Unit-7

Data Interpretation

UGC NET STUDY MATERIALS

STUDY OF EDUCATION

Sources, Acquisition and Classification of Data

The term 'data' is a plural form of the Latin word **'datum,'** and literally, it means anything that is given.

Different sources have defined the word in different ways. According to the Oxford Encyclopedic English Dictionary, **"data are known facts or things used as a basis for inference or reckoning."**

UNESCO defines data as "facts, concepts, or instructions in a formalised manner suitable for communication, interpretation, or processing by human or automatic means."

Data are defined in McGraw-Hill Encyclopaedia of Science and Technology as **"numerical or qualitative values derived from scientific experiments."**

In social sciences, "data are stated as values or facts, together with their accompanying study design, codebooks, research reports, etc. and are used by researchers for the purpose of secondary analysis."

In humanities, the text, such as Biblical materials or Shakespeare's drama deals with a fixed quantity of data represented by a finite amount of text to be interpreted.

In Information Science, **"data as quantitative facts derived from experimentation, calculation, or direct observation."**

In brief, Data is basically unorganized statistical facts and figures collected for some specific purposes, such as analysis.

Types of Data

As in sciences, data in social sciences are also organised into different types so that their nature can be easily understood. The following categorisation is normally observed in social sciences:

i) **Data with reference to scale of measurement:** Based on the scale of measurement, data can be categorised as follows:

- **Nominal data**
- **Ordinal data**
- **Interval data**
- **Ratio data**

ii) **Data with reference to continuity:** Data with reference to continuity can be categorised as follows:

- **Continuous data**
- **Discrete data**

iii) **Data with reference to the number of characteristics:** Data can also be categorised on the basis of the number of variables considered. These are:

- **Univariate data** –Univariate data are obtained when one characteristic is used for observation, e.g., the performance of students in a given class.
- **Bivariate data** – Bivariate data result when instead of one, two characteristics are measured simultaneously, e.g., height and weight of tenth class students.
- **Multivariate data** – Multivariate data consist of observations on three or more characteristics, e.g., family size, income, and savings in a metropolitan city in India.

iv)**Data with reference to time:** There are two types of data under this category. These are:

a) ***Time series data***: Data recorded in a chronological order a cross-time are referred to as time- series data. It takes different values at different times, e.g., the number of books added to a library in different years, monthly production of steel in a plant, yearly intake of students in a university.

b) ***Cross-sectional data***: This refers to data for the same unit or for different units at a point of time, e.g., data across sections of people, regions or segments of the society.

v) **Data with reference to origin:** Data under this category can be put as follows:

a) ***primary data:*** The data obtained firsthand from individuals by direct observation, counting, and measurement or by interviews or mailing a questionnaire are called primary data. It may be complete enumeration or sampling, e.g., data collected from a market survey.

b) ***Secondary data:*** The data collected initially for the purpose and already published in books or reports but are used later on for some other purpose are referred to as secondary data. For example, data collected from census reports, books, data monographs, etc.

vi)**Data with reference to characteristic**: Data can be categorised on the basis of the characteristics as follows:

a) ***Quantitative data:*** When the characteristic of observation is

quantified, we get quantitative data. Quantitative data result from the measurement of the magnitude of the characteristic used. For example, age of a person, price of a commodity, income of a family, etc.

b) ***Qualitative data:*** When the characteristic of observation is a quality or attribute, we get qualitative data. For example, sex or colour of a person, or intelligence of a student

Sources of Data

The sources of data can be categorised as the followings:

Static Data: Static data is those data that do not change during processing. This type of data cannot be changed when written or printed.

Examples: A newspaper story: hardcopy cannot be changed once printed. Data stored on a CD ROM (not rewritable): a CD ROM cannot be edited.
These are two examples of static data or information as they cannot be changed.

Dynamic data: Dynamic data refers to data that changes during processing – it is updated as and when necessary. The data is never expected to be the same when re-input.

Examples: Data on a webpage that is updated from time to time. Data on a CD RW can be rewritten or edited Data from a stock market. These are examples of dynamic data, as they change with time.

Based on the Origin

Primary source: A primary source is an original document that contains firsthand information about a topic or an event. Primary sources exist on a spectrum, and different fields of study may use different types of primary source documents.

For example, the field of History may use diary entries and letters as primary source evidence, while the Sciences may use a publication of original research as a primary source. Here, some common examples of primary source documents:

- Historical documents (letters, pamphlets, political tracts, manifestos)
- Data and Research Results (scientific article presenting original findings, statistics)
- Original works of art
- Video footage & photographs
- Works of literature

- Interview transcripts
- Eyewitness accounts, newspapers articles & autobiographies
- Blogs articles, tweets, and other social media entries
- Lab notebooks and case studies

Secondary Sources: a secondary source is an **interpretation, analysis, discussion,** or **evaluation** of an event or issue that is based on primary source evidence. Secondary sources list, summarize, compare, and evaluate information and studies, so as to draw conclusions or present on the current state of knowledge on a topic. Secondary sources are often in the form of scholarly discourse or reviews.

Common examples of secondary sources are:

- Biographies
- Indexes, Abstracts, Bibliographies
- Journal articles
- Literary criticism
- Monographs, written about the topic
- Reviews of books, movies, musical recordings, works of arts, etc
- Newsletters and professional news sources

Acquisition of Data (Collection of Data)

The acquisition or collection of data can be categorised based on the sources of data. There are two types of sources; primary sources and secondary sources.

The primary sourced of data can also be called primary data, similarly the secondary sources data is called secondary data. We have already mentioned above what are the sources in primary and secondary sourced data.

Note: ***You can also read the topic of data collection in the Research Aptitude of UGC NET Paper 1***

Graphical Representation and Mapping of Data

The transformation of data through visual methods like graphs, diagrams, maps, and charts is called the representation of data.

The representation of data is the base for any field of study. When we start the collection of data and the range of data increases rapidly, then an efficient and convenient technique for

representing data is needed. It is needed because of the time constraints, efforts and resources. The top-level authority or management does not have enough time to go through whole reports, but any small point of data should not remain hidden from their eyes. Therefore, it is required for presenting the data in such a manner that enables the reader to interpret the essential data with minimum efforts and time.

Data presentation and data representation are two terms having similar meaning and importance. There are several techniques for data presentation, and are broadly categorized in two ways:

1. **Non-graphical techniques:** Tabular Form, Case Form
2. **Graphical techniques:** Pie Chart, Bar Chart, Line Graphs, Geometrical Diagrams

Non-Graphical Techniques: There are two types of non-graphical techniques:

(a) **Tabular Form:** This is better known as numerical data tables. The tabular form is the most commonly used technique for data presentation. This technique provides a correlation or measurement of two values/variables at a time.

(b) **Case Form:** This technique is rarely used. Data is presented in the form of paragraphs and follows a rigid protocol to examine a limited number of variables.

Graphical Representation of Data

The data which has been represented in the tabular form can be displayed in pictorial form by using a graph. A graphical presentation is the easiest way to depict a given set of data. A graphical representation is a visual display of data and statistical results. It is often more effective than presenting data in tabular form. There are different types of graphical representations and which are used depends on the nature of the data and the type of statistical results. Graphical representation is the visual display of data using plots and charts.

Graphical representation helps to quantify, sort, and present data in a method that is understandable to a large variety of audiences.

Visualization techniques are ways of creating and manipulating graphical representations of data. Several types of mediums are used for expressing graphics, including plots, charts, and diagrams.

In literature, we found that words diagram, chart, and graph are commonly being used interchangeably. But the meaning of these words is as follows:

Diagram: A diagram can be defined as a figure generally consisting of lines, made to accompany and geometrical theorem, mathematical demonstration, etc. A drawing, sketch,

or plan that outlines and explains the parts of something is also a type of diagram. For example, a diagram of an engine. Pictorial representation of a quantity or of a relationship is termed as a diagram in simple words.

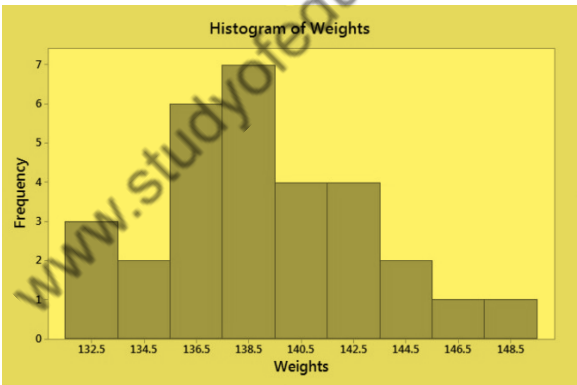
Chart: A sheet exhibiting information in the tabulated or methodical form is also known as a chart. A chart is a graphical representation of data as by lines, curves, bars, etc. of a dependent variable, e.g., temperature, price, etc.

Graph: Graph is simply a diagram in the mathematical or scientific area of study. A drawing representing the relationship between a certain set of numbers or quantities by means of a series of dots, lines, bars, etc. plotted with reference to a set of the axis is called a graph.

Few commonly used graphical representations of data are listed below:

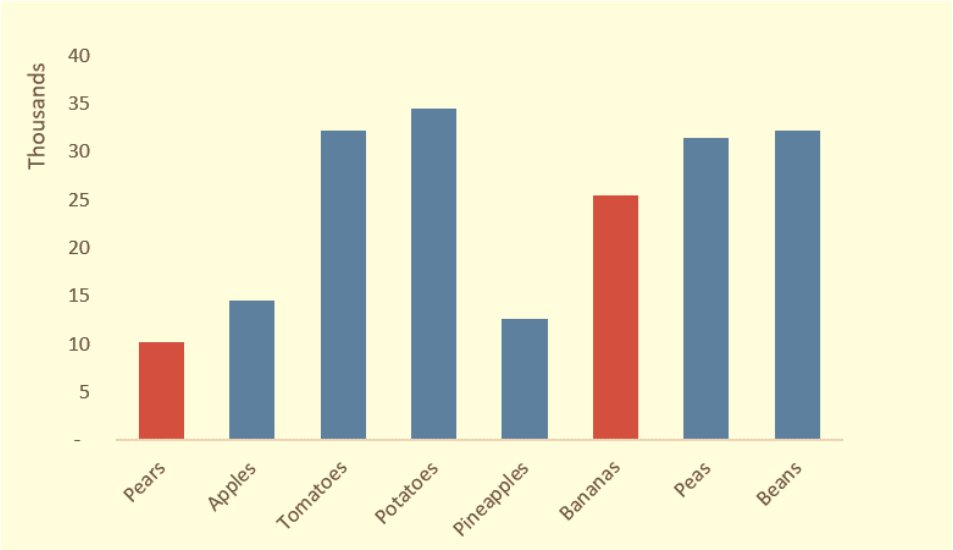
Histogram

- Histogram is represented by a rectangular bar to depict frequency distribution.
- Size of the class interval is represented by width
- Size of the frequency is represented by height.
- Class boundaries/intervals is important in the construction of histogram and represent in horizontal or X axis of the graph.
- Frequency is represented as height in the graph on Y axis.
- Histogram is essentially an area diagram composed of series of adjacent rectangles.



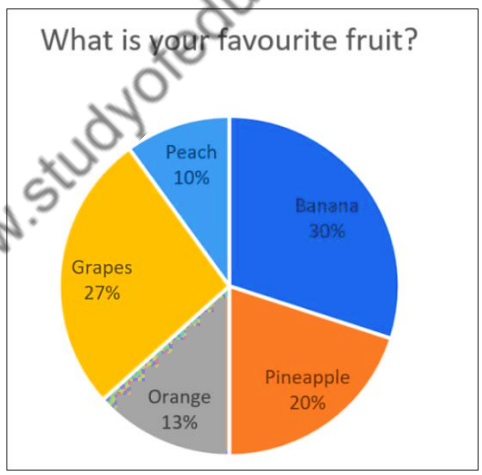
Bar Chart or Bar diagram or Bar graph

- A bar graph is a chart that uses either horizontal or vertical bars to show comparisons among categories.
- One axis of the chart shows the specific categories being compared, and the other axis represents a discrete value.
- Some bar graphs present bars clustered in groups of more than one (grouped bar graphs) and others show the bars divided into subparts to show cumulate effect.



Pie Chart

- A circular graph that represents total value in circle and components in part wise.
- Useful in comparing components and total value.
- Data are expressed in percentage of the total value.
- The total value is equated to 360 degrees.

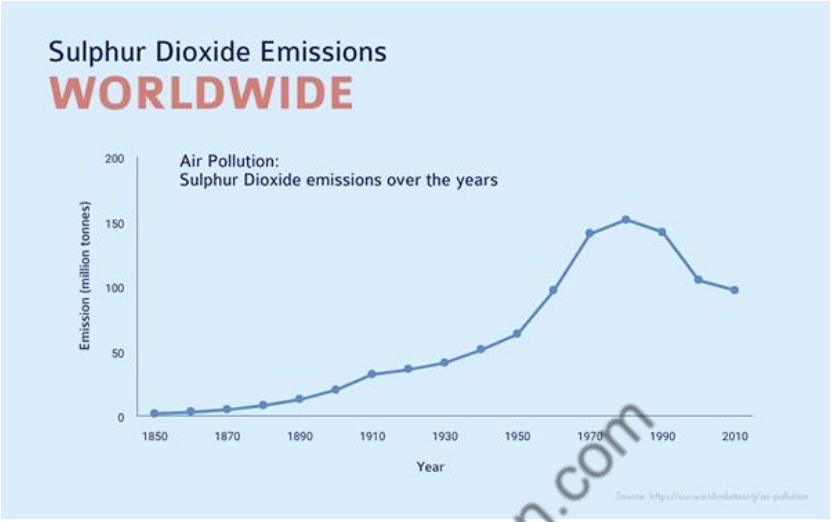


Line Graph or Stick Graph or Line Chart or line plot or Curve Chart

A line chart is the most basic type of chart used in finance, and it is generally created by connecting a series of past recorded data together with a line. It is a style of chart that is created by connecting a series of data points together with a line. Line charts are ideal for representing trends over time.

- Most common graphical representation
- By plotting the X-axis on horizontally while Y-axis vertically.
- Find out the intersecting point of origin and join all intersections.

Example: cricket score in each over.



Some other Graphical Representations are:

- **Frequency polygon**
- **Cumulative frequency curve or Ogive**
- **Pictogram**
- **Stem leaf diagram**
- **Scatter diagram**

Mapping of Data

Data mapping is, in the most simplistic terms, knowing where your information is stored.

In its simplest form, **data mapping** is about relationships. In particular, it is the process of specifying how one information set relates, or maps, to another. Consider an information set that includes a list of people and their contact information. The list contains names, addresses, city, province or state, and postal code for each person. Also, consider a second information set that includes a list of people and their music preferences. This list includes listener, artist, album name, and song name for each listener. The lists are self-contained, somewhat related, but distinct.

Suppose that you wanted to create a mailing list of people who like a particular artist. You

can't quickly get this information because there is no direct way to relate one information set to the other. The solution is to create a mapping between the name in the first information set and the listener in the second information set. The specification of the relationship is called a data mapping. From there, you simply search the related or combined information set for all listeners in the list that like that particular artist. This gives you the corresponding mailing addresses.

For example: on the left side of the figure, 'Name,' 'Email,' and 'Phone' fields from an Excel source are mapped to the relevant fields in a Delimited file, which is our destination.

Data mapping, in its simplest term, is to map source data fields to their related target data fields. For example, the value of let says a source data field A goes into a target data field X.

Benefits of Mapping of Data

Data mapping is essentially a way to surface and prevent issues ahead of time before they create bigger problems later. The benefits are:

- Data mapping neutralizes the potential for data errors and mismatches,
- Aids in the data standardization process, and
- It makes intended data destinations clearer and easier to understand.

Challenges with data mapping

The followings are a few of the significant challenges that can arise with data mapping:

- **Inaccuracy:** Any process undertaken by humans can turn into a liability since the potential for errors and misinformed decisions is so high. Inaccurate, duplicate or otherwise decayed data has little use to the various teams in your organization as it can provide false insights that take the company further from its goals, not closer.
- **Time-wasting:** In-house teams already have enough responsibility on their plates. Tasking them with mapping data means time spent double-checking and re-working scripts and schemas to approach a high

level of accuracy and certainty. And if fields are mapped incorrectly, it can result in significant data loss and even more re-work.

- **Changes:** Rarely can you "set it and forget it" with a data map. Changes can occur at any time — to standards, reporting requirements, software processes, and systems — which makes any prior data map obsolete.

Data Interpretation

Data Interpretation is an extension of Mathematical skill and accuracy that draw conclusions and inferences from a comprehensive data presented numerically in tabular form using an illustration, viz. Graphs, Pie charts, etc. In other words, the act of organizing and interpreting data to get meaningful information is Data Interpretation.

Data Interpretation aims to test not only quantitative skill but also relative, comparative, and analytical ability.

Important tips:

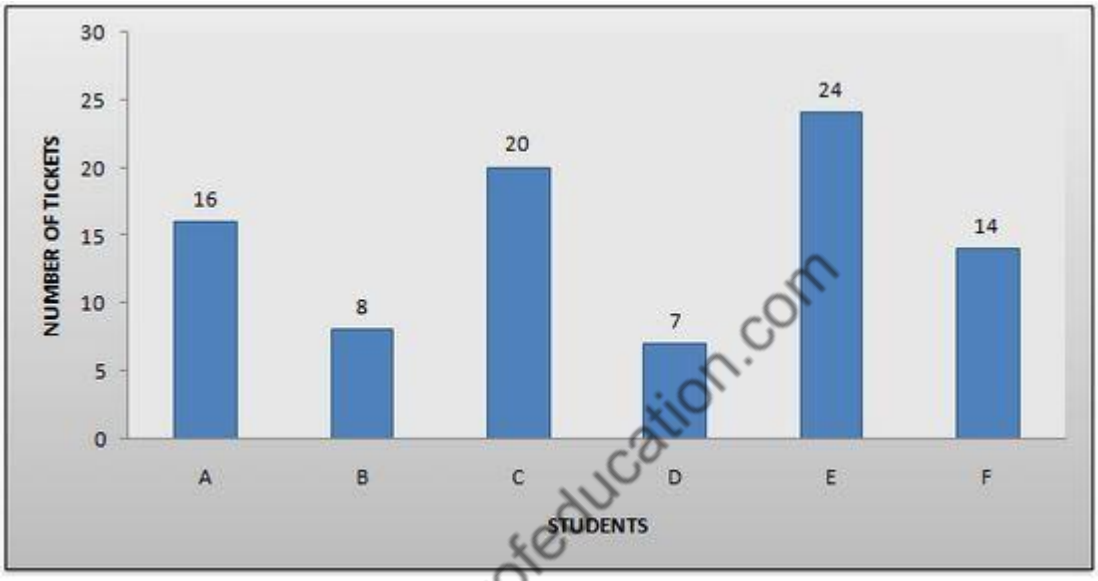
- Before solving the questions of Data Interpretation, you must know the different types of representation of data and the basic mathematical calculation.
- Data Interpretation is an estimation of results based on some data in tabular as well as graphical form.
- The questions are based on the information given in tables and graphs. You have to interpret the information presented and to select the appropriate data for answering the questions.
- Get a general picture of the information before reading the question. Read the given titles carefully and try to understand its nature.
- The questions of Data interpretation do not require to do extensive calculations and computations. Most questions simply require reading the data correctly and carefully and putting them to use directly with common sense.
- Be careful while dealing with units.
- To make reading easier, and to avoid errors, observe graphs keeping them straight.
- Be prepared to apply basic mathematical rules, principles, and formulae.
- Since one of the major benefits of graphs and tables is that they present data in a form that enables you to readily make comparisons, use this

visual attribute of graphs and tables to help you answer the questions.

Where possible, use your eyes instead of your computational skills.

Read more about Tabular and Graphical representation of Data

Example: In the following bar graph, it shows the number of tickets sold by six students A, B. C, D, E, and F during a fair. Observe the graph and answer questions based on it.



Q 1: Total number of tickets sold by A, B and C is:

(a)45
(b)44
(c)42
(d)40

Ans: (b) From the graph given in the question:

Tickets sold by A=16
Tickets sold by B= 8
Tickets sold by C = 20
Hence, the total number of tickets sold by A, B and C = 16 + 8 + 20 = 44

Q 2: The least number of tickets were sold by

(a)B
(b)F
(c)A

(d) D

Ans: (d) From the graph given in the question: Least number of tickets were sold by D. He sold 7 tickets.

Q 3: Total number of tickets sold by D, E and F is:

(a) 47
(b) 46
(c) 45
(d) 44

Ans: (c) From the graph given in the question: Ticket sold by D = 7 Ticket sold by E = 24 Ticket sold by F = 14 Thus, the required answer is = 7 + 24 + 14 = 45.

Example: Study the following table and answer the questions given below it.

PRODUCTION UNITS						
Month	A	B	C	D	E	F
April	310	180	169	137	140	120
May	318	179	177	162	140	122
June	320	160	188	173	135	130
July	326	167	187	180	146	130
August	327	150	185	178	145	128

Q. 1: Which of the following units shows continuous increase in production of sugar over months?

a) B
b) A
c) C
d) D

Ans. (b)

Q. 2: In the case of Unit E, in which of the following pairs of months the production of sugar was equal?

a) June & July
b) April & June
c) July & August

d) April & May

Ans. (d)

Q. 3: In the month of June, how many units have a share of more than 25% of the total production of sugar?

a) one
b) Three
c) Two
d) Four

Ans. (a)

Q 4: What was approximate percentage decrease in sugar production of unit B in June as compared to April?

a) 8 %
b) 1 0%
c) 1 5%
d) 1 8%

Ans. (b)

Data and Governance

Data Governance is the exercise of decision making and authority for data-related matters.

Data Governance refers to the organizational bodies, rules, decision rights, and accountabilities of people and information systems as they perform information-related processes.

It is an umbrella term for an emerging discipline that consists of a number of different practices for data management, data quality, business process management, and risk management. The goal of data governance is to ensure that the data serves the organizational purposes in a sustainable way.

Wikipedia explains as "data governance encompasses the people, processes, and information technology required to create a consistent and proper handling of an organisation's data across the business enterprise. Goals may be defined at all levels of the enterprise and doing so may aid in acceptance of processes by those who will use them."

So, we can conclude as "Data Governance includes the people, processes, and technologies needed to manage and protect the company's data assets in order to guarantee generally understandable, correct, complete, trustworthy, secure and discoverable corporate data."

The data governance may include the followings:

Data governance is about establishing methods, and an organization with clear responsibilities and processes to standardise, integrate, protect, and store organisational data. The main goals of data governance are to:

- Establish internal rules for data use
- Implement compliance requirements
- Minimize risks
- Reduce costs
- Increase the value of data
- Facilitate the administration of the above
- Help to ensure to the existence of the company through risk management and optimization
- Improve internal and external communication

Need for Data Governance

Data quality, data management, and data migration initiatives are booming as a result of the growth in data, demand, and regulation. As these data initiatives increase, they need governance to ensure they fit the needs of the organization and work with one another.
Effective data governance creates a framework for the use of data that fits each

organisation. Data governance improves operational efficiency, application effectiveness and minimizes risk.
Because of data governance, not only do the right people get the right information at the right time, but they also get it in the right way both for their immediate purposes and in a way that works with the data framework for the whole organization.

Why Enterprises Struggle with Data Governance

The followings are the most common barriers to success for data governance initiatives:

Organisational: Different groups within an organization must communicate and coordinate well with one another

Data quality, Data Management, and data migration integration: Applications and data must speak to one another, and this must be addressed upfront and planned for in any integration initiative.

Accountability and ownership of data: People must be held accountable for information assets and supported with technology to ensure the integrity of the assets.

Cost: Data governance initiatives must be implemented in such a way that costs are recouped, and business value is proven

Effective Data Governance

The following are the steps using a repeatable technological framework to ensure effective data governance:

1. Prioritise areas for business improvement
2. Maximize availability of information assets
3. Create roles, responsibilities, and rules
4. Improve and ensure information asset integrity
5. Establish an accountability infrastructure
6. Convert to a master data-based culture
7. Develop a feedback mechanism for process improvement

Classification and Representation of Data

(Bold marked as right answer)

1. When data are classified according to a single characteristic, it is called:

(a) Quantitative classification

(b) Qualitative classification
(c) Area classification
(d) Simple classification

2. Classification of data by attributes is called:
(a) Quantitative classification
(b) Chronological classification
(c) Qualitative classification
(d) Geographical classification

3. Classification of data according to location or areas is called:
(a) Qualitative classification
(b) Quantitative classification
(c) Geographical classification
(d) Chronological classification

4. Classification is applicable in case of:
(a) Normal characters
(b) Quantitative characters
(c) Qualitative characters
(d) Both (b) and (c)

5. In classification, the data are arranged according to:
(a) Similarities
(b) Differences
(c) Percentages
(d) Ratios

6. When data are arranged at regular interval of time, the classification is called:
(a) Qualitative
(b) Quantitative
(c) Chronological
(d) Geographical

7. When an attribute has more than three levels it is called:
(a) Manifold-division

(b) Dichotomy
(c) One-way
(d) Bivariate

8. **In an array, the data are:**
(a) In ascending order
(b) In descending order
(c) Either (a) or (b)
(d) Neither (a) or (b)
(e)

9. **The number of tally sheet count for each value or a group is called:**
(a) Class limit
(b) Class width
(c) Class boundary
(d) Frequency
(e)

10. **The frequency distribution according to individual variate values is called:**
(a) Discrete frequency distribution
(b) Cumulative frequency distribution
(c) Percentage frequency distribution
(d) Continuous frequency distribution

11. **A series arranged according to each and every item is known as:**
(a) Discrete series
(b) Individual series
(c) Time series
(d) Continuous series

12. **A frequency distribution can be:**
(a) Qualitative
(b) Discrete
(c) Continuous
(d) Both (b) and (c)

13. **Frequency distribution is often constructed with the help of:**
(a) Entry table
(b) Tally sheet
(c) Both (a) and (b)
(d) Neither (a) and(b)

14. **The data given as 3, 5, 15, 35, 70, 84, 96 will be called as:**
(a) Individual series
(b) Discrete series

(c) Continuous series
(d) Time series

15. Frequency of a variable is always in:
(a) Fraction form
(b) Percentage form
(c) Less than form
(d) Integer form

16. Data arranged in ascending or descending order of magnitude is called:
(a) Ungrouped data
(b) Grouped data
(c) Discrete frequency distribution
(d) Arrayed data

17. A series of data with exclusive classes along with the corresponding frequencies is called:
(a) Discrete frequency distribution
(b) Continuous frequency distribution
(c) Percentage frequency distribution
(d) Cumulative frequency distribution

18. The number of classes in a frequency distribution is obtained by dividing the range of variable by the:
(a) Total frequency
(b) Class interval
(c) Mid-point
(d) Relative frequency

19. The largest and the smallest values of any given class of a frequency distribution are called:
(a) Class Intervals
(b) Class marks
(c) Class boundaries
(d) Class limits

20. The arrangement of data in rows and columns is called:
(a) Classification
(b) Tabulation
(c) Frequency distribution
(d) (d)Cumulative frequency distribution

21. Diagram are another form of:
(a) Classification
(b) Tabulation
(c) Angle

(d) Percentage

(e)

22. A pie diagram is represented by a:

(a) Rectangle

(b) Circle

(c) Triangle

(d) Square

(e)

23. A sector diagram is also called:

(a) Bar diagram

(b) Histogram

(c) Historigram

(d) Pie diagram

(e)

24. Which of the following is not a one- dimensional diagram?

(a) Simple bar diagram

(b) Multiple bar diagram

(c) Component bar diagram

(d) Pie diagram

(e)

25. Which of the following is a two- dimensional diagram:

(a) Sub-divided bar

(b) Percentage component bar chart

(c) Sub-divided rectangles

(d) Multiple bar diagram

26. Pie diagram represents the components of a factor by:

(a) Circles

(b) Sectors

(c) Angles

(d) Percentages

27. The suitable diagram to represent the data relating to the monthly expenditure on different items by a family is:

(a) Historigram

(b) Histogram

(c) Multiple bar diagram

(d) **Pie diagram**

28. A graph of time series or historical series is called:

(a) Histogram

(b) Historigram

(c) Frequency curve
(d) Frequency polygon

29. The historigram is the graphical presentation of data which are classified:
(a) Geographically
(b) Numerically
(c) Qualitatively
(d) According to time

30. Historigram and histogram are:
(a) Always same
(b) Not same
(c) Off and on same
(d) Randomly same

31. A distribution in which the observations are concentrated at one end of the distribution is called a:
(a) Symmetric distribution
(b) Normal distribution
(c) Skewed distribution
(d) Uniform distribution

32. For graphic presentation of a frequency distribution, the paper to be used is:
(a) Carbon paper
(b) Ordinary paper
(c) Graph paper
(d) Butter paper

33. Histogram can be drawn only for:
(a) Discrete frequency distribution
(b) Continuous frequency distribution
(c) Cumulative frequency distribution
(d) Relative frequency distribution

35. Histogram is a graph of:
(a) Frequency distribution
(b) Time series
(c) Qualitative data
(d) Ogive

36. Histogram and frequency polygon are two graphical representations of:
(a) Frequency distribution
(b) Class boundaries
(c) Class intervals
(d) Class marks

37. Frequency polygon can be drawn with the help of:
(a) Historigram

(b) Histogram
(c) Circle
(d) Percentage

38. The graph of the cumulative frequency distribution is called:
(a) Histogram
(b) Frequency polygon
(c) Pictogram
(d) Ogive

39. **In a cumulative frequency polygon, the cumulative frequency of each class is plotted against:**
(a) Mid-point
(b) Lower class boundary
(c) Upper class boundary
(d) Upper class limit

40. A frequency polygon is a closed figure which is:
(a) One sided
(b) Two sided
(c) Three sided
(d) Many sided

41. Ogive curve can be occurred for the distribution of:
(a) Less than type
(b) More than type
(c) Both (a) and (b)
(d) Neither (a) and (b)

42. The word ogive is also used for:
(a) Frequency polygon
(b) Cumulative frequency polygon
(c) Frequency curve
(d) Histogram

43. Cumulative frequency polygon can be used for the calculation of:
(a) Mean
(b) Median
(c) Mode
(d) Geometric mean

44. Which of the following would be MOST suitable for displaying the proportions of a city's budget spent on different items?
(A) Pie chart
(B) Bar chart
(C) Line graph
(D) Histogram

45. The number of times a certain event has happened is

called:

a) Fate
b) Tally

c) Frequency
d) Probability

46. Data that can take only a limited number of different values is called:

a) Continuous Data
b) Finite data
c) Limited data
d) Discrete Data

47. Data that can take an infinite number of different values is called:

a) Discrete Data
b) Unlimited data
c) Infinite data
d) Continuous Data

48. A histogram is represented by:

a) A component bar chart
b) A multiple bar charts
c) A simple bar charts
d) An adjoining bar charts

49. A straight line diagram representing the same area as a histogram is:

a) A frequency curves
b) An unequal width histogram
c) An equal width histogram
d) A frequency polygon

50 **. 'Frequency density' is calculated in the case of:**

a) Equal width histogram
b) Component bar chart
c) Unequal width histogram
d) Lorenz

(Frequency density is found by dividing the class frequency by the number of standard class widths in that particular class interval. It permits a more accurate picture of relative class frequencies in the case of unequal width histograms.)

50. The relative frequencies of particular components represented visually as sectors of a circle are illustrated using:

a) Bar charts
b) Pie charts
c) Frequency polygons
d) Histograms

(e)

14. A frequency distribution can be:

(e) Qualitative

(f) Discrete

(g) Continuous

(h) Both (b) and (c)

15. Frequency distribution is often constructed with the help of:

(e) Entry table

(f) Tally sheet

(g) Both (a) and (b)

(h) Neither (a) and(b)

14. The data given as 3, 5, 15, 35, 70, 84, 96 will be called as:

(e) Individual series

(f) Discrete series

(g) Continuous series

(h) Time series

34. Frequency of a variable is always in:

(e) Fraction form

(f) Percentage form

(g) Less than form

(h) Integer form

35. Data arranged in ascending or descending order of magnitude is called:

(e) Ungrouped data

(f) Grouped data

(g) Discrete frequency distribution

(h) Arrayed data

36. A series of data with exclusive classes along with the corresponding frequencies is called:

(e) Discrete frequency distribution

(f) Continuous frequency distribution

(g) Percentage frequency distribution

(h) Cumulative frequency distribution

37. The number of classes in a frequency distribution is obtained by dividing the range of variable by the:

(e) Total frequency

(f) Class interval

(g) Mid-point

(h) Relative frequency

38. The largest and the smallest values of any given class of a frequency distribution are called:

(e) Class Intervals

(f) Class marks

(g) Class boundaries

(h) Class limits

39. The arrangement of data in rows and columns is called:

(e) Classification

(f) Tabulation

(g) Frequency distribution (d)Cumulative frequency distribution

40. Diagram are another form of:

(f)Classification

(g) Tabulation

(h) Angle (d)Percentage

41. A pie diagram is represented by a:

(f)Rectangle

(g) Circle

(h) Triangle

(i) Square

42. A sector diagram is also called:

(f)Bar diagram

(g) Histogram

(h) Historigram

(i) Pie diagram

43. Which of the following is not a one- dimensional diagram?

(f)Simple bar diagram

(g) Multiple bar diagram

(h) Component bar diagram

(i) Pie diagram

44. Which of the following is a two- dimensional diagram:

(e) Sub-divided bar

(f) Percentage component bar chart

(g) Sub-divided rectangles

(h) Multiple bar diagram

45. Pie diagram represents the components of a factor by:

(e) Circles

(f) Sectors

(g) Angles

(h) Percentages

46. The suitable diagram to represent the data relating to the monthly expenditure on different items by a family is:

(e) Historigram

(f) Histogram

(g) Multiple bar diagram

(h) **Pie diagram**

47. A graph of time series or historical series is called:

(e) Histogram

(f) Historigram

(g) Frequency curve

(h) Frequency polygon

48. The historigram is the graphical presentation of data which are classified:

(e) Geographically

(f) Numerically

(g) Qualitatively

(h) According to time

49. Historigram and histogram are:

(e) Always same

(f) Not same

(g) Off and on same

(h) Randomly same

50. A distribution in which the observations are concentrated at one end of the distribution is called a:

(e) Symmetric distribution

(f) Normal distribution

(g) Skewed distribution

(h) Uniform distribution

51. For graphic presentation of a frequency distribution, the paper to be used is:

(e) Carbon paper

(f) Ordinary paper

(g) Graph paper

(h) Butter paper

52. Histogram can be drawn only for:

(e) Discrete frequency distribution

(f) Continuous frequency distribution

(g) Cumulative frequency distribution

(h) Relative frequency distribution

51. Histogram is a graph of:

(e) Frequency distribution

(f) Time series

(g) Qualitative data

(h) Ogive

52. Histogram and frequency polygon are two graphical representations of:

(e) Frequency distribution

(f) Class boundaries

(g) Class intervals

(h) Class marks

53. Frequency polygon can be drawn with the help of:

(a) Historigram

(b) Histogram

(c) Circle

(d) Percentage

54. The graph of the cumulative frequency distribution is called:

(a) Histogram

(b) Frequency polygon

(c) Pictogram

(d) Ogive

55. **In a cumulative frequency polygon, the cumulative frequency of each class is plotted against:** (a) Mid-point

(b) Lower class boundary

(c) Upper class boundary

(d) Upper class limit

56. A frequency polygon is a closed figure which is:

(a) One sided

(b) Two sided

(c) Three sided

(d) Many sided

57. Ogive curve can be occurred for the distribution of:

(a) Less than type

(b) More than type

(c) Both (a) and (b)

(d) Neither (a) and (b)

58. The word ogive is also used for:

(a) Frequency polygon

(b) Cumulative frequency polygon

(c) Frequency curve

(d) Histogram

59. Cumulative frequency polygon can be used for the calculation of:

(e) Mean

(f) Median

(g) Mode

(h) Geometric mean

60. Which of the following would be MOST suitable for displaying the proportions of a city's budget spent on different items?

(E) Pie chart

(F) Bar chart

(G) Line graph

(H) Histogram

61. The number of times a certain event has happened is called:

e) Fate

f) Tally

g) Frequency

h) Probability

62. Data that can take only a limited number of different values is called:

e) Continuous Data

f) Finite data

g) Limited data

h) Discrete Data

63. Data that can take an infinite number of different values is called:

e) Discrete Data

f) Unlimited data

g) Infinite data

h) Continuous Data

64. A histogram is represented by:

e) A component bar chart

f) A multiple bar charts

g) A simple bar charts

h) An adjoining bar charts

65. A straight line diagram representing the same area as a histogram is:

e) A frequency curves

f) An unequal width histogram

g) An equal width histogram

h) A frequency polygon

51 **. 'Frequency density' is calculated in the case of:**

e) Equal width histogram

f) Component bar chart

g) Unequal width histogram

h) Lorenz

(Frequency density is found by dividing the class frequency by the number of standard class widths in that particular class interval. It permits a more accurate picture of relative class frequencies in the case of unequal width histograms.)

66. The relative frequencies of particular components represented visually as sectors of a circle are illustrated using:

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h) Histograms