a) $\text{M.D}(X)$
- b) $\text{M.D}(X) \pm b$
- c) $a \text{ M.D}(X)$
- d) $\text{M.D}(Y) + \text{M.D}(X)$

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 : Correlation 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 in which _____

- a) Area of a circle is in definite constant relationship with radius
- b) When area of the circle is $\frac{1}{2}$ 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: $\hat{y} = -0.0127 + 0.0180x$ 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) $\hat{y} = 31.9 -$



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 (R^2) 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: $\hat{y} = 50,000 - 8X$ 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: $\hat{y} = -0.0127 + 0.0180x$ 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) $\hat{y} = 5000 + 7.25x$ 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

