COMPLETE SET OF THEORY QUESTIONS

(433 Theory Questions compilation from ICAI and Other Sources)

Use this PDF with Theory Revision Marathon

Link: https://youtube.com/playlist?list=PLTzX3SfK4zG4OwOMt_fQI2d0tr6fI_wuh

1. Which of the following statements is false?

(a) Statistics is derived from the Latin word 'Status'

(b) Statistics is derived from the Italian word 'Statista'

(c) Statistics is derived from the French word 'Statistik'

(d) None of these.

2. Statistics is defined in terms of numerical data in the

(a) Singular sense

(b) Plural sense

(c) Either (a) or (b)

(d) Both (a) and (b).

3. Statistics is applied in

(a) Economics

(b) Business management

(c) Commerce and industry

(d) All these.

4. Statistics is concerned with

(a) Qualitative information

(b) Quantitative information

(c) (a) or (b)

(d) Both (a) and (b).

5. An attribute is

(a) A qualitative characteristic (b) A quantitative characteristic

(c) A measurable characteristic (d) All these.

6. Annual income of a person is

(a) An attribute

(b) A discrete variable

(c) A continuous variable

(d) (b) or (c).

7. Marks of a student is an example of

(a) An attribute

(b) A discrete variable

(c) A continuous variable

(d) None of these.

8. Nationality of a student is

(a) An attribute

(b) A continuous variable

(c) A discrete variable

(d) (a) or (c).

9. Drinking habit of a person is

(a) An attribute

(b) A variable

(c) A discrete variable

(d) A continuous variable.

10. Age of a person is

(a) An attribute

(b) A discrete variable

(c) A continuous variable

(d) A variable.

11. Data collected on religion from the census reports are

(a) Primary data (b) Secondary data

(c) Sample data (d) (a) or (b).

12. The data collected on the height of a group of students after recording their heights with a measuring tape are

(a) Primary data
(b) Secondary data
(c) Discrete data
(d) Continuous data.

13. The primary data are collected by

(a) Interview method

(b) Observation method

(c) Questionnaire method

(d) All these.

13

14. The quickest method to collect primary data is

(a) Personal interview

(b) Indirect interview

(c) Telephone interview

(d) By observation.

15. The best method to collect data, in case of a natural calamity, is

(a) Personal interview

(b) Indirect interview

(c) Questionnaire method

(d) Direct observation method.

15

16. In case of a rail accident, the appropriate method of data collection is by

(a) Personal interview (b) Direct interview

(c) Indirect interview (d) All these.

17. Which method of data collection covers the widest area?

(a) Telephone interview method (b) Mailed questionnaire method

(c) Direct interview method (d) All these.

18. The amount of non-responses is maximum in

(a) Mailed questionnaire method (b) Interview method

(c) Observation method (d) All these.

19. Some important sources of secondary data are

(a) International and Government sources

(b) International and primary sources

(c) Private and primary sources

(d) Government sources.

19

20. Internal consistency of the collected data can be checked when

(a) Internal data are given

(b) External data are given

(c) Two or more series are given

(d) A number of related series are given.

21. The accuracy and consistency of data can be verified by

(a) Internal checking

(b) External checking

(c) Scrutiny

(d) Both (a) and (b).

21

22. The mode of presentation of data are

(a) Textual, tabulation and diagrammatic (b) Tabular, internal and external

(c) Textual, tabular and internal (d) Tabular, textual and external.

23. The best method of presentation of data is

(a) Textual

(b) Tabular

(c) Diagrammatic

(d) (b) and (c).

24. The most attractive method of data presentation is

(a) Tabular

(b) Textual

(c) Diagrammatic

(d) (a) or (b).

25. For tabulation, 'caption' is

(a) The upper part of the table

(b) The lower part of the table

(c) The main part of the table

(d) The upper part of a table that describes the column and sub-column.

26. 'Stub' of a table is the

(a) Left part of the table describing the columns

(b) Right part of the table describing the columns

(c) Right part of the table describing the rows

(d) All these.

(d) Left part of the table describing the rows.

27. The entire upper part of a table is known as

(a) Caption (b) Stub

(c) Box head (d) Body.

28. The unit of measurement in tabulation is shown in

(a) Box head (b) Body

(c) Caption (d) Stub.

29. In tabulation source of the data, if any, is shown in the

(a) Footnote (b) Body

(c) Stub (d) Caption.

29

30. Which of the following statements is untrue for tabulation?

(a) Statistical analysis of data requires tabulation

(b) It facilitates comparison between rows and not columns

(c) Complicated data can be presented

(d) Diagrammatic representation of data requires tabulation.

31. Hidden trend, if any, in the data can be noticed in

(a) Textual presentation (b) Tabulation

(c) Diagrammatic representation (d) All these.

32. Diagrammatic representation of data is done by

(a) Diagrams

(b) Charts

(c) Pictures

(d) All these.

33. The most accurate mode of data presentation is

(a) Diagrammatic method

(b) Tabulation

(c) Textual presentation

(d) None of these.

34. The chart that uses logarithm of the variable is known as

(a) Line chart

(b) Ratio chart

(c) Multiple line chart

(d) Component line chart.

34

35. Multiple line chart is applied for

(a) Showing multiple charts

(b) Two or more related time series when the variables are expressed in the same unit

(c) Two or more related time series when the variables are expressed in different unit

(d) Multiple variations in the time series.

36. Multiple axis line chart is considered when

(a) There is more than one time series (b) The units of the variables are different

(c) (a) or (b) (d) (a) and (b).

37. Horizontal bar diagram is used for

(a) Qualitative data

(b) Data varying over time

(c) Data varying over space

(d) (a) or (c).

38. Vertical bar diagram is applicable when

(a) The data are qualitative

(b) The data are quantitative

(c) When the data vary over time

(d) (b) or (c).

39. Divided bar chart is considered for

(a) Comparing different components of a variable

(b) The relation of different components to the table

(c) (a) or (b)

(d) (a) and (b).

40. In order to compare two or more related series, we consider

(a) Multiple bar chart

(b) Grouped bar chart

(c) (a) or (b)

(d) (a) and (b).

41. Pie-diagram is used for

(a) Comparing different components and their relation to the total

(b) Representing qualitative data in a circle

(c) Representing quantitative data in circle

(d) (b) or (c).

41

42. A frequency distribution

(a) Arranges observations in an increasing order

(b) Arranges observation in terms of a number of groups

(c) Relates to a measurable characteristic

(d) All these.

43. The frequency distribution of a continuous variable is known as

(a) Grouped frequency distribution

(b) Simple frequency distribution

(c) (a) or (b)

(d) (a) and (b).

44. The distribution of shares is an example of the frequency distribution of

(a) A discrete variable

(b) A continuous variable

(c) An attribute

(d) (a) or (c).

45. The distribution of profits of a blue-chip company relates to

(a) Discrete variable

(b) Continuous variable

(c) Attributes

(d) (a) or (b).

46. Mutually exclusive classification

(a) Excludes both the class limits

(b) Excludes the upper class limit but includes the lower class limit

(c) Includes the upper class limit but excludes the upper class limit

(d) Either (b) or (c).

47. Mutually inclusive classification is usually meant for

(a) A discrete variable

(b) A continuous variable

(c) An attribute

(d) All these.

48. Mutually exclusive classification is usually meant for

(a) A discrete variable

(b) A continuous variable

(c) An attribute

(d) Any of these.

49. The LCB is

(a) An upper limit to LCL

(b) A lower limit to LCL

(c) (a) and (b)

(d) (a) or (b).

50. The UCB is

(a) An upper limit to UCL

(b) A lower limit to LCL

(c) Both (a) and (b)

(d) (a) or (b).

51. length of a class is

(a) The difference between the UCB and LCB of that class

(b) The difference between the UCL and LCL of that class

(c) (a) or (b)

(d) Both (a) and (b).

52. For a particular class boundary, the less than cumulative frequency and more than cumulative frequency add up to

(a) Total frequency

(b) Fifty per cent of the total frequency

(c) (a) or (b)

(d) None of these.

53. Frequency density corresponding to a class interval is the ratio of

(a) Class frequency to the total frequency (b) Class frequency to the class length

(c) Class length to the class frequency (d) Class frequency to the cumulative frequency.

53

54. Relative frequency for a particular class

(a) Lies between 0 and 1

(b) Lies between 0 and 1, both inclusive

(c) Lies between –1 and 0

(d) Lies between –1 to 1.

55. Mode of a distribution can be obtained from

(a) Histogram

(b) Less than type ogives

(c) More than type ogives

(d) Frequency polygon.

56. Median of a distribution can be obtained from

(a) Frequency polygon

(b) Histogram

(c) Less than type ogives

(d) None of these.

57. A comparison among the class frequencies is possible only in

(a) Frequency polygon (b) Histogram

(c) Ogives (d) (a) or (b).

58. Frequency curve is a limiting form of

(a) Frequency polygon

(b) Histogram

(c) (a) or (b)

(d) (a) and (b).

59. Most of the commonly used frequency curves are

(a) Mixed

(b) Inverted J-shaped

(c) U-shaped

(d) Bell-shaped.

60. The distribution of profits of a company follows

(a) J-shaped frequency curve

(b) U-shaped frequency curve

(c) Bell-shaped frequency curve

(d) Any of these.

Jan 2021

Sweetness of sweet dish is.

(a) An Attribute

(b) A discrete variable

(c) A continuous variable

(d) A variable (1 mark)

6I

Which of the following is suitable for the graphical representation of a Cumulative frequency distribution ?

(a) Frequency polygon
(b) Histogram
(c) O give
(d) Pie chart

(1 mark)

Most of the Commonly used distributions provide a.

(a) Bell - Shaped
(b) U Shaped
(c) J - Shaped Curve
(d) Mixed Curve

Mode can be obtained from

(a) Frequency polygon
(b) Histogram
(c) Ogive
(d) All of the above

The left part of a table providing the description of rows is called.

(a) Caption

(b) Box - head

(c) Stub

(d) Body

(1 mark)

From a histogram one cannot compute the approximate value of

(a) Mode

(b) Standard deviation

(c) Median

(d) Mean (1 mark)

The accuracy and consistency of data can be verified by

(a) Scrutiny
(b) Internal Checking
(c) External Checking
(d) Double Checking (1 mark)

A variable with qualitative characteristic is known as

(a) Quality Variable

(b) An attribute

(c) A discrete variable

(d) A continuous variable (1 mark)

A tabular presentation can be used for

(a) Continuous series data

(b) Nominal data

(c) Time series data for longer period

(d) Primary data (1 mark)

A bar chart is drawn for

(a) Continuous data

(b) Nominal data

(c) Time series data

(d) Comparing different components

Dec 2020

When data are classified according to one criterion, then it is called _____ classification.

(a) quantitative
(b) qualitative
(c) simple
(d) factored (1 mark)

71

The _____ are used usually when we wants to examine the relationship between two variables.

(a) Bar Graph
(b) Pie Chart
(c) Line Chart
(d) Scatter Plot (1 mark)

You are an auditor of a firm and the firm earns a profit of ₹ 67,000 you stated to them that the annual profit is ₹ 67,000. This is _____ type of statistics.

(a) Descriptive
(b) Detailed
(c) Non detailed
(d) Inferential (1 mark)

S.No.	Descriptive Statistics	Inferential Statistics
1.	It gives information about raw data which describes the data in some manner.	It makes inference about population using data drawn from the population.
2.	It helps in organizing, analyzing and to present data in a meaningful manner.	It allows us to compare data, make hypothesis and predictions.
3.	It is used to describe a situation.	It is used to explain the chance of occurrence of an event.
4.	It explain already known data and limited to a sample or population having small size.	It attempts to reach the conclusion about the population.
5.	It can be achieved with the help of charts, graphs, tables etc.	It can be achieved by probability.

Types of cumulative frequencies are:

(a) 1
(b) 2
(c) 3
(d) 4

(1 mark)

Census reports are used as a source of _____ date.

(a) Secondary

(b) Primary

(c) Organize

(d) Confidential (1 mark)

Sweetness of a sweet dish is:

(a) Attribute

(b) Discrete variable

(c) Continuous variable

(d) Variable (1 mark)

Statistics cannot deal with _____ data.

(a) quantitative
(b) qualitative
(c) textual
(d) undetailed

The average of salaries in a factory is ₹ 47,000. The Statement that the average salary ₹ 47,000 is _____.

(a) Descriptive statics
(b) Inferential
(c) Detailed
(d) Undetailed

(1 mark)

Nov 2019

The graphical representation of cumulative frequency distribution is called.

(a) Histogram
(b) Historiagram
(c) Ogive
(d) None (1 mark)

June 2019

Histogram is used for finding

(a) Mode

(b) Mean

(c) First quartile

(d) None

81

Ogive graph is used for finding

(a) Mean

(b) Mode

(c) Median

(d) None

_____ Series is continuous.

(a) Open ended
(b) Exclusive
(c) Close ended
(d) Unequal call intervals

Histogram can be shown as

(a) Ellipse

(b) Rectangle

(c) Hyperbola

(d) Circle

Which of the following graph is suitable for cumulative frequency distribution?

(a) 'O'give

(b) Histogram

(c) G.M

(c) A.M

Nov 2018

An ogive is a graphical representation of

(a) Cumulative frequency distribution

(b) A frequency distribution

(c) Ungrouped data

(d) None of the above

The number of times a particular items occurs in a class interval is called its:

(a) Mean (b) Frequency

(c) Cumulative frequency (d) None of the above (1 mark)

A suitable graph for representing the portioning of total into sub parts in statistics is:

(a) A Pie chart
(b) A pictograph
(c) An ogive
(d) Histogram (1 mark)

Data are said to be _____ if the investigator himself is responsible for the collection of the data.

(a) Primary data
(b) Secondary data
(c) Mixed of primary and secondary data
(d) None of the above (1 mark)

Histogram is useful to determine graphically the value of

(a) Arithmetic mean
(b) Median
(c) Mode
(d) None of the above

The following frequency distribution

X :	12	17	24	36	45
F :	2	5	3	8	9

is classified as

(a) Continuous distribution
(b) Discrete distribution
(c) Cumulative frequency distribution
(d) None of the above (1 mark)

May 2018

Divided bar chart is considered for

(a) Comparing different components of a variable

(b) The relation of different components to the table

(c) (a) or (b)

(d) (a) and (b)

Frequency density is used in the construction of

(a) Histogram
(b) Ogive
(c) Frequency polygon
(d) None when the classes are of unequal width

Central Tendency: Study Material

1. Measures of central tendency for a given set of observations measures

   (a) The scatterness of the observations

   (b) The central location of the observations

   (c) Both (a) and (b)

   (d) None of these.

2. While computing the AM from a grouped frequency distribution, we assume that

(a) The classes are of equal length

(b) The classes have equal frequency

(c) All the values of a class are equal to the mid-value of that class

(d) None of these.

3. Which of the following statements is wrong?

(a) Mean is rigidly defined

(b) Mean is not affected due to sampling fluctuations

(c) Mean has some mathematical properties

(d) All these

4. Which of the following statements is true?

(a) Usually mean is the best measure of central tendency

(b) Usually median is the best measure of central tendency

(c) Usually mode is the best measure of central tendency

(d) Normally, GM is the best measure of central tendency

5. For open-end classification, which of the following is the best measure of central tendency?

(a) AM (b) GM (c) Median (d) Mode

6. The presence of extreme observations does not affect

(a) AM (b) Median (c) Mode (d) Any of these.

7. In case of an even number of observations which of the following is median?

(a) Any of the two middle-most value

(b) The simple average of these two middle values

(c) The weighted average of these two middle values

(d) Any of these

100

8. The most commonly used measure of central tendency is

(a) AM (b) Median (c) Mode (d) Both GM and HM.

9. Which one of the following is not uniquely defined?

(a) Mean (b) Median (c) Mode (d) All of these measures

10. Which of the following measure of the central tendency is difficult to compute?

(a) Mean (b) Median (c) Mode (d) GM

11. Which measure(s) of central tendency is(are) considered for finding the average rates?

(a) AM (b) GM (c) HM (d) Both (b) and (c)

12. For a moderately skewed distribution, which of he following relationship holds?

(a) Mean – Mode = 3 (Mean – Median) (b) Median – Mode = 3 (Mean – Median)

(c) Mean – Median = 3 (Mean – Mode) (d) Mean – Median = 3 (Median – Mode)

13. Weighted averages are considered when

(a) The data are not classified

(b) The data are put in the form of grouped frequency distribution

(c) All the observations are not of equal importance

(d) Both (a) and (c).

14. Which of the following results hold for a set of distinct positive observations?

(a) $AM \geq GM \geq HM$

(b) $HM \geq GM \geq AM$

(c) $AM > GM > HM$

(d) $GM > AM > HM$

15. When a firm registers both profits and losses, which of the following measure of central tendency cannot be considered?

(a) AM (b) GM (c) Median (d) Mode

16. Quartiles are the values dividing a given set of observations into

(a) Two equal parts (b) Four equal parts (c) Five equal parts (d) None of these

17. Quartiles can be determined graphically using

(a) Histogram (b) Frequency Polygon (c) Ogive (d) Pie chart.

18. Which of the following measure(s) possesses (possess) mathematical properties?

(a) AM (b) GM (c) HM (d) All of these

19. Which of the following measure(s) satisfies (satisfy) a linear relationship between two variables?

(a) Mean (b) Median (c) Mode (d) All of these

20. Which of he following measures of central tendency is based on only fifty percent of the central values?

(a) Mean (b) Median (c) Mode (d) Both (a) and (b)

Dispersion: Study Material

1. Which of the following statements is correct?

   (a) Two distributions may have identical measures of central tendency and dispersion.

   (b) Two distributions may have the identical measures of central tendency but different measures of dispersion.

   (c) Two distributions may have the different measures of central tendency but identical measures of dispersion.

   (d) All the statements (a), (b) and (c).

2. Dispersion measures

(a) The scatterness of a set of observations

(b) The concentration of a set of observations

(c) Both (a) and (b)

(d) Neither (a) and (b).

3. When it comes to comparing two or more distributions we consider

(a) Absolute measures of dispersion (b) Relative measures of dispersion

(c) Both (a) and (b) (d) Either (a) or (b).

4. Which one is easier to compute?

(a) Relative measures of dispersion (b) Absolute measures of dispersion

(c) Both (a) and (b) (d) Range

5. Which one is an absolute measure of dispersion?

(a) Range (b) Mean Deviation

(c) Standard Deviation (d) All these measures

6. Which measure of dispersion is most usefull?

(a) Standard deviation (b) Quartile deviation

(c) Mean deviation (d) Range

7. Which measures of dispersions is not affected by the presence of extreme observations?

(a) Range

(b) Mean deviation

(c) Standard deviation

(d) Quartile deviation

8. Which measure of dispersion is based on the absolute deviations only?

(a) Standard deviation (b) Mean deviation

(c) Quartile deviation (d) Range

9. Which measure is based on only the central fifty percent of the observations?

(a) Standard deviation

(b) Quartile deviation

(c) Mean deviation

(d) All these measures

10. Which measure of dispersion is based on all the observations?

(a) Mean deviation (b) Standard deviation

(c) Quartile deviation (d) (a) and (b) but not (c)

11. The appropriate measure of dispersion for open-end classification is

(a) Standard deviation (b) Mean deviation

(c) Quartile deviation (d) All these measures.

12. The most commonly used measure of dispersion is

(a) Range

(b) Standard deviation

(c) Coefficient of variation

(d) Quartile deviation.

13. Which measure of dispersion has some desirable mathematical properties?

(a) Standard deviation
(b) Mean deviation
(c) Quartile deviation
(d) All these measures

14. If the profits of a company remains the same for the last ten months, then the standard deviation of profits for these ten months would be ?

(a) Positive (b) Negative (c) Zero (d) (a) or (c)

15. Which measure of dispersion is considered for finding a pooled measure of dispersion after combining several groups?

(a) Mean deviation

(b) Standard deviation

(c) Quartile deviation

(d) Any of these

16. A shift of origin has no impact on

(a) Range

(b) Mean deviation

(c) Standard deviation

(d) All these and quartile deviation.

17. The range of 15, 12, 10, 9, 17, 20 is

(a) 5 (b) 12 (c) 13 (d) 11.

18. The standard deviation of 10, 16, 10, 16, 10, 10, 16, 16 is

(a) 4 (b) 6 (c) 3 (d) 0.

131

19. For any two numbers SD is always

(a) Twice the range

(b) Half of the range

(c) Square of the range

(d) None of these.

20. If all the observations are increased by 10, then

(a) SD would be increased by 10

(b) Mean deviation would be increased by 10

(c) Quartile deviation would be increased by 10

(d) All these three remain unchanged.

21. If all the observations are multiplied by 2, then

(a) New SD would be also multiplied by 2

(b) New SD would be half of the previous SD

(c) New SD would be increased by 2

(d) New SD would be decreased by 2.

Jan 2021 – Central Tendency and Dispersion

Which of the following is a relative measure of dispersion?

(a) Range

(b) Mean deviation

(c) Standard deviation

(d) Coefficient of quartile deviation (1 mark)

It is given that the mean ($\bar{X}$) is 10 and standard deviation (s.d.) is 3.2. If the observations are increased by 4, then the new mean and standard deviations are:

(a) $\bar{X}$ = 10, s.d. = 7.2

(b) $\bar{X}$ = 10, s.d. = 3.2

(c) $\bar{X}$ = 14, s.d. = 3.2

(d) $\bar{X}$ = 14, s.d. = 7.2 (1 mark)

The best statistical measure used for comparing two series is

(a) Mean absolute deviation
(b) Range
(c) Coefficient of variation
(d) Standard deviation (1 mark)

If there are two groups with n_1 and n_2 observations and H_1 and H_2 are respective harmonic means, then the harmonic mean of combined observation is

(a) $\frac{n_1 H_1 + n_2 H_2}{n_1 + n_2}$

(b) $\frac{n_1 H_1 + n_2 H_2}{H_1 + H_2}$

(c) $\frac{n_1 + n_2}{n_1 H_1 + n_2 H_2}$

(d) $\frac{(n_1 + n_2) H_1 + H_2}{n_1 H_2 + n_2 H_1}$

(1 mark)

Which of the following measure does not possess mathematical properties?

(a) Arithmetic mean
(b) Geometric mean
(c) Harmonic mean
(d) Median (1 mark)

From the record on sizes of shoes sold in a shop, one can compute the following to determine the most preferred shoe size.

(a) Mean
(b) Median
(c) Mode
(d) Range (1 mark)

Dec 2020 – Central Tendency and Dispersion

Which of the following measure of dispersion is based on absolute deviations?

(a) Range
(b) S. D
(c) Mean Deviation
(d) Quartile Deviation (1 mark)

Ten matches data is given. Then which of the following cannot be found?

(a) least score
(b) Highest score
(c) Best score
(d) Median score

(1 mark)

Which one of these is least affected by extreme values?

(a) Mean

(b) Median

(c) Mode

(d) None

50^{th} Percentile is equal to

(a) Median

(b) Mode

(c) Mean

(d) None (1 mark)

Which measure is suitable for open-end classification?

(a) Median

(b) Mean

(c) Mode

(d) GM

(1 mark)

Nov 2019 – Central Tendency and Dispersion

Which of the following is affected by shifting of scale.

(a) SD
(b) MD
(c) QD
(d) None of these

Coefficient of variation is equal to:

(a) $\frac{SD}{Mean}$

(b) $\frac{SD}{Mean} \times 100$

(c) $\frac{Mean}{SD} \times 100$

(d) $\frac{Mean}{SD}$

(1 mark)

Origin is shifted by 5, what will happen

(a) SD will increase by 5

(b) QD will increase by 5

(c) MD will increase by 5

(d) There will be no change in SD (1 mark)

The deviations are minimum when taken from:

(a) Mean

(b) Median

(c) Mode

(d) None

The approximate ratio of SD, MD, QD is:

(a) 3 : 4 : 5

(b) 2 : 3 : 4

(c) 15 : 12 : 10

(d) 5 : 6 : 7

June 2019 – Central Tendency and Dispersion

For a symmetric distribution

(a) Mean = Median = Mode

(b) Mode = 3 Median – 2 Mean

(c) Mode = $\frac{1}{3}$ Median = $\frac{1}{2}$ Mean

(d) None (1 mark)

If the profits of a company remain some for the last ten months then the S.D. of profits of the company would be:

(a) Positive
(b) Negative
(c) Zero
(d) (a) or (c)

(1 mark)

Which of the following is positional average ?

(a) Median
(b) GM
(c) HM
(d) AM

Nov 2018 – Central Tendency and Dispersion

Which one of the following is not a central tendency?

(a) Mean Deviation (b) Arithmetic mean

(c) Median (d) Mode (1 mark)

The Algebraic sum of the deviation of a set of values from their arithmetic mean is

(a) >0 (b) = 0

(c) < 0 (d) None of the above (1 mark)

May 2018 – Central Tendency and Dispersion

The average of a series of overlapping averages, each of which is based on a certain number of item within a series is know as.

(a) Moving average (b) Weighted average

(c) Simple average (d) None (1 mark)

156

If each item is reduced by 15 A. M is

(a) reduced by 15 (b) increased by 15

(c) reduced by 10 (d) none (1 mark)

157

$\frac{(Q_3 - Q_1)}{(Q_3 + Q_1)}$ is known as

(a) Coefficient of Range
(b) Coefficient of Q.D.
(c) Coefficient of S.D.
(d) Coefficient of M.D.

Relation between mean, median and mode is

(a) mean-mode = 2 (mean-median)

(b) mean-median = 3(mean-mode)

(c) mean-median = 2 (mean-mode)

(d) mean-mode = 3(mean-median)

Study Mat – Correlation and Regression

1. Bivariate Data are the data collected for
   (a) Two variables irrespective of time
   (b) More than two variables
   (c) Two variables at the same point of time
   (d) Two variables at different points of time.

2. For a bivariate frequency table having (p + q) classification the total number of cells is

(a) p (b) p + q

(c) q (d) pq

3. Some of the cell frequencies in a bivariate frequency table may be

(a) Negative (b) Zero

(c) a or b (d) Non of these

4. For a p x q bivariate frequency table, the maximum number of marginal distributions is

(a) p (b) p + q

(c) 1 (d) 2

5. For a p x q classification of bivariate data, the maximum number of conditional distributions is

(a) p
(b) p + q
(c) pq
(d) p or q

6. Correlation analysis aims at

(a) Predicting one variable for a given value of the other variable

(b) Establishing relation between two variables

(c) Measuring the extent of relation between two variables

(d) Both (b) and (c).

7. Regression analysis is concerned with

(a) Establishing a mathematical relationship between two variables

(b) Measuring the extent of association between two variables

(c) Predicting the value of the dependent variable for a given value of the independent variable

(d) Both (a) and (c).

8. What is spurious correlation?

(a) It is a bad relation between two variables.

(b) It is very low correlation between two variables.

(c) It is the correlation between two variables having no causal relation.

(d) It is a negative correlation.

9. Scatter diagram is considered for measuring

(a) Linear relationship between two variables

(b) Curvilinear relationship between two variables

(c) Neither (a) nor (b)

(d) Both (a) and (b).

10. If the plotted points in a scatter diagram lie from upper left to lower right, then the correlation is

(a) Positive

(b) Zero

(c) Negative

(d) None of these.

11. If the plotted points in a scatter diagram are evenly distributed, then the correlation is

(a) Zero
(b) Negative
(c) Positive
(d) (a) or (b).

12. If all the plotted points in a scatter diagram lie on a single line, then the correlation is

(a) Perfect positive (b) Perfect negative

(c) Both (a) and (b) (d) Either (a) or (b).

13. The correlation between shoe-size and intelligence is

(a) Zero (b) Positive

(c) Negative (d) None of these.

14. The correlation between the speed of an automobile and the distance travelled by it after applying the brakes is

(a) Negative
(b) Zero
(c) Positive
(d) None of these.

15. Scatter diagram helps us to

(a) Find the nature correlation between two variables

(b) Compute the extent of correlation between two variables

(c) Obtain the mathematical relationship between two variables

(d) Both (a) and (c).

16. Pearson's correlation coefficient is used for finding

(a) Correlation for any type of relation

(b) Correlation for linear relation only

(c) Correlation for curvilinear relation only

(d) Both (b) and (c).

17. Product moment correlation coefficient is considered for

(a) Finding the nature of correlation

(b) Finding the amount of correlation

(c) Both (a) and (b)

(d) Either (a) and (b).

18. If the value of correlation coefficient is positive, then the points in a scatter diagram tend to cluster

(a) From lower left corner to upper right corner

(b) From lower left corner to lower right corner

(c) From lower right corner to upper left corner

(d) From lower right corner to upper right corner.

19. When r = 1, all the points in a scatter diagram would lie

(a) On a straight line directed from lower left to upper right

(b) On a straight line directed from upper left to lower right

(c) On a straight line

(d) Both (a) and (b).

20. Product moment correlation coefficient may be defined as the ratio of

(a) The product of standard deviations of the two variables to the covariance between them

(b) The covariance between the variables to the product of the variances of them

(c) The covariance between the variables to the product of their standard deviations

(d) Either (b) or (c).

21. The covariance between two variables is

(a) Strictly positive (b) Strictly negative

(c) Always 0 (d) Either positive or negative or zero.

22. The coefficient of correlation between two variables

(a) Can have any unit.

(b) Is expressed as the product of units of the two variables

(c) Is a unit free measure

(d) None of these.

23. What are the limits of the correlation coefficient?

(a) No limit

(b) –1 and 1, excluding the limits

(c) 0 and 1, including the limits

(d) –1 and 1, including the limits

24. In case the correlation coefficient between two variables is 1, the relationship between the two variables would be

(a) $y = a + bx$

(b) $y = a + bx, b > 0$

(c) $y = a + bx, b < 0$

(d) $y = a + bx$, both a and b being positive.

25. If the relationship between two variables x and y in given by $2x + 3y + 4 = 0$, then the value of the correlation coefficient between x and y is

(a) 0 (b) 1

(c) –1 (d) negative.

26. For finding correlation between two attributes, we consider

(a) Pearson's correlation coefficient

(b) Scatter diagram

(c) Spearman's rank correlation coefficient

(d) Coefficient of concurrent deviations.

27. For finding the degree of agreement about beauty between two Judges in a Beauty Contest, we use

(a) Scatter diagram

(b) Coefficient of rank correlation

(c) Coefficient of correlation

(d) Coefficient of concurrent deviation.

28. If there is a perfect disagreement between the marks in Geography and Statistics, then what would be the value of rank correlation coefficient?

(a) Any value
(b) Only 1
(c) Only –1
(d) (b) or (c)

29. When we are not concerned with the magnitude of the two variables under discussion, we consider

(a) Rank correlation coefficient
(b) Product moment correlation coefficient
(c) Coefficient of concurrent deviation
(d) (a) or (b) but not (c).

30. What is the quickest method to find correlation between two variables?

(a) Scatter diagram

(b) Method of concurrent deviation

(c) Method of rank correlation

(d) Method of product moment correlation

31. What are the limits of the coefficient of concurrent deviations?

(a) No limit

(b) Between –1 and 0, including the limiting values

(c) Between 0 and 1, including the limiting values

(d) Between –1 and 1, the limiting values inclusive

32. If there are two variables x and y, then the number of regression equations could be

(a) 1 (b) 2

(c) Any number (d) 3.

33. Since Blood Pressure of a person depends on age, we need consider

(a) The regression equation of Blood Pressure on age

(b) The regression equation of age on Blood Pressure

(c) Both (a) and (b)

(d) Either (a) or (b).

34. The method applied for deriving the regression equations is known as

(a) Least squares
(b) Concurrent deviation
(c) Product moment
(d) Normal equation.

35. The difference between the observed value and the estimated value in regression analysis is known as

(a) Error
(b) Residue
(c) Deviation
(d) (a) or (b).

36. The errors in case of regression equations are

(a) Positive (b) Negative

(c) Zero (d) All these.

37. The regression line of y on x is derived by

(a) The minimisation of vertical distances in the scatter diagram

(b) The minimisation of horizontal distances in the scatter diagram

(c) Both (a) and (b)

(d) (a) or (b).

38. The two lines of regression become identical when

(a) $r = 1$ (b) $r = -1$

(c) $r = 0$ (d) (a) or (b).

39. What are the limits of the two regression coefficients?

(a) No limit (b) Must be positive

(c) One positive and the other negative

(d) Product of the regression coefficient must be numerically less than unity.

40. The regression coefficients remain unchanged due to a

(a) Shift of origin (b) Shift of scale

(c) Both (a) and (b) (d) (a) or (b).

Jan 2021 – Correlation and Regression

The regression coefficients remain unchanged due to

(a) A shift of scale

(b) A shift of origin

(c) Replacing x - values by $\frac{1}{x}$

(d) Replacing y values by $\frac{1}{y}$ (1 mark)

200

Dec 2020 – Correlation and Regression

The covariance between two variables is

(a) Strictly positive

(b) Strictly negative

(c) Always Zero

(d) Either positive or negative or zero. (1 mark)

201

Scatter diagram does not help us to?

(a) Find the type of correlation

(b) Identify whether variables correlated or not

(c) Determine the linear or non-linear correlation

(d) Find the numerical value of correlation coefficient (1 mark)

202

Which of the following is spurious correlation?

(a) Correlation between two variables having no casual relationship

(b) Negative correlation

(c) Bad relation between two variables

(d) Very low correlation between two variables. (1 mark)

Nov 2019 – Correlation and Regression

If the plotted points in a scatter diagram lie from upper left to lower right, then correlation is

(a) Positive
(b) Negative
(c) Zero
(d) None of these (1 mark)

May 2019 – Correlation and Regression

A.M. of regression coefficients is
(a) Equal to r
(b) Greater than or equal to r
(c) Half of r
(d) None (1 mark)

Nov 2018 – Correlation and Regression

The regression coefficient is independent of the change of:

(a) Scale (b) Origin

(c) Scale and origin both (d) None of these (1 mark)

The two line of regression intersect at the point

(a) Mean (b) Mode

(c) Median (d) None of these (1 mark)

May 2018 – Correlation and Regression

Rank correlation coefficient lies between
(a) 0 to 1
(b) – 1 to +1 inclusive of these value
(c) – 1 to 0
(d) both (1 mark)

Correlation coefficient is _____ of the units of measurement.

(a) dependent (b) independent

(c) both (d) none (1 mark)

In the method of Concurrent Deviations, only the directions of change (Positive direction/Negative direction) in the variables are taken into account for calculation of

(a) Coefficient of SD.

(b) Coefficient of regression

(c) Coefficient of correlation

(d) none (1 mark)

The covariance between two variables is

(a) Strictly positive
(b) Strictly negative
(c) Always Zero
(d) Either positive or negative or zero (1 mark)

2II

If the plotted points is a scatter diagram are evenly distributed, then the correlation is

(a) Zero
(b) Negative
(c) Positive
(d) (a) Or (b)

(1 mark)

Study Mat – Probability

1. Initially, probability was a branch of

(a) Physics (b) Statistics

(c) Mathematics (d) Economics.

2. Two broad divisions of probability are

(a) Subjective probability and objective probability

(b) Deductive probability and non–deductive probability

(c) Statistical probability and Mathematical probability

(d) None of these.

3. Subjective probability may be used in

(a) Mathematics (b) Statistics

(c) Management (d) Accountancy.

4. An experiment is known to be random if the results of the experiment

(a) Can not be predicted (b) Can be predicted

(c) Can be split into further experiments (d) Can be selected at random.

5. An event that can be split into further events is known as

(a) Complex event

(b) Mixed event

(c) Simple event

(d) Composite event.

6. Which of the following pairs of events are mutually exclusive?

(a) A : The student reads in a school. B : He studies Philosophy.

(b) A : Raju was born in India. B : He is a fine Engineer.

(c) A : Ruma is 16 years old. B : She is a good singer.

(d) A : Peter is under 15 years of age. B : Peter is a voter of Kolkata.

7. If P(A) = P(B), then

(a) A and B are the same events

(b) A and B must be same events

(c) A and B may be different events

(d) A and B are mutually exclusive events.

8. If $P(A \cap B) = 0$, then the two events A and B are

(a) Mutually exclusive

(b) Exhaustive

(c) Equally likely

(d) Independent.

9. If for two events A and B, $P(A \cup B) = 1$, then A and B are

(a) Mutually exclusive events

(b) Equally likely events

(c) Exhaustive events

(d) Dependent events.

10. If an unbiased coin is tossed once, then the two events Head and Tail are

(a) Mutually exclusive

(b) Exhaustive

(c) Equally likely

(d) All these (a), (b) and (c).

11. If P(A) = P(B), then the two events A and B are

(a) Independent (b) Dependent

(c) Equally likely (d) Both (a) and (c).

12. If for two events A and B, $P(A \cap B) \neq P(A) \times P(B)$, then the two events A and B are

(a) Independent
(b) Dependent
(c) Not equally likely
(d) Not exhaustive.

13. If P(A/B) = P(A), then

(a) A is independent of B

(b) B is independent of A

(c) B is dependent of A

(d) Both (a) and (b).

14. If two events A and B are independent, then
    (a) A and the complement of B are independent
    (b) B and the complement of A are independent
    (c) Complements of A and B are independent
    (d) All of these (a), (b) and (c).

15. If two events A and B are independent, then

(a) They can be mutually exclusive

(b) They can not be mutually exclusive

(c) They can not be exhaustive

(d) Both (b) and (c).

16. If two events A and B are mutually exclusive, then

(a) They are always independent

(b) They may be independent

(c) They can not be independent

(d) They can not be equally likely.

17. If a coin is tossed twice, then the events 'occurrence of one head', 'occurrence of 2 heads' and 'occurrence of no head' are

(a) Independent
(b) Equally likely
(c) Not equally likely
(d) Both (a) and (b).

18. The probability of an event can assume any value between

(a) – 1 and 1 (b) 0 and 1

(c) – 1 and 0 (d) none of these.

19. If P(A) = 0, then the event A

(a) will never happen

(b) will always happen

(c) may happen

(d) may not happen.

20. If P(A) = 1, then the event A is known as

(a) symmetric event

(b) dependent event

(c) improbable event

(d) sure event.

21. If p : q are the odds in favour of an event, then the probability of that event is

(a) $\frac{p}{q}$

(b) $\frac{p}{p+q}$

(c) $\frac{q}{p+q}$

(d) none of these.

22. If P(A) = 5/9, then the odds against the event A is

(a) 5 : 9 (b) 5 : 4

(c) 4 : 5 (d) 5 : 14

23. If A, B and C are mutually exclusive and exhaustive events, then P(A) + P(B) + P(C) equals to

(a) $\frac{1}{3}$

(b) 1

(c) 0

(d) any value between 0 and 1.

24. If A denotes that a student reads in a school and B denotes that he plays cricket, then

(a) $P(A \cap B) = 1$ (b) $P(A \cup B) = 1$

(c) $P(A \cap B) = 0$ (d) $P(A) = P(B)$.

25. P(B/A) is defined only when

(a) A is a sure event

(b) B is a sure event

(c) A is not an impossible event

(d) B is an impossible event.

26. P(A/B') is defined only when

(a) B is not a sure event

(b) B is a sure event

(c) B is an impossible event

(d) B is not an impossible event.

27. For two events A and B, $P(A \cup B) = P(A) + P(B)$ only when

(a) A and B are equally likely events

(b) A and B are exhaustive events

(c) A and B are mutually independent

(d) A and B are mutually exclusive.

28. Addition Theorem of Probability states that for any two events A and B,

(a) $P(A \cup B) = P(A) + P(B)$

(b) $P(A \cup B) = P(A) + P(B) + P(A \cap B)$

(c) $P(A \cup B) = P(A) + P(B) - P(A \cap B)$

(d) $P(A \cup B) = P(A) \times P(B)$

29. For any two events A and B,

(a) $P(A) + P(B) > P(A \cap B)$

(b) $P(A) + P(B) < P(A \cap B)$

(c) $P(A) + P(B) \geq P(A \cap B)$

(d) $P(A) \times P(B) \leq P(A \cap B)$

30. For any two events A and B

(a) $P(A-B) = P(A) - P(B)$

(b) $P(A-B) = P(A) - P(A \cap B)$

(c) $P(A-B) = P(B) - P(A \cap B)$

(d) $P(B-A) = P(B) + P(A \cap B)$.

31. The limitations of the classical definition of probability

(a) it is applicable when the total number of elementary events is finite

(b) it is applicable if the elementary events are equally likely

(c) it is applicable if the elementary events are mutually independent

(d) (a) and (b).

32. According to the statistical definition of probability, the probability of an event A is the

(a) limiting value of the ratio of the no. of times the event A occurs to the number of times the experiment is repeated

(b) the ratio of the frequency of the occurrences of A to the total frequency

(c) the ratio of the frequency of the occurrences of A to the non-occurrence of A

(d) the ratio of the favourable elementary events to A to the total number of elementary events.

33. The Theorem of Compound Probability states that for any two events A and B.

(a) $P(A \cap B) = P(A) \times P(B/A)$

(b) $P(A \cup B) = P(A) \times P(B/A)$

(c) $P(A \cap B) = P(A) \times P(B)$

(d) $P(A \cup B) = P(B) + P(B) - P(A \cap B)$.

34. If A and B are mutually exclusive events, then

(a) $P(A) = P(A-B)$.

(b) $P(B) = P(A-B)$.

(c) $P(A) = P(A \cap B)$.

(d) $P(B) = P(A \cap B)$.

35. If $P(A-B) = P(B-A)$, then the two events A and B satisfy the condition

(a) $P(A) = P(B)$.

(b) $P(A) + P(B) = 1$

(c) $P(A \cap B) = 0$

(d) $P(A \cup B) = 1$

36. The number of conditions to be satisfied by three events A, B and C for complete independence is

(a) M2 (b) 3
(c) 4 (d) any number.

(16.28) is the necessary and sufficient condition for the independence of two events. In a similar manner, three events A, B and C are known as independent if the following conditions hold :

$$P(A \cap B) = P(A) \times P(B)$$

$$P(A \cap C) = P(A) \times P(C)$$

$$P(B \cap C) = P(B) \times P(C)$$

$$P(A \cap B \cap C) = P(A) \times P(B) \times P(C) \quad \ldots\ldots\ldots (16.29)$$

37. If two events A and B are independent, then $P(A \cap B)$

(a) equals to $P(A) + P(B)$

(b) equals to $P(A) \times P(B)$

(c) equals to $P(A) \times P(B/A)$

(d) equals to $P(B) \times P(A/B)$.

38. Values of a random variable are

(a) always positive numbers.

(b) always positive real numbers.

(c) real numbers.

(d) natural numbers.

39. Expected value of a random variable

(a) is always positive

(b) may be positive or negative

(c) may be positive or negative or zero

(d) can never be zero.

40. If all the values taken by a random variable are equal then

(a) its expected value is zero (b) its standard deviation is zero

(c) its standard deviation is positive (d) its standard deviation is a real number.

41. If x and y are independent, then

(a) $E(xy) = E(x) \times E(y)$

(b) $E(xy) = E(x) + E(y)$

(c) $E(x - y) = E(x) + E(y)$

(d) $E(x - y) = E(x) + x\,E(y)$

42. If a random variable x assumes the values x_1 , x_2 , x_3 , x_4 with corresponding probabilities p_1 , p_2 , p_3 , p_4 then the expected value of x is

(a) $p_1 + p_2 + p_3 + p_4$

(b) $x_1 p_1 + x_2 p_3 + x_3 p_2 + x_4 p_4$

(c) $p_1 x_1 + p_2 x_2 + p_3 x_3 + p_4 x_4$

(d) none of these.

43. f(x), the probability mass function of a random variable x satisfies

(a) $f(x) > 0$

(b) $\sum_x f(x)=1$

(c) both (a) and (b)

(d) $f(x) \geq 0$ and $\sum_x f(x)=1$

44. Variance of a random variable x is given by

(a) $E(x-\mu)^2$

(b) $E[x - E(x)]^2$

(c) $E(x^2 - \mu)$

(d) (a) or (b)

45. If two random variables x and y are related by $y = 2 - 3x$, then the SD of y is given by

(a) $-3 \times$ SD of x

(b) $3 \times$ SD of x.

(c) $9 \times$ SD of x

(d) $2 \times$ SD of x.

Jan 2021 - Probability

An event that can be subdivided into further events is called as.

(a) A composite event

(b) A complex event

(c) A mixed event

(d) A simple event (1 mark)

June 2019 - Probability

Two event A and B are such that they do not occurs simultaneously then they are called _____ events

(a) Mutually exhaustive
(b) Mutually exclusive
(c) Mutually independent
(d) Equally likely (1 mark)

May 2018 - Probability

Sum of all probabilities mutually exclusive and exhaustive events is equal to

(a) 0 (b) 1/2

(c) 1/4 (d) 1 (1 mark)

If two random variables x and y are related by y=2-3x, then the SD of y is given by

(a) $-3 \times$ SD of x (b) $3 \times$ SD of x

(c) $9 \times$ SD of x (d) $2 \times$ SD of x (1 mark)

Variance of a random variable x is given by

(a) $E(X-\mu)^2$

(b) $E[X- E(X)]^2$

(c) $E(X^2 - \mu)$

(d) (a) or (b)

The theorem of compound probability states that for any two events A an B

(a) $P(A \cap B) = P(A) \times P(B/A)$

(b) $P(A \cup B) = P(A) \times P(B/A)$

(c) $P(A \cap B) = P(A) \times P(B)$

(d) $P(A \cup B) = P(A) + P(B) - P(A \cap B)$ (1 mark)

The term “chance” and probability are synonyms:

(a) True (b) False

(c) Both (d) None

Two broad divisions of probability are:

(a) Subjective probability and objective probability

(b) Deductive probability and mathematical probability

(c) Statistical probability and mathematical probability

(d) None of these (1 mark)

Study Mat – Theoretical Distribution

1. A theoretical probability distribution.

(a) does not exist.
(b) exists only in theory.
(c) exists in real life.
(d) both (b) and (c).

2. Probability distribution may be

(a) discrete. (b) continuous. (c) infinite. (d) (a) or (b).

3. An important discrete probability distribution is

(a) Poisson distribution. (b) Normal distribution.

(c) Cauchy distribution. (d) Log normal distribution.

4. An important continuous probability distribution

(a) Binomial distribution.

(b) Poisson distribution.

(c) Geometric distribution.

(d) Normal distribution.

5. Parameter is a characteristic of

(a) population. (b) sample. (c) probability distribution. (d) both (a) and (b).

6. An example of a parameter is

(a) sample mean.

(b) population mean.

(c) binomial distribution.

(d) sample size.

7. A trial is an attempt to

(a) make something possible.

(b) make something impossible.

(c) prosecute an offender in a court of law.

(d) produce an outcome which is neither certain nor impossible.

8. The important characteristic(s) of Bernoulli trials

(a) each trial is associated with just two possible outcomes.

(b) trials are independent.

(c) trials are infinite.

(d) both (a) and (b).

9. The probability mass function of binomial distribution is given by

(a) $f(x) = p^x q^{n-x}$.

(b) $f(x) = {}^nc_x p^x q^{n-x}$.

(c) $f(x) = {}^nc_x q^x p^{n-x}$.

(d) $f(x) = {}^nc_x p^{n-x} q^x$.

10. If x is a binomial variable with parameters n and p, then x can assume

(a) any value between 0 and n.

(b) any value between 0 and n, both inclusive.

(c) any whole number between 0 and n, both inclusive.

(d) any number between 0 and infinity.

11. A binomial distribution is

(a) never symmetrical.

(b) never positively skewed.

(c) never negatively skewed.

(d) symmetrical when p = 0.5.

12. The mean of a binomial distribution with parameter n and p is

(a) n (1– p). (b) np (1 – p). (c) np. (d) $\sqrt{np(1-p)}$.

13. The variance of a binomial distribution with parameters n and p is

(a) $np^2 (1 - p)$. (b) $\sqrt{np(1-p)}$. (c) $nq (1 - q)$. (d) $n^2p^2 (1- p)^2$.

14. An example of a bi-parametric discrete probability distribution is

(a) binomial distribution.

(b) poisson distribution.

(c) normal distribution.

(d) both (a) and (b).

15. For a binomial distribution, mean and mode

(a) are never equal.

(b) are always equal.

(c) are equal when q = 0.50.

(d) do not always exist.

16. The mean of binomial distribution is

(a) always more than its variance.

(b) always equal to its variance.

(c) always less than its variance.

(d) always equal to its standard deviation.

17. For a binomial distribution, there may be

(a) one mode. (b) two modes. (c) Multi-mode. (d) (a) or (b).

18. The maximum value of the variance of a binomial distribution with parameters n and p is

(a) n/2. (b) n/4. (c) np (1 – p). (d) 2n.

19. The method usually applied for fitting a binomial distribution is known as

(a) method of least square.

(b) method of moments.

(c) method of probability distribution.

(d) method of deviations.

20. Which one is not a condition of Poisson model?

(a) the probability of having success in a small time interval is constant.

(b) the probability of having success more than one in a small time interval is very small.

(c) the probability of having success in a small interval is independent of time and also of earlier success.

(d) the probability of having success in a small time interval (t, t + dt) is kt for a positive constant k.

21. Which one is uniparametric distribution?

(a) Binomial. (b) Poisson. (c) Normal. (d) Hyper geometric.

22. For a Poisson distribution,

(a) mean and standard deviation are equal. (b) mean and variance are equal.

(c) standard deviation and variance are equal. (d) both (a) and (b).

23. Poisson distribution may be

(a) unimodal. (b) bimodal. (c) Multi-modal. (d) (a) or (b).

24. Poisson distribution is

(a) always symmetric.

(b) always positively skewed.

(c) always negatively skewed.

(d) symmetric only when m = 2.

25. A binomial distribution with parameters n and p can be approximated by a Poisson distribution with parameter $m = np$ is

(a) $n \to \infty$.

(b) $p \to 0$.

(c) $n \to \infty$ and $p \to 0$.

(d) $n \to \infty$ and $p \to 0$ so that np remains finite..

26. For Poisson fitting to an observed frequency distribution,

(a) we equate the Poisson parameter to the mean of the frequency distribution.

(b) we equate the Poisson parameter to the median of the distribution.

(c) we equate the Poisson parameter to the mode of the distribution.

(d) none of these.

27. The most important continuous probability distribution is known as

(a) Binomial distribution.

(b) Normal distribution.

(c) Chi-square distribution.

(d) Sampling distribution.

28. The probability density function of a normal variable x is given by

(a) $f(x) = \frac{1}{\sigma\sqrt{2\pi}}.e^{-\frac{1}{2}(\frac{x-\mu}{\sigma})^2}$ for $-\infty < x < \infty$.

(b) $f(x) = f(x) = \frac{1}{\sigma\sqrt{2\pi}}.e^{-\frac{-(x-\mu)^2}{2\sigma^2}}$ for $0 < x < \infty$.

(c) $f(x) = \frac{1}{\sqrt{2\pi\sigma}}.e^{-\frac{(x-\mu)^2}{2\sigma^2}}$ for $-\infty < x < \infty$.

(d) none of these.

29. The total area of the normal curve is

(a) one.

(b) 50 per cent.

(c) 0.50.

(d) any value between 0 and 1.

30. The normal curve is

(a) Bell-shaped.

(b) U- shaped.

(c) J-shaped.

(d) Inverted J-shaped.

31. The normal curve is

(a) positively skewed.

(b) negatively skewed.

(c) symmetrical.

(d) all these.

32. Area of the normal curve

(a) between $-\infty$ to μ is 0.50.

(b) between μ to ∞ is 0.50.

(c) between $-\infty$ to ∞ is 0.50.

(d) both (a) and (b).

33. The cumulative distribution function of a random variable X is given by

(a) $F(x) = P(X \leq x)$.

(b) $F(X) = P(X \leq x)$.

(c) $F(x) = P(X \geq x)$.

(d) $F(x) = P(X = x)$.

34. The mean and mode of a normal distribution

(a) may be equal.

(b) may be different.

(c) are always equal.

(d) (a) or (b).

35. The mean deviation about median of a standard normal variate is

(a) 0.675 σ. (b) 0.675. (c) 0.80 σ. (d) 0.80.

36. The quartile deviation of a normal distribution with mean 10 and SD 4 is

(a) 0.675. (b) 67.50. (c) 2.70. (d) 3.20.

37. For a standard normal distribution, the points of inflexion are given by

(a) $\mu - \sigma$ and $\mu + \sigma$. (b) $-\sigma$ and σ. (c) -1 and 1. (d) 0 and 1.

38. The symbol ϕ (a) indicates the area of the standard normal curve between

(a) 0 to a. (b) a to ∞. (c) $-\infty$ to a. (d) $-\infty$ to ∞.

39. The interval $(\mu - 3\sigma, \mu + 3\sigma)$ covers

(a) 95% area of a normal distribution.

(b) 96% area of a normal distribution.

(c) 99% area of a normal distribution.

(d) all but 0.27% area of a normal distribution.

40. Number of misprints per page of a thick book follows

(a) Normal distribution.

(b) Poisson distribution.

(c) Binomial distribution.

(d) Standard normal distribution.

41. The results of ODI matches between India and Pakistan follows

(a) Binomial distribution. (b) Poisson distribution.

(c) Normal distribution. (d) (b) or (c).

42. The wage of workers of a factory follow

(a) Binomial distribution. (b) Poisson distribution.

(c) Normal distribution. (d) Chi-square distribution.

43. If X and Y are two independent normal random variables, then the distribution of (X+Y) is

(a) normal.

(b) standard normal.

(c) T.

(d) chi-square.

Jan 2021 - TD

For a normal distribution, the value of third moment about mean is.

(a) 0

(b) 1

(c) 2

(d) 3 (1 mark)

Which one of the following is an uniparametric distribution?

(a) Poisson
(b) Normal
(c) Binomial
(d) Hyper geometric (1 mark)

310

Dec 2020 - TD

Which one of the following has Poisson distribution?

(a) The number of days to get a complete cure.

(b) The number of defects per meter on long roll of coated polythene sheet.

(c) The errors obtained in repeated measuring of the length of a rod.

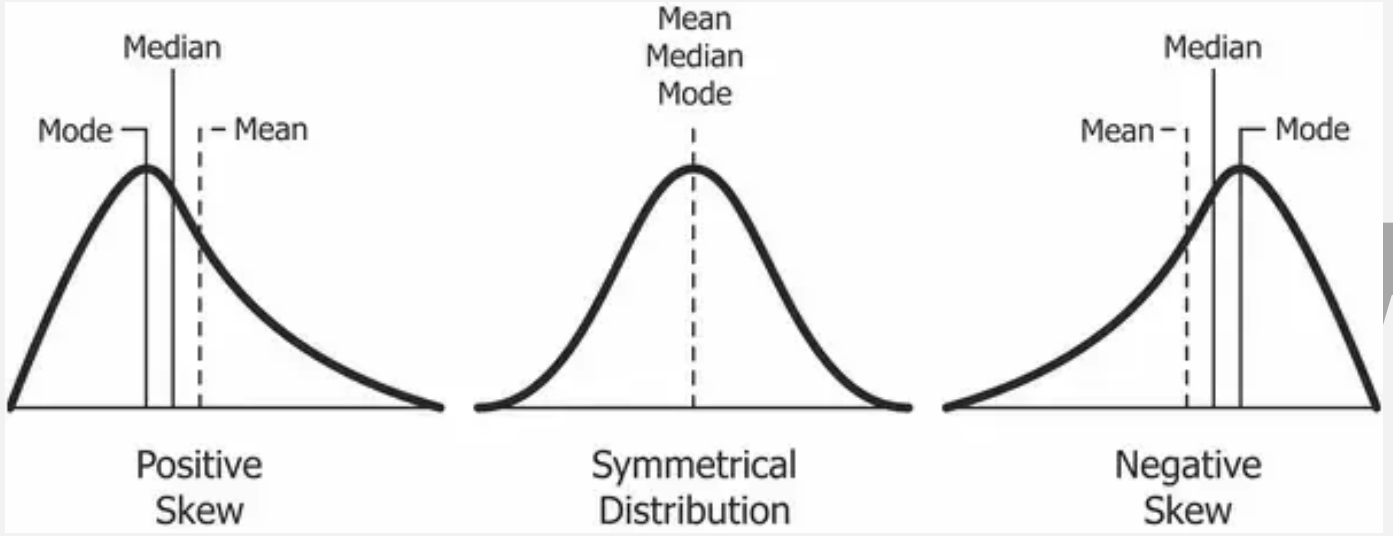
(d) The number of claims rejected by an insurance agency. (1 mark)

If we change the parameter(s) of a _____ distribution the sharpe of probability curve does not change.

(a) Normal
(b) Binomial
(c) Poisson
(d) Non-Gaussion (1 mark)

If the probability of success in a binomial distribution is less than one-half, then the binomial distribution _____ .

(a) is skewed to left
(b) is skewed to right
(c) has two modes
(d) has median at a point > mean + 1/2 (1 mark)



Mean > Median > Mode	Mean = Median = Mode	Mean < Median < Mode
Right Skewed		Left Skewed

Which of the following is uni-parametric distribution?

(a) Poisson
(b) Normal
(c) Binomial
(d) Hyper geometric (1 mark)

Nov 2019

For a Poisson distribution:
(a) mean and SD are equal
(b) mean and variance are equal
(c) SD and Variance
(d) both a and b (1 mark)

Area under U ± 3σ

(a) 99.73%

(b) 99%

(c) 100%

(d) 99.37%

June 2019

Area between = 1.96 to + 1.96 in a normal distribution is:
(a) 95.45%
(b) 95%
(c) 96%
(d) 99%

Nov 2018

What is the mean of X having the following density function?

$$f(x) = \frac{1}{4\sqrt{2\pi}} . e^{\frac{-(x-10)^2}{32}} \quad \text{for } -\infty < x < \infty$$

(a) 10 (b) 4

(c) 40 (d) None of the above (1 mark)

May 2018

If the area of standard normal curve between z = 0 to z = 1 is 0.3412, then the value of ϕ (1) is.

(a) 0.5000 (b) 0.8413

(c) – 0.5000 (d) 1 (1 mark)

Probability distribution may be

(a) discrete (b) continuous

(c) infinite (d) (a) or (b)

An example of a bi-parametric discrete probability distribution is

(a) binomial distribution (b) Poisson distribution

(c) normal distribution (d) both (a) and (b) (1 mark)

The variance of a binomial distribution with parameters n and p is:

(a) $np^2 (1-p)$ (b) $\sqrt{np-(1-p)}$

(c) $nq(1-q)$ (d) $n^2p^2 (1-P)^2$ (1 mark)

Study Mat – Index Numbers and Time Series

1. A series of numerical figures which show the relative position is called

   a) index number b) relative number c) absolute number d) none

2. Index number for the base period is always taken as

a) 200 b) 50 c) 1 d) 100

3. _____ play a very important part in the construction of index numbers.

a) weights b) classes c) estimations d) none

4. _____ is particularly suitable for the construction of index numbers.

a) H.M. b) A.M. c) G.M. d) none

5. Index numbers show _____ changes rather than absolute amounts of change.

a) relative b) percentage c) both d) none

6. The _____ makes index numbers time-reversible.

a) A.M. b) G.M. c) H.M. d) none

7. Price relative is equal to

a) $\frac{\text{Price in the given year} \times 100}{\text{Price in the base year}}$

b) $\frac{\text{Price in the year base year} \times 100}{\text{Price in the given year}}$

c) Price in the given year × 100

d) Price in the base year × 100

8. Index number is equal to

a) sum of price relatives
b) average of the price relatives
c) product of price relative
d) none

9. The _____ of group indices gives the General Index

a) H.M. b) G.M. c) A.M. d) none

10. Circular Test is one of the tests of

a) index numbers b) hypothesis c) both d) none

11. _____ is an extension of time reversal test

a) Factor Reversal test

b) Circular test

c) both

d) none

12. Weighted G.M. of relative formula satisfy _____test

a) Time Reversal Test b) Circular test

c) Factor Reversal Test d) none

13. Factor Reversal test is satisfied by

a) Fisher's Ideal Index
b) Laspeyres Index
c) Paasches Index
d) none

14. Laspeyre's formula does not satisfy

a) Factor Reversal Test
b) Time Reversal Test
c) Circular Test
d) all the above

15. A ratio or an average of ratios expressed as a percentage is called

a) a relative number
b) an absolute number
c) an index number
d) none

16. The value at the base time period serves as the standard point of comparison

a) false b) true c) both d) none

17. An index time series is a list of _____ numbers for two or more periods of time

a) index b) absolute c) relative d) none

18. Index numbers are often constructed from the

a) frequency b) class c) sample d) none

19. _____ is a point of reference in comparing various data describing individual behaviour.

a) Sample b) Base period c) Estimation d) none

20. The ratio of price of single commodity in a given period to its price in the preceding year price is called the

(a) base period (b) price ratio (c) relative price (d) none

21. $\frac{\text{Sum of all commodity prices in the current year} \times 100}{\text{Sum of all commodity prices in the base year}}$ is

(a) Relative Price Index
(b) Simple Aggregative Price Index
(c) both
(d) none

22. Chain index is equal to

(a) $\frac{\text{link relative of current year} \times \text{chain index of the current year}}{100}$

(b) $\frac{\text{link relative of previous year} \times \text{chain index of the current year}}{100}$

(c) $\frac{\text{link relative of current year} \times \text{chain index of the previous year}}{100}$

(d) $\frac{\text{link relative of previous year} \times \text{chain index of the previous year}}{100}$

23. P_{01} is the index for time

(a) 1 on 0 (b) 0 on 1 (c) 1 on 1 (d) 0 on 0

24. P_{10} is the index for time

(a) 1 on 0 (b) 0 on 1 (c) 1 on 1 (d) 0 on 0

25. When the product of price index and the quantity index is equal to the corresponding value index then the test that holds is

(a) Unit Test
(b) Time Reversal Test
(c) Factor Reversal Test
(d) none holds

26. The formula should be independent of the unit in which or for which price and quantities are quoted in

(a) Unit Test
(b) Time Reversal Test
(c) Factor Reversal Test
(d) none

27. Laspeyre's method and Paasche's method do not satisfy

(a) Unit Test (b) Time Reversal Test

(c) Factor Reversal Test (d) b & c

28. The purpose determines the type of index number to use

(a) yes (b) no (c) may be (d) may not be

29. The index number is a special type of average

(a) false (b) true (c) both (d) none

30. The choice of suitable base period is at best temporary solution

(a) true (b) false (c) both (d) none

31. Fisher's Ideal Formula for calculating index numbers satisfies the _____ tests

(a) Unit Test
(b) Factor Reversal Test
(c) both
(d) none

32. Fisher's Ideal Formula dose not satisfy _____ test

(a) Unit Test (b) Circular Test (c) Time Reversal Test (d) none

33. _____ satisfies circular test

a) G.M. of price relatives or the weighted aggregate with fixed weights

b) A.M. of price relatives or the weighted aggregate with fixed weights

c) H.M. of price relatives or the weighted aggregate with fixed weights

d) none

34. Laspeyre's and Paasche's method _____ time reversal test

(a) satisfy (b) do not satisfy (c) are (d) are not

35. There is no such thing as unweighted index numbers

(a) false (b) true (c) both (d) none

36. Theoretically, G.M. is the best average in the construction of index numbers but in practice, mostly the A.M. is used

(a) false (b) true (c) both (d) none

37. Laspeyre's or Paasche's or the Fisher's ideal index do not satisfy

(a) Time Reversal Test (b) Unit Test

(c) Circular Test (d) none

38. _____ is concerned with the measurement of price changes over a period of years, when it is desirable to shift the base

(a) Unit Test
(b) Circular Test
(c) Time Reversal Test
(d) none

39. The test of shifting the base is called

(a) Unit Test (b) Time Reversal Test

(c) Circular Test (d) none

40. The formula for conversion to current value

(a) Deflated value = $\frac{\text{Price Index of the current year}}{\text{previous value}}$

(b) Deflated value = $\frac{\text{current value}}{\text{Price Index of the current year}}$

(c) Deflated value = $\frac{\text{Price Index of the previous year}}{\text{previous value}}$

(d) Deflated value = $\frac{\text{Price Index of the previous year}}{\text{previous value}}$

41. Shifted price Index = $\frac{\text{Original Price Index} \times 100}{\text{Price Index of the year on which it has to be shifted}}$

(a) True (b) false (c) both (d) none

42. The number of test of Adequacy is

(a) 2 (b) 5 (c) 3 (d) 4

43. We use price index numbers

(a) To measure and compare prices (b) to measure prices
(c) to compare prices (d) none

44. Simple aggregate of quantities is a type of

(a) Quantity control (b) Quantity indices

(c) both (d) none

1) An orderly set of data arranged in accordance with their time of occurrence is called:

(a) Arithmetic series

(b) Harmonic series

(c) Geometric series

(d) Time series

2) A time series consists of:

(a) Short-term variations

(b) Long-term variations

(c) Irregular variations

(d) All of the above

3) The graph of time series is called:

(a) Histogram (b) Straight line

(c) Historigram (d) Ogive

4) Secular trend can be measured by:

(a) Two methods (b) Three methods

(c) Four methods (d) Five methods

5) The secular trend is measured by the method of semi-averages when:

(a) Time series based on yearly values

(b) Trend is linear

(c) Time series consists of even number of values

(d) None of them

6) Increase in the number of patients in the hospital due to heat stroke is:

(a) Secular trend

(b) Irregular variation

(c) Seasonal variation

(d) Cyclical variation

7) The systematic components of time series which follow regular pattern of variations are called:

(a) Signal (b) Noise

(c) Additive model (d) Multiplicative model

8) The unsystematic sequence which follows irregular pattern of variations is called:

(a) Noise
(b) Signal
(c) Linear
(d) Non-linear

9) In time series seasonal variations can occur within a period of:

(a) Four years (b) Three years

(c) One year (d) Nine years

11) The method of moving average is used to find the:

(a) Secular trend

(b) Seasonal variation

(c) Cyclical variation

(d) Irregular variation

12) Most frequency used mathematical model of a time series is:

(a) Additive model

(b) Mixed model

(c) Multiplicative model

(d) Regression

13) A time series consists of:

(a) No mathematical model

(b) One mathematical model

(c) Two mathematical models

(d) Three mathematical models

14) In semi-averages method, we decide the data into:

(a) Two parts (b) Two equal parts

(c) Three parts (d) Difficult to tell

15) Moving average method is used for measurement of trend when:

(a) Trend is linear

(b) Trend is non-linear

(c) Trend is curvi linear

(d) None of them

16) When the trend is of exponential type, the moving averages are to be computed by using:

(a) Arithmetic mean

(b) Geometric mean

(c) Harmonic mean

(d) Weighted mean

17) The long term trend of a time series graph appears to be:

(a) Straight-line

(b) Upward

(c) Downward

(d) Parabolic curve or third degree curve

18) Indicate which of the following an example of seasonal variations is:

(a) Death rate decreased due to advance in science

(b) The sale of air condition increases during summer

(c) Recovery in business

(d) Sudden causes by wars

19) The most commonly used mathematical method for measuring the trend is:

(a) Moving average method (b) Semi average method

(c) Method of least squares (d) None of them

20) A trend is the better fitted trend for which the sum of squares of residuals is:

(a) Maximum (b) Minimum

(c) Positive (d) Negative

21) Decomposition of time series is called:

(a) Historigram

(b) Analysis of time series

(c) Histogram

(d) Detrending

22) The fire in a factory is an example of:

(a) Secular trend (b) Seasonal movements

(c) Cyclical variations (d) Irregular variations

23) Increased demand of admission in the subject of computer in Uttar Pradesh is:

(a) Secular trend

(b) Cyclical trend

(c) Seasonal trend

(d) Irregular trend

24) Damages due to floods, droughts, strikes fires and political disturbances are:

(a) Trend (b) Seasonal

(c) Cyclical (d) Irregular

25) The general pattern of increase or decrease in economics or social phenomena is shown by:

(a) Seasonal trend
(b) Cyclical trend
(c) Secular trend
(d) Irregular trend

26) In moving average method, we cannot find the trend values of some:

(a) Middle periods (b) End periods

(c) Starting periods (d) Between extreme periods

27) Moving-averages:

(a) Give the trend in a straight line

(b) Measure the seasonal variations

(c) Smooth-out the time series

(d) None of them

28) The rise and fall of a time series over periods longer than one year is called:

(a) Secular trend
(b) Seasonal variation
(c) Cyclical variation
(d) Irregular variations

29) A time series has:

(a) Two Components

(b) Three Components

(c) Four Components

(d) Five Components

30) The multiplicative time series model is:

(a) $Y = T + S + C + I$

(b) $Y = TSCI$

(c) $Y = a + bx$

(d) $y = a + bx + C \times 2$

31) The additive model of Time Series

(a) $Y = T + S + C + I$

(b) $Y = TSCI$

(c) $Y = a + bx$

(d) $y = a + bx + C \times 2$

32) A pattern that is repeated throughout a time series and has a recurrence period of at most one year is called:

(a) Cyclical variation

(b) Irregular variation

(c) Seasonal variation

(d) Long term variation

33) If an annual time series consisting of even number of years is coded, then each coded interval is equal to:

(a) Half year

(b) One year

(c) Both (a) and (b)

(d) Two years

34) In semi averages method, if the number of values is odd then we drop:

(a) First value

(b) Last value

(c) Middle value

(d) Middle two values

35) The trend values in freehand curve method are obtained by:

(a) Equation of straight line

(b) Graph

(c) Second degree parabola

(d) All of the above

Jan 2021

The cost of living index is always
(a) Price index number
(b) Quantity index number
(c) Weighted index number
(d) Value index number

401

Fisher's index number does not satisfy
(a) Unit test
(b) Circular test
(c) Time reversal test
(d) Factor reversal test

When the prices for quantities consumed of all commodities are changing in the same ratio, then the index numbers of Laspeyre's and Paasche's will be.

(a) Equal
(b) Unequal
(c) Reciprocal of Marshall Edge worth Index Number
(d) Reciprocal of Fisher Index Number (1 mark)

In a time series on yearly production, there will be no _____ variations.

(a) Trend
(b) Seasonal
(c) Cyclical
(d) Irregular

(1 mark)

The fire in a factory is an example of:

(a) Secular trend (b) Seasonal movements

(c) Cyclical trend (d) Irregular variations (1 mark)

Nov 2020

Fisher's ideal Index Number does not satisfy_____test
(a) Circular
(b) Time reversal
(c) Factor Reversal
(d) Unit

Index Numbers are expressed as

(a) Squares

(b) Ratio

(c) Percentages

(d) Combinations

In Laspeyre's index number is 110 and Fisher's ideal index number is 109. Then Paasche's index number is

(a) 118
(b) 110
(c) 109
(d) 108 (1 mark)

Decomposition of time series is known as

(a) Detrending

(b) Histogram

(c) Analysis of time series

(d) Historiagram

In time series seasonal variations can occur within a period of

(a) One year
(b) Three year
(c) Nine year
(d) Five year (1 mark)

The Component of time series attached to long term variation is

(a) Secular trend

(b) Cyclical trend

(c) Irregular trend

(d) Long period (1 mark)

_____ variations are usually longer than one year.

(a) Seasonal
(b) Cyclical
(c) Trend
(d) None (1 mark)

Nov 2019

When sale of cold drink increases in summer and decreases in winters is an example of?

(a) Seasonal variations
(b) Cyclic variations
(c) Secular trend
(d) None (1 mark)

Seasonal Variations take place within:

(a) one year
(b) two year
(c) half year
(d) five years

Fisher's index number does not satisfy:

(a) Circular test

(b) Time reversal test

(c) Factor reversal test

(d) Unit test

In semi-average method if the no. of values is odd, we exclude :

(a) First value

(b) Last value

(c) Middle value

(d) None. (1 mark)

Time series has how many components?

(a) Two
(b) Three
(c) Four
(d) Five

CA. PRANAV POPAT

417

#theoryhaizaruri

ca

May 2019

Which is called an ideal index numbers
(a) Laspeyre's index number
(b) Pasche's index number
(c) Fisher's index number
(d) Marshall Edgeworth index number

In semi averages method, if the number of values is odd then we drop:

(a) First value

(b) Last value

(c) Middle value

(d) Middle two value (1 mark)

Which is not satisfied by Fisher's ideal index number?

(a) Factor Reversal Test
(b) Time Reversal Test
(c) Circular Test
(d) None of the above

Trend in semi averages is:

(a) Linear

(b) Parabola

(c) Exponential

(d) None

The most commonly used mathematical method for finding secular trend is

(a) Moving average
(b) Simple average
(c) Exponential
(d) None (1 mark)

Nov 2018

Which of the following statement is true?

(a) Paache's Index Number is based on the base year quantity

(b) Fisher's Index Number is the Arithmetic Mean of Laspeyre's Index Number and Paache's Index number

(c) Arithmetic Mean is the most appropriate average for constructing the index number

(d) Fisher's Index Number is an Ideal Index Number (1 mark)

The simple average method is used to calculate

(a) Trend Variation
(b) Cyclical Variation
(c) Seasonal Variation
(d) Irregular Variation

– 250

The sale of Cold Drink would go up in summers and go down in the winters is an example of

(a) Trend Variation (b) Cyclical Variation

(c) Seasonal Variation (d) Irregular Variation (1 mark)

May 2018

The multiplicative time series model is

(a) $y = T+S+C+I$ (b) $y = TSCI$

(c) $y = a+bx$ (d) $y = a+bx+cx^2$ (1 mark)

Circular test is satisfied by

(a) Lespeyre's Index Number

(b) Paasche's Index Number

(c) The simple geometric mean of price relatives and the weighted aggregative with fixed weights.

(d) None of these (1 mark)

Price -relative is expressed in term of

(a) $P = \frac{P_n}{P_o}$

(b) $P = \frac{P_o}{P_n}$

(c) $P = \frac{P_n}{P_o} \times 100$

(d) $P = \frac{P_o}{P_n} \times 100$

The circular test is an extension of

(a) The time is reversal test (b) The factor reversal test

(c) The unit test (d) None of these.

P_{01} is the index for time

(a) 1 on 0 (b) 0 on 1

(c) 1 on 1 (d) 0 on 0

The number of test of Adequacy is:

(a) 2 (b) 3

(c) 3 (d) 4

A series of numerical figures which show the relative position is called.

(a) Index number (b) Relative number

(c) Absolute number (d) None (1 mark)

Time reversal & factor reversal are:

(a) Quantity Index
(b) Ideal Index
(c) Price Index
(d) Test of consistency