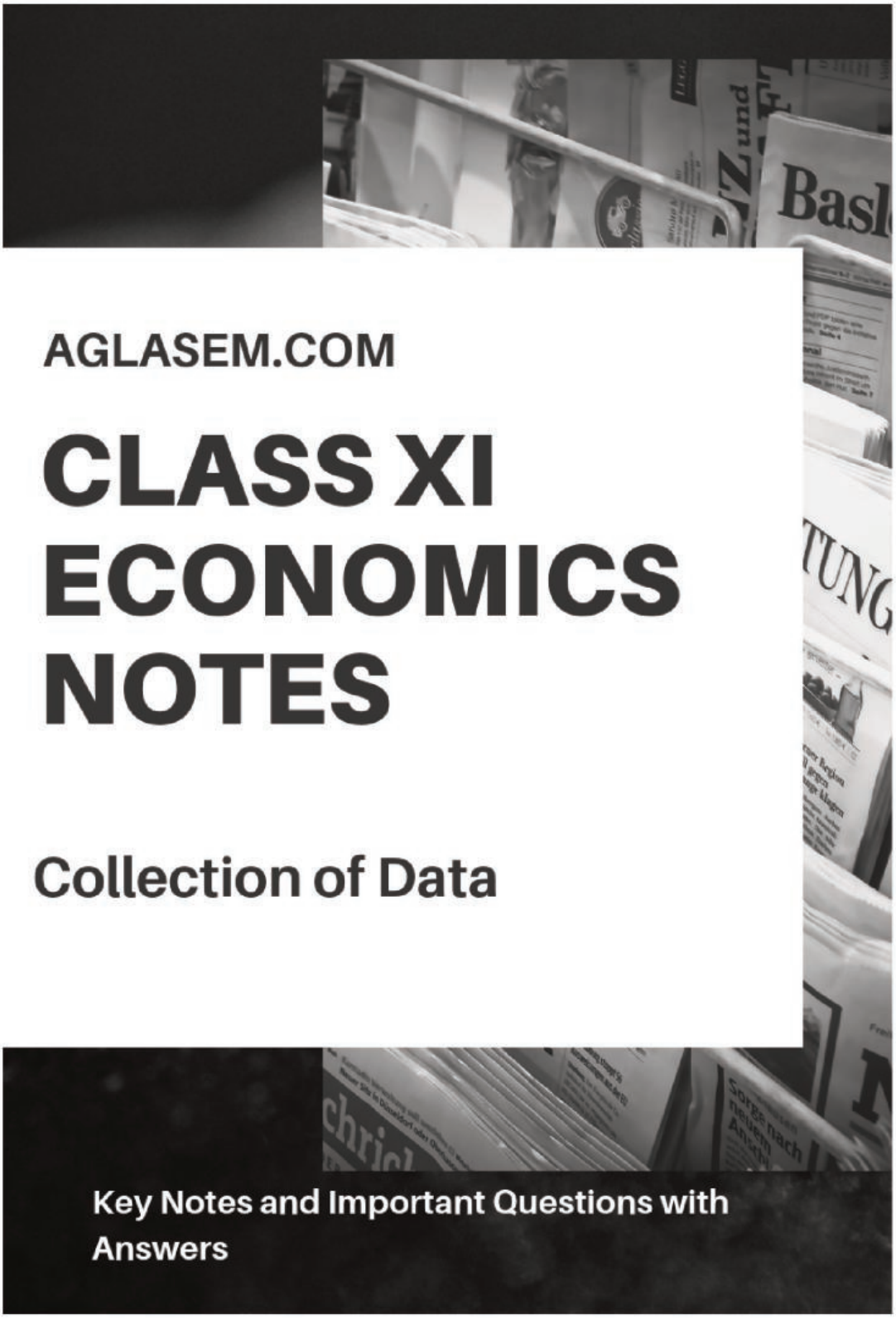


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CLASS XI ECONOMICS NOTES

Collection of Data

Key Notes and Important Questions with Answers

Unit - 2
COLLECTION, ORGANISATION AND PRESENTATION OF DATA

COLLECTION OF DATA

- The data are comparative numerical facts and information. The data are tools which help in reaching a sound conclusion by providing information therefore for statistical investigation, collection of data is the first and foremost.



- **Primary Data –** The data originally collected in the process of investigation are known as primary data. It is first hand data.
- Methods of collecting primary data :–
  i) Personal Interviews
  ii) Mailing (Questionnaire Surveys)
  iii) Telephone Interviews
- **Secondary Data :-** The data which have been collected for some other purposes by some other agencies are called secondary data.
- **Sources of Secondary Data :-**
  1) Published sources
  2) Unpublished sources
  3) Other sources – Web site
- Important points to be kept in mind while drafting the questionnaire.
  1) Introduction and purpose of investigation.
  2) Reasonable number of questions.
  3) Questions should be arranged logically.
  4) Questions should be small and clear.
  5) Questions should be relevant to the investigation.
  6) Personal questions should be avoided.
  7) Avoid calculative questions.

Methods of Sampling

Random Sampling

(a) Simple or Unrestricted Random Sampling
(b) Restricted Random Sampling
(c) Stratified Sampling
(d) Systematic
(e) Multistages Sampling

Non-Random Sampling

a) Judgement Sampling
b) Quota Sampling
c) Convenience Sampling

- **Census Survey :** - In this method every element of population is included in investigation.
- **Sample Survey :**- In this method a group of units representing all the units of population is investigated.
- **Sampling Errors** :- Sampling error is the difference between the result of studying a sample and the result of the census of the whole population.
- **Non-Sampling Errors** :- It can occur in any type of survey whether it be a census or sample survey.

Types of Error

Sampling Errors	**Non-Sampling Error**
1. Biased Errors	1. Error in data acquisition
2. Unbiased Errors	2. Non-Response Error
	3. Measurement Error

Census of India and National Sample Survey Office (NSSO)

- The census of India provides the most complete and continuous demographic record of population.
- The NSSO was established by the Govt. of India to conduct nation wide survey on socio -economic issues like employment literacy, maternity, child care, utilisation of public distribution system etc.
- The data collected by NSSO survey are released through reports and its quarterly journal 'Sarvekshana'.

QUESTION BANK

ONE (1) MARK QUESTIONS :-

1) What are the two main sources of data?
2) What is data?
3) Give the meaning of primary data.
4) What is secondary data?
5) Write the meaning of population in statistics.
6) Define sample.
7) What is direct personal investigation?
8) What is random sampling?
9) Name any two sources of secondary data.
10) What is NSSO?
11) What is sampling error?
12) What are non sampling errors?
13) Main demarit of mailing question naire is that the respondents.
    (i) do not answer the questions.
    (ii) do not read them carefully.
    (iii) do not send it back.
    (iv) All the above.
14) What type of questions should not be included in a questionnaire?
    (i) Simple (ii) Multiple choice
    (iii) Personal (iv) Specific
15) 'Census of India' collect data related to :
    (i) Industry (ii) National Income
    (iii) Agriculture (iv) Demography

THREE & FOUR (3 & 4) MARKS QUESTIONS :-

1) Differentiate between the primary data and the secondary data ?
2) Differentiate between census and sample ?
3) Distinguish between sampling and non sampling error ?

4) Discuss the stratified sampling with an example ?

5) Write two merits and two demerits of Census method ?

6) Mention four demerits of sample method ?

7) What do you mean by random sampling ?

8) What is pilot survey ? Explain its importance ?

9) What are the essentials of a sample ?

10) Census of India is the main source of secondary data. Explain.

11) What precautions are necessary while using secondary data?

12) Differentiate between direct personal investigation and indirect oral investigation.

13) "Sampling is a necessity under certain conditions". Explain.

14) What information does the reports and publications of NSSO contain?

15) What is the difference between questionnaire and schedule?

SIX (6) MARKS QUESTIONS :-

1) Explain the random methods of collecting samples.

2) Briefly, explains the functions of NSSO.

3) Explains the merits and demerits of Census method.

4) Explain the merits and demerits of personal interview method.

5) What is a questionnaire? Write the qualities of a good questionnaire.

6) Explain, why a sample survey is usually preferred over a census survey.

7) What are the merits and demerits of telephonic interview?

ANSWERS OF ONE MARK QUESTIONS

1) (i) Internal sources (ii) External sources

2) The data are tools which help in reaching a sound conclusion by providing information.

3) The primary data are original data which are collected for the first time by an investigator.

4) The data which have been collected for some other purposes by some other agencies are called secondary data.

5) In statistics population or universe simply refers to an aggregate of items to be studied for an investigation.

6) A group of items taken from the population for investigation and representative of all the items.

7) It is method of investigation in which data are collected personally by the investigator by asking questions.

8) A method in which each item of the universe has equal chance of being selected in the sample.

9) (i) Published sources (ii) Unpublished sources

10) NSSO is the largest organisation which conducts regular socio economic survery.

11) The sampling error is the difference between the result of studying a sample and the result of the census of the whole population.

12) The errors that occur in acquiring, recording or tabulating statistical data.

13) (iv)

14) (iii)

15) (iv)

Exam Oriented Questions with Answers

Q.1. Explain difference between the primary data and the secondary data.

Ans. 1) The data collected by the investigator for his own purpose for the first time are called primary data.

2) These are original as these are collected from the source of origin.

3) These are costlier in terms of time, money and efforts involved.

4) Example : Investigator makes a list of marks obtained by students in economics of class XI by interrogating them.

- **Secondary Data**

1) Data which are already in existence and which have been collected for some other purposes are called secondary data.

2) These are not original as these are already in existence. These can be obtained from published or from any other sources.

3) These are less costlier in terms of time, money and efforts involved.

4) Example : Investigator collects the marks obtained by class teacher in economics of class XI from his school records like award list, result register etc.

Q.2. What is personal interviews? Write the merits and demerits of personal interviews.

Ans. Personal Interviews : This method is used when the researcher has access to all the members. The researcher conducts face to face interviews with the respondents. The interviewer has the opportunity of explaining the study and answering any query of respondents.

Merits :

1) Get the highest response rate by this method.

2) The Misinterpretation and the misunderstanding can be avoided.

3) Watching the reactions of respondents can provide supplementary information.

4) Allows clarification of ambiguous questions.

Demerits :

1) It is expensive.
2) It requires trained interviewer.
3) It takes longer time to complete the survey.
4) Presence of the researcher may inhibit respondents from saying what they really think.

Q.3. Differentiate between the census method and the sample method.

Ans. Census Method :

1) The Census covers every individual/unit belonging to the population.
2) Since all items are studied under census method, highest degree of accuracy is possible.
3) As all items are studied under census method, this method is very expensive and involves a lot of money and efforts.
4) The Census method is very time consuming as all items are studied.
5) The Census method is suitable when items in the universe have diverse characteristics.
6) This method is suitable when the area under investigation is relatively small.

Sample Method :

1) The Sample is a smaller group selected from the population from which the relevant information would be sought.
2) Since only representative samples are studied under sample method. It is less accurate. However errors can be easily detected and removed.
3) As only few samples are studied under sample method, this method is comparatively less expensive.
4) The Sample method is less time consuming as only samples are studied.
5) The Sample method is suitable when items in the universe are homogeneous.
6) This method is suitable when the area under investigation is large.

ORGANISATION OF DATA

- Organisation of data refers to the systematic editing, arrangement and classification of facts and figures (raw data) in such a form that comparison of masses of similar data may be facilitated and further analysis may be possible.
- Classification is the process of arranging data into sequences and groups according to their common characteristics of separating them into different but related parts.
- **Characteristics of classification :-**
  1) Homogeneity
  2) Clarity
  3) Flexibility
  4) Diversification
  5) Elasticity
  6) Suitability
- **Basis of classification :**
  1) **Chronological classifications :-** The data are classified either in ascending or in descending order with reference to time such as years, quarters, months, weeks etc.
  2) **Spatial classification** :- The data are classified with reference of geographical location such as countries, states, cities, districts etc.
  3) **Qualititative classification** :- The data are classified with reference to descriptive characteristics like sex, caste, religion, literacy etc.
  4) **Quantitative classification** :- The data are classified on the basis of some measurable characteristics such as height, age, weight, income, marks of students etc.

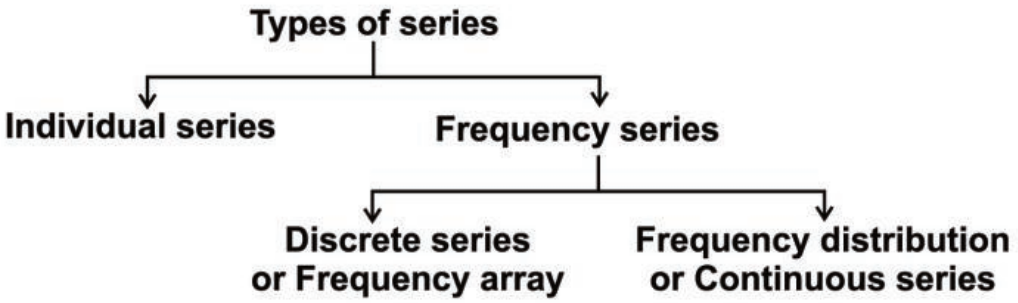
     Variable :- Variable is a characteristic which is capable of being measured and capable of change in its value from time to time. There are two types of variables.

a) **Discrete variables :-** Those variables that increase in jumps or in complete numbers and are not fractional. For example number of students, number of workers.

b) **Continuous Variables :-** Those variables which can take all the possible values (integral as well as fractional in a given specific range. For example height, weight etc.

- **Frequency distribution** :- The distribution of observations over the several values is called frequency distribution.
- **Class interval** :- The magnitude spreads between the lower and upper class limits is called interval. for example 10-20, 10 is the lower limit and 20 is the upper limit.
- **Class frequency** :- The number of values in each of the quantitative classes are called the class frequency.
- **Mid-point :-** The mid-value which lies half way between the lower and upper class limits is known as mid-point, or it is the central point of a class interval.

$$\frac{10+20}{2} = 15$$



- **Range:-** Range is the difference between the largest and smallest observation.
- **Univariate Frequency Distribution:-** The frequency distribution of a single variable is called a univariate distribution.

  Example: Marks of a student.

- **Bivariate Frequency Distribution:-** A bivariate frequency distribution is the frequency distribution of two variables.

  Example: The tables shows the sales and advertisement expenditure of the firm.

- **Exclusive Method:-** Under this method upper limits are excluded. The upper limit of class interval is the lower limit of the next class interval. For example, if the marks obtained by students are grouped as 5–10, 10–15, 15–20, 20–25 etc. If the marks of a student is 15 then it will be included in 15–20,not in 10–15.
- **Inclusive Method:-** Under this method upper limits are included in respective classes. For example if the marks obtained by students are grouped as 5–9, 10–14, 15–19, 20–24 etc. If the marks of a student is 5 to 9 than that will be included in this class.
- **Loss of Information :** The classification of data as a frequency distribution has an inherent short coming, while it summarises the raw data making it concise and comprehensible. It does not show the details that are found in raw data. So there is a loss of information in classifying raw data.
- **Individual series** :- The Individual series are those series in which items are listed singly. For example :-

Roll No.	Marks
1	18
2	95
3	82
4	59
5	92

- **Discrete series (Frequency array)** :- That series in which data are prescribed in array that exact measurements of items are clearly shown. For example :-

Size of household	No. of household
1	15
2	10
3	20
4	30
5	15
6	10

- **Continuous series Frequency Distribution** :- It is that series in which items cannot be exactly measured. The items assume a range of values and are placed within the range of limits. For example :-

Marks	Frequency
0-10	5
10-20	7
20-30	10
30-40	8

QUESTION BANK

ONE (1) MARK QUESTIONS :-

1) State the meaning of classification.
2) State the meaning of qualitative classification.
3) What is variable ?
4) Give the meaning of mid-value.
5) Define discrete series or frequency array.
6) Define class-interval.
7) Give the meaning of exclusive series.
8) What is meant by frequency ?
9) What do you mean by continuous variable ?

THREE & FOUR (3 & 4) MARKS QUESTIONS :-

1) State the objectives of classification.
2) Write the characteristics of a good classification.
3) Difference between discrete and continuous variables.
4) Write two advantages of classification.
5) Marks of 10 students are given below, Arrange them into ascending order and descending order.

   48, 50, 35, 40, 60, 55, 25, 75, 45, 65
6) By using exclusive method and inclusive method make a frequency distribution from following data :-

   33, 10, 17, 15, 20, 12, 18, 16, 20, 22, 29, 29, 23, 24, 16, 11, 16, 19, 24, 30, 29, 18, 42, 26, 32, 14, 40, 20, 23, 27, 30, 12, 15, 18, 24, 36, 18, 48, 21, 28

SIX (6) MARKS QUESTIONS :-

1) Explain the types of classification of data.

2) Define statistical series. How many types of these are ?

3) Do you agree that classified data is better than raw data ? why ?

ANSWER OF ONE (1) MARK QUESTIONS

1) Classification is the grouping of related facts into different classes.

2) The classification according to qualities or attributes of the data are called qualitative classification.

3) Variable is a characteristic which is capable of being measured and capable of changing in its value from time to time.

4) It lies halfway between the lower class limit and the upper class limit of a class.

5) A discrete series or frequency array is that series in which data are presented in a way that exact measurement of items are clearly shown.

6) The magnitude spreads between the lower and upper class limit is called class interval.

7) When the class intervals are so fixed that the upper limit of one class interval is the lower limit of the next class interval it is called an exclusive series.

8) Frequency is number of times an item repeats itself in the series.

9) Those variables which can take all the possible values (integral as well as fractional) in a given specified range.

Exam Oriented Questions with Answers

Q.1. Discuss the different methods of classification of data.

Ans. The raw data is classified in various ways depending on the purpose.

1) Chronological Classification :- In such a classification data are classified either in ascending or in descending order with reference to time such as years, quarters, months, weeks etc.

2) Spatial Classification :- The data are classified with reference to geographical locations such as countries, states, cities, districts etc.

3) Qualitative classifications Characteristics like nationality, literacy, religion, gender, marital status etc. are called qualities or attributes. They can not be measured. Yet these attributes can be classified on the basis of either the presence or the absence of a qualitative classification.

4) Quantitative classification :- Characteristics like height, weight, age, income, makers of students etc, are quantitative in nature. When the collected data of such characteristics are grouped into classes. It becomes a quantitative classification.

Q.2. Explain characteristics of classification.

Ans. The main characteristics of classification are :

1) Homogeneity : The data classified in one group or class should be homogeneous all items in a group must be similar to each other.

2) Clarity : Classification should be done in such a way that meaningful conclusion is possible. Each item of the data should belong to one particular class only. There should be no confusion about the group or class of a given item.

3) Flexibility : Classification should be flexible and should able to adapt to new condition of the given enquiry. Some of the classes may have to be abandoned and new classes need to be added.

4) **Diversification :** Classification should be done in such a way that every items of study can be classified into class. If all items are not included in the classes arrangement of data will not be correct.

5) **Suitable to objectives of study :** The basis selected for classification should be in accordance with the objectives of the statistical study. If basis selected for classification do not match the requirement, the entire exercise of investigation will be meaningless.

Q.3. Construct a discrete frequency series the help of following data **by arranging in ascending order.**

Marks

6 6 5 7 9 8 7 4 8 4

6 5 7 5 9 7 8 5 6 5

Ans.

Marks	Tally-bars	Frequency
4	II	2
5	𝍸	5
6	IIII	4
7	IIII	4
8	III	3
9	II	2
	Total —	20

Q.4. Prepare a frequency distribution by inclusive method taking class interval of 7 from the following data :

28 17 15 22 29 21 23 27 18 12 7 2 9 4 6 1 8 3 10 5

20 16 12 8 4 33 27 21 15 9 3 36 27 18 9 2 4 6 32 31

29 18 14 13 15 11 9 7 1 5 37 32 28 26 24 20 19 25 19 20

Ans

Class Interval	Tally-bars	Frequency
1-7	𝍸 𝍸 𝍸	15
8-14	𝍸 𝍸 II	12
15-21	𝍸 𝍸 𝍸	15
22-28	𝍸 IIII	09
29-35	𝍸 II	07
36-42	II	02
	Total —	60

Q.5. What is 'loss of information' in classified data?

Ans. The frequency distribution summarises the raw data by making it concise and comprehensible. However, it does not show the details that are found in raw data and leads to loss of information. When the raw data is grouped into classes, an individual observation has no significance in further statistical calculations. For example, the class 20-30 contains 5 observations : 22, 25, 23, 28, 27. So, when these data are grouped as a class 20-30, then individual values have no significance and only frequency i.e., 5 is recorded and not their actual values. All values in this class are assumed to be equal to the middle value of the class interval. Statistical calculations are based on the values of class mark instead of the actual values. As a result, it leads to considerable loss of information.

PRESENTATION OF DATA

The data are generally voluminous; they need to be put in a compact and presentable form. There are generally three forms of presentation of data:

1. Tabular Presentation of Data
2. Diagrammatic Presentation of Data
   (a) Geometric form
   (b) Frequency diagram
   (c) Arithmetic line graphs
3. Graphical Presentation of Data
   - 1. Histogram
   - 2. Polygon
   - 3. Frequency curve
   - 4. Ogive

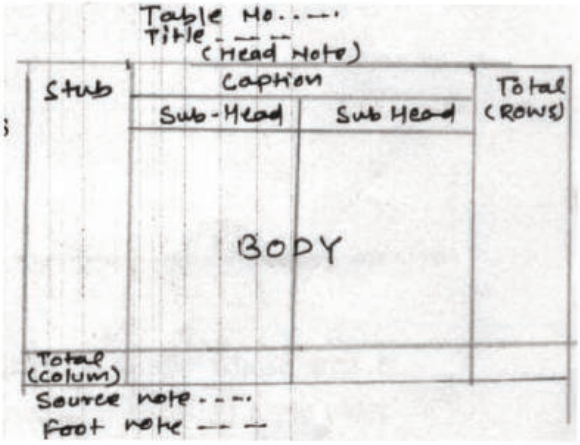
Tabular Presentation of Data :-

In a tabular presentation, data are presented in rows (horizontally) and columns (vertically). The most important advantage of tabulation is that it organises data for further statistical treatment and decision making.

To construct a table it is important to learn first what the parts of a good statistical table are. When put together in a systematically ordered manner these parts form a table. The simplest way of conceptualising a table may be data presented in rows and columns along with some explanatory notes.

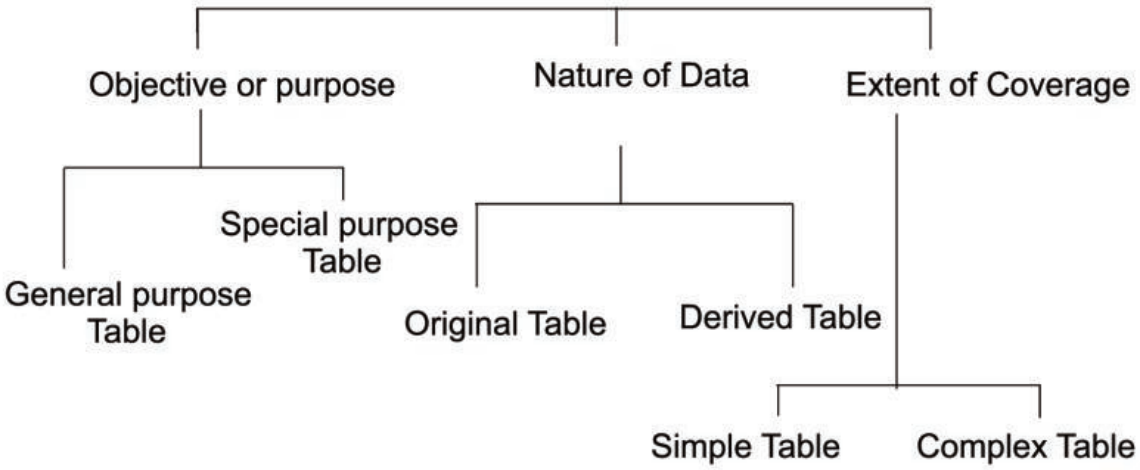
Tabulation can be done using one-way, two-way or three-way classification depending upon the number of characteristics involved. A good table should essentially has the following:

i. Table Number
ii. Title
iii. Captions or Column Headings
iv. Stubs or Row Headings
v. Body of the Table
vi. Unit of Measurement
vii. Source Note
viii. Footnote



Basis of classification of table

1.



2. **Merits of Tabular Presentation**

   1. Simple and Brief Presentation
   2. Easy Analysis
   3. Facilitates Comparison
   4. Economical
   5. Highlights Characteristics of Data

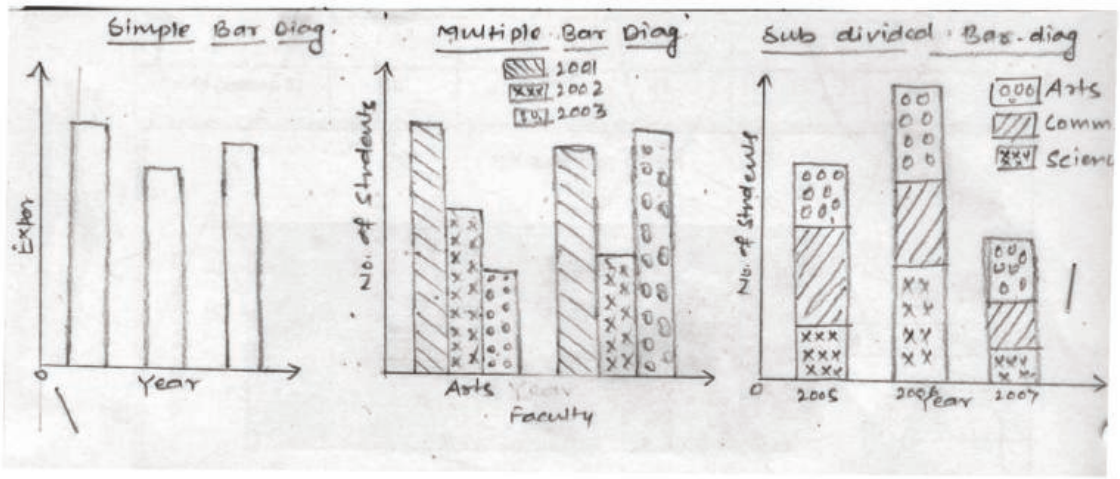
Diagrammatic Presentation of Data :-

This method provides the quickest understanding of the actual situation to be explained by data in comparison to tabular or textual presentations. Diagrammatic presentation of data translates quite effectively the highly abstract ideas contained in numbers into more concrete and easily comprehensible form.

Diagrams may be more or less accurate but are much more effective than tables in presenting the data. There are various kinds of diagrams in common use. There are two main types of the Diagrammatic representation.

   1. Bar Diagram
   2. Pie Diagram

1. **Bar diagram:** Bar diagram comprises a group of rectangular bars for each category of data. Height or length of the bar reads the magnitude of data. Bars of a bar diagram can be visually compared by their relative height and accordingly data are comprehended quickly.

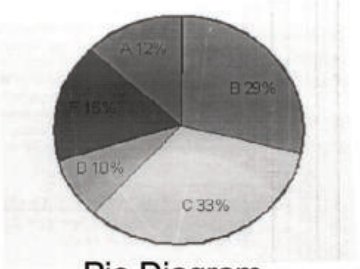


2. **Pie Diagrams:** A pie diagram is a component diagram. A circle whose area is proportionally divided among the components it represents. It is called a pie chart. Also called Angular Diagram circle diagram, circle graph, pizza chart, or sector graph. The circle is divided into as many parts as there are components by drawing straight lines from the center to the circumference.

1. Pie charts usually are not drawn with absolute values of a category. The values of each category are first expressed as percentage of the total value of all the categories.

2. A circle in a pie chart, irrespective of its value of radius, is thought of having 100 equal parts of 3.6° (360°/100) each. To find out the angle, the component shall subtend at the center of the circle, each percentage figure of every component is multiplied by 3.6°.

3. It may be interesting to note that data represented by a component can be represented equally well by a pie chart, the only requirement being that absolute values of the components have to be converted into percentages before they can be used for a pie diagram.



Pie Diagram

$$\text{Angular Part in Circle} = \frac{\text{Value of Component}}{\text{Total Value}} \times 360^{\circ}$$

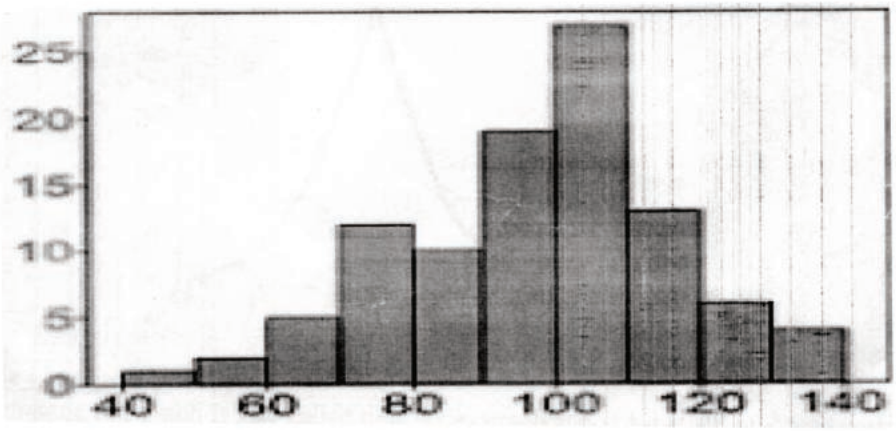
$$\text{i.e. } A^{\circ} = \frac{C}{T} \times 360^{\circ}$$

Graphical Presentations of Data : The Graphical presentations are two types i.e. Frequency diagram and Arithmetic Graph.

Frequency Diagram : The data in the form of grouped frequency distributions are generally represented by frequency diagrams like histogram, polygon Frequency curve and ogive.

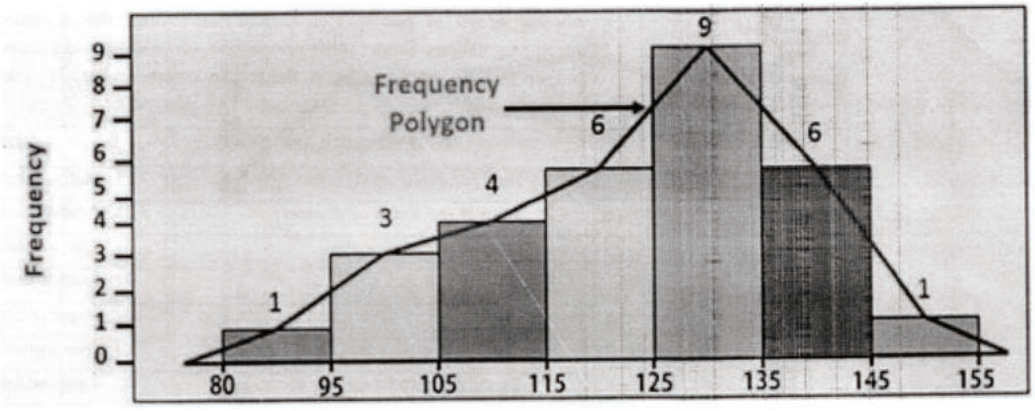
1. **Histogram :** A histogram is a two dimensional diagram. It is a set of rectangles with bases as the intervals between class interval (along X-axis) and with areas proportional to the class frequency.

- For graphical representation of such data, height for area of a rectangle is the quotient of height (here frequency) and base (here width of the class interval).
- A histogram is never drawn for a discrete variable/data
- If the classes are not continuous they are first converted into continuous classes.
- A histogram looks similar to a bar diagram. But there are more differences than similarities between the two than it may appear at the first impression.
- Moreover, in histogram no space is left in between two rectangles, but in a bar diagram some space must be left between consecutive rectangles.
- Although the bars have the same width, the width of a bar is unimportant for the purpose of comparison. The width in a histogram is as important as its height.
- We can have a bar diagram both for discrete and continuous variables, but histogram is drawn only for a continuous variable. Histogram also gives value of mode of the frequency distribution graphically.



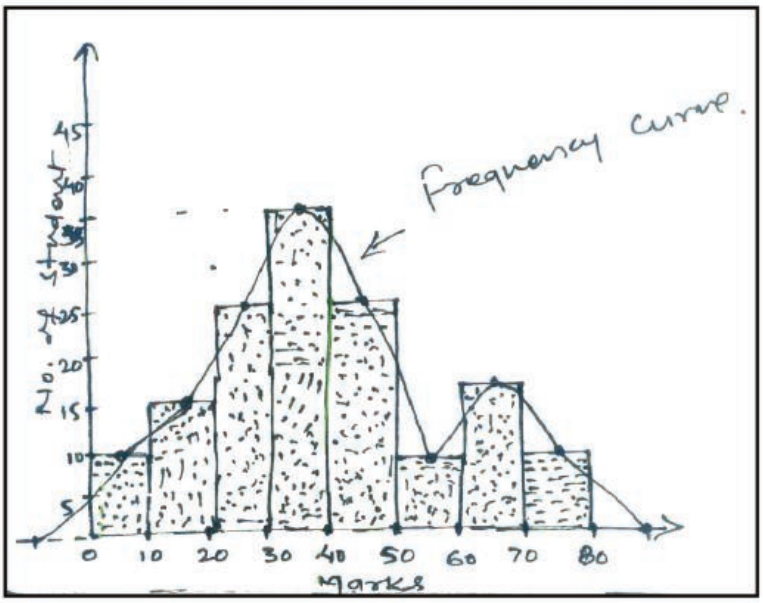
Histogram

2. Polygon : A frequency polygon is a plane bounded by straight lines, usually four or more lines. Frequency polygon is an alternative to histogram and is also derived from histogram itself. A frequency polygon can be fitted to a histogram for studying the shape of the curve. The simplest method of drawing a frequency polygon is to join the midpoints of the topside of the consecutive rectangles of the histogram.

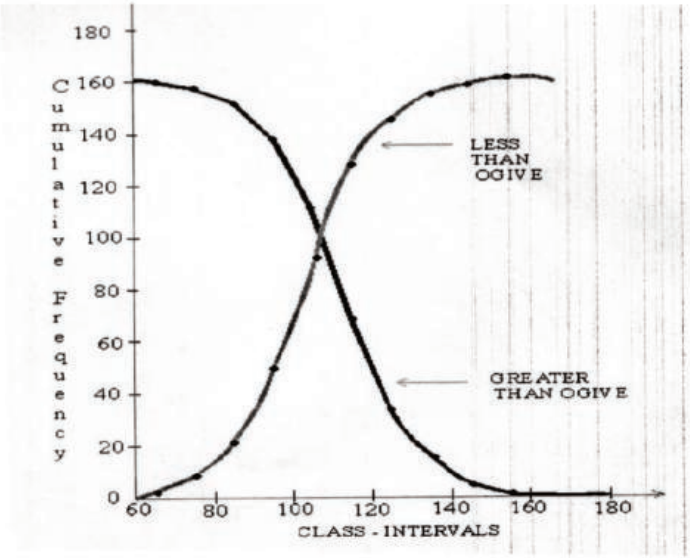


3. Frequency Curve : It is the free hand curve passing through the mid-points of the tops of rectangle of a histogram. It is also known as smoothed frequency curve.

As a generated rule, the curve should start and end at the base line.



4. Ogive : Ogive is also called cumulative frequency curve. As there are two types of cumulative frequencies, for example less than type and more than type, accordingly there are two ogives for any grouped frequency distribution data. Here in place of simple frequencies as in the case of frequency polygon, cumulative frequencies are plotted along Y-axis against class limits of the frequency distribution. For less than ogive the cumulative frequencies are plotted against the respective upper limits of the class intervals whereas for more than ogives the cumulative frequencies are plotted against the respective lower limits of the class interval. An interesting feature of the two ogives together is that their intersection point gives the median.



- Arithmetic Line Graph

An arithmetic line graph is also called time series graph and is a method of diagrammatic presentation of data. In it, time (hour, day/date, week, month, year, etc.) is plotted along x-axis and the value of the variable (time series data) along y-axis. A line graph by joining these plotted points, thus, obtained is called arithmetic' line graph (time series graph). It help's in understanding the trend, periodicity, etc. in a long term time series data.

Two types of Graphs :-

(i) One variable graphs

(ii) Two or more variable graphs

General Rules for Constructing Diagram and Graphs :-

(i) Proper size

(ii) Proper heading

(iii) Proper scale

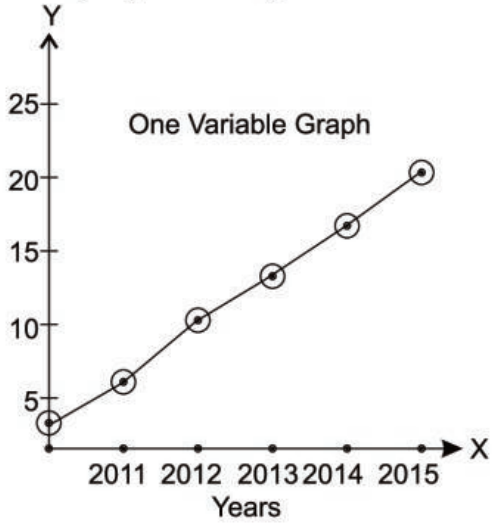
(iv) Use of signs and colours only

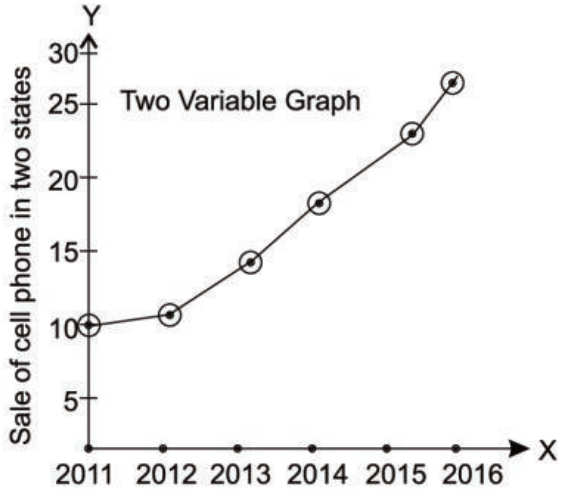
(v) Less use of words.

(vi) Simple

(vii) From left to right or bottom to top

(viii) Drawing the border





Limitations of Diagramatic Presentation or Graphic Presentation:-

1. Limited use
2. Misuse
3. Only preliminary conclusions.

QUESTION BANK

ONE (1) MARK QUESTIONS :-

1. What is meant by tabulation?
2. Define caption as a part of table.
3. What is meant by manifold table ?
4. Define the bar diagrams.
5. Give the meaning of the sub-divided bar diagrams.
6. Define pie-diagram.
7. What is meant by histogram ?
8. Give the meaning of frequency curve.
9. Write the name of the curve which is formed by joining mid point of the top of all rectangles in histogram.
10. Define the ogive curve.
11. Give the meaning of false base line.

THREE & FOUR (3 & 4) MARKS QUESTIONS :-

1. State three features of a good table.
2. State the merits of tabular presentation.
3. Define pie-diagram. Write the steps of making pie-diagram.
4. State any three differences between tabulation and diagrammatic presentation.
5. Present the following data by multiple bar diagram. Number of students in respective classes/sections (year wise) give below:

Year	XI A	XI B	XI C
2011-12	500	300	200
2012-13	600	250	300
2013-14	700	350	400

6. Present the following data of final consumption expenditure of family with the help of a pie-diagram.

Items	% of Income Spent
Cloths	15
Food	60
Education	10
Electricity	5
Others	10

7. Make a pie diagram from following data :

Marks	No. of students
0-9	4
10-19	17
20-29	25
30-39	32
40-49	13
50-59	6

8. Present the following data in a pie-diagram.

Items	% expenditure
Labour	27.2%
Bricks	12.9%
Steel	15.4%
Cement	15.9%
Timber	12.5%
Supervison	16.1%

SIX (6) MARKS QUESTIONS :-

1. Explain the main parts of a table.
2. Explain the precautions while constructing of an ideal table.
3. Draw ogive curve less than and more than with the help of following data .

Marks	No. of students
0-10	7
10-20	12
20-30	15
30-40	30
40-50	22
50-60	14

4. Make a frequency polygon or frequency curve.

Marks	No. of students
30-35	10
35-40	12
40-45	20
40-45	26
45-50	20
50-55	38
55-60	28
60-65	18
65-70	12

ANSWER OF ONE (1) MARK QUESTIONS

1. The method of arranging data orderly in form of rows and columns is known as tabulation.
2. The Caption is the title given to the columns of a table. It indicates information contained in the columns.
3. The Manifold table shows more than three characteristics of the data.
4. The Bar diagrams are those diagrams in which data are presented in the form of bars and rectangles.
5. The Sub divided bar diagrams are those diagrams in which more than one data are presented simultaneously, total values and parts there in set of data.
6. The Pie diagram is a circle divided into various segment showing the percent value of a series.
7. The Histogram is a graphical presentation of a frequency distribution of a continuous series.
8. The Frequency curve is obtained by joining the points of a frequency polygon through freehand smoothed curves not by straight lines.
9. Frequency polygon.
10. It is the curve which is constructed by plotting cumulative frequency data on the graph paper in a form of a smooth curve.
11. If there is a large gap between zero and minimum value of a variable than to minimise this gap we use false base line.