

1. Statistical Description of Data

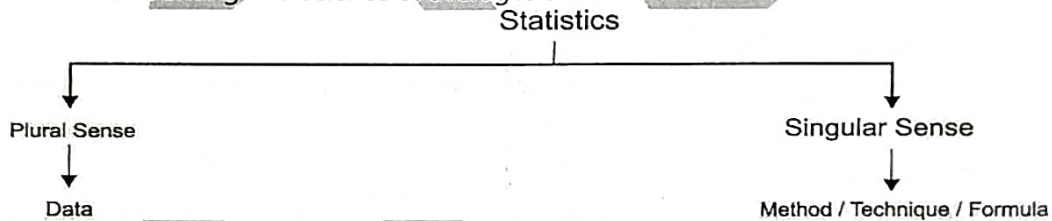
History of statistics

Country	Name
Latin	Status
Italian	Statista
German	Statistik
French	Statisque

Author	Book	Reign	Period
Kautalya	Arthashastra	Chandragupta	4 th Century BC
Abu Fazl	Ain-i-Akbari	Akbar	16 th Century AD

Definition:-

"Statistics is science of counting and science of averages".

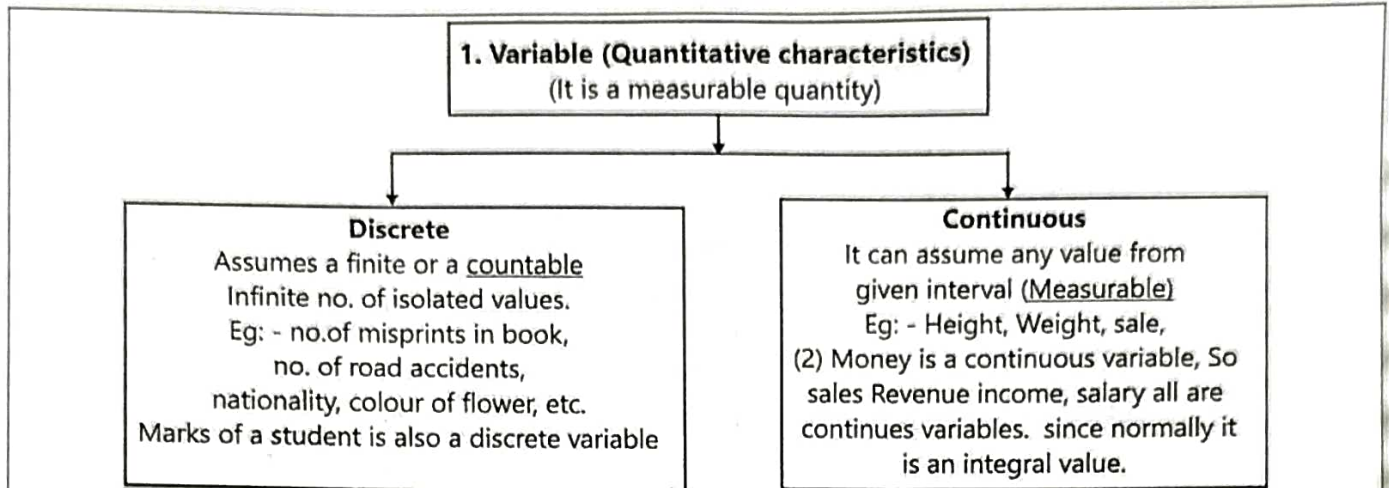


Application of Statistics (used in all fields):-

- a) Economics
- b) Business Management
- c) Commerce & Industry

Limitations of Statistics:-

- a) Deals with aggregates not with individuals.
- b) Concerned with quantitative data only not directly applicable on qualitative data.
- c) Does not reveal entire story
- d) Liable to be misused.
- e) Laws are true only on averages.
- f) Sampling error may creep in.



(2) **Qualitative characteristic** is known as a attribute.

Eg: - Gender, Nationality, Habit, Beauty, Inteligence, etc.

I) Collection of Data:-

A) **Primary Data** :- Collected for first time by individual or agency.

1. Interview Method :-

i. Personal (Direct) Interview :-

Personally collected information directly used → places of natural calamity like cyclone, earthquake, and epidemic. Is expensive time consuming requires more efforts but is more reliable.

ii. Indirect Interview :-

If there is practical problem in reaching the place then investigator collects the necessary information from persons associated with problem. (Collected by sources)

Eg :- During rail accident.

iii. Telephonic Interview :-

- Quick and non-expensive.
- Less accurate but covers large area.
- Less consistent and high non-responses.
- **Quickest method to collect primary data.**

2. Mailed Questionnaire:-

- ♦ Can cover wide area.
- ♦ Has highest amount of non-responsiveness.

Characteristics of Questionnaires: - Precise, well drafted, Sequencing should be proper.

3. Observation Method:-

By direct observation or using instrument.

Eg:- Directly measuring height of each student in class.

- Most accurate and **best method.**

- Time consuming, laborious and covers only a small area.
- **Most reliable, most costly.**

4. Questionnaire filled and sent by enumerators:-

Enumerators directly collect information by interviewing the person having information.

Eg:- Census counting.

B] Secondary Data:-

Already collected by some agency or an individual.

Sources of Secondary Data:-

- 1) International sources – WHO, ILO, World-Bank etc.
- 2) Govt. sources
- 3) Private and quasi-govt. sources, ISI, NCERT, etc.
- 4) Research institutes, etc.
- 5) Unpublished data of research journal.

Primary is better, Secondary is time Saving.

II) Classification of Data:-

It is used to present the data in a neat, precise and condensed form. Statistical analysis is possible only for the classified data. There are four types of classification.

(i) Chronological or Temporal or Time Series Data : When the data are classified in respect of successive time points or intervals, they are known as time series data.

Eg. The number of students appearing for C.A. Final exam for last 10 years.

(ii) Geographical : Data arranged according to area or region is called geographical area.

Eg. The number of Students appearing for C.A. Final exam of 2008 according to different states.

(iii) Qualitative or Ordinal Data : Data classified in respect of an attribute are referred to as qualitative data.

Eg. Data on nationality, gender, smoking habit of a group of individuals are examples of qualitative data.

(iv) Quantitative or Cardinal Data : Data are classed in respect of a variable, is called quantitative data.

Eg. Height, Weight, Profits, etc.

Frequency Data -	i) Qualitative	ii) Quantitative
Non-Frequency Data –	i) Time Series	ii) Geographical

Primary rules of Classification

- | | | | | |
|----------------|--------------------|----------------|----------------|----------------|
| 1) Exclusive | 2) Exhaustive | 3) Unambiguity | 4) Homogeneity | 5) Consistency |
| 6) Flexibility | 7) Appropriability | | | |

III) Scrutiny of data:-

Before representation of data it is important to check whether the data is proper or not this is done in scrutiny (validation / checking) step.

Procedure:-

- i. There is no hard and fast rule one must use his/her own intelligence, observation, patience for validating the data.
- ii. He must check for lack of seriousness, biasness from the enumerator.
- iii. Internal Consistency of data can be checked when a number of related series are given.

IV) Presentation of Data

a) Textual Presentation :- Report Writing

- Simple way of representation even a layman can present and understand by this method.
- Dull, monotonous and comparison between different observations is not possible in this method.
For manifold classification, this method can't be recommended.
- It is mandatorily used in all legal matters.

b) Tabulation :-

Presenting the data in a condensed and readily comprehensible form. It attempts to furnish maximum information in the minimum possible space, without sacrificing the quality and usefulness of data. It is the best way of representation of data.

Two types of table - i) Simple ii) Compound

Parts of table

- 1) **Title** – Heading
 - 2) **Box head** – Entire upper part of table. (Units of measurement are written in box-head).
 - 3) **Caption** – information about column and sub column. It is a part of box-head.
 - 4) **Stub** – Left part of table contains information about the row.
 - 5) **Body** – Descriptive part, numerical comparison is done in this part
- Footnote (Additional part):- References, Abbreviations and sources.

----- The Title -----	
----- Row Captions -----	----- Box Head -----
----- Stub -----	----- Column Captions -----
	----- Body -----

Tabulation method is usually preferred as :-

- i. It facilitates comparison between rows and columns.
- ii. Complicated data can also be represented at ease.
- iii. Without tabulation statistical analysis of data is not possible.
- iv. It is must for diagrammatic representation.
- v. It is the most accurate way of data representation.

c) Diagrammatic Representation:-

Any hidden trend can be observed in diagrammatic representation. It is obviously the most attractive method of data representation.

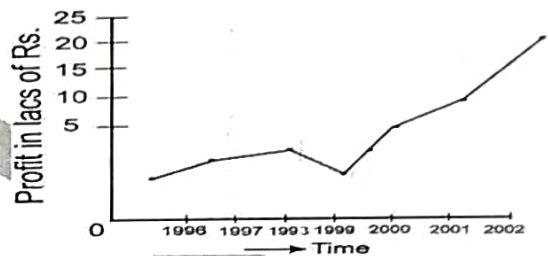
1) Line diagram or Histogram- Especially for time series data. It is one dimensional.

- Simplest of all diagrams
- A time series graph is also known as histogram
- We can use natural scale, logarithmic scale or ratio scale.
- Normally the variables exhibit a linear relationship hence line diagram is more often used.

Types of Charts :

(i) Simple Line Chart :

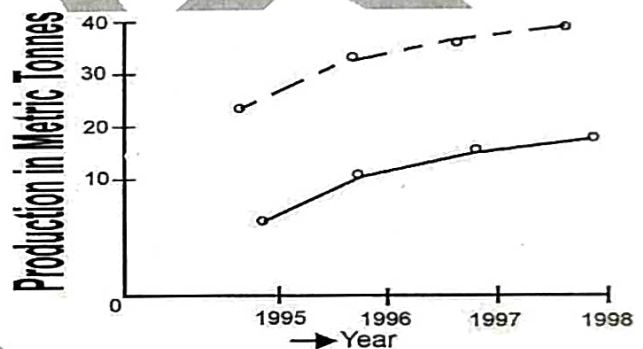
- It is used to represent only one series.
- In this method points are plotted and joined by line segments.



(ii) Multiple Line Chart

- It is used to represent two or more series which are expressed in same unit.
- It is used to check internal consistency of the collected data.

Year	Production in metric tonnes	
	Wheat	Rice
1995	12	25
1996	15	30
1997	18	32
1998	19	36

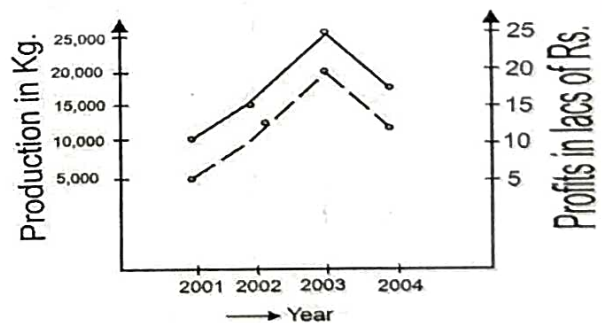


(iii) Multiple Axes Chart

- It is used represent two or more series which are expressed in different units.
- There are two or more vertical axes.

Represent the following data using multiple axes.

Year	Production in Kgs.	Profit in (Lacs of Rs.)
2001	10,000	5
2002	15,000	10
2003	25,000	20
2004	20,000	15



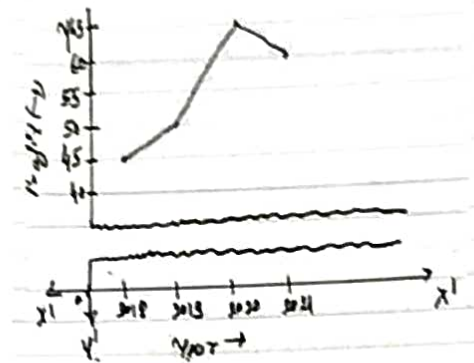
(iv) Ratio Chart:

- It is used when time series exhibit a wide range of fluctuation.
- In ratio chart log y is plotted against time.

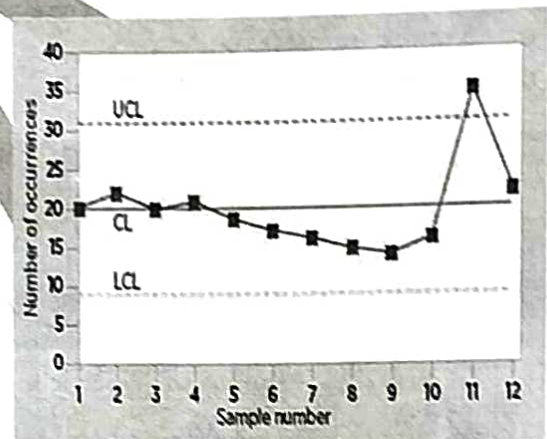
(v) False base line -

- Helps to magnify the major fluctuations on the graph so as to make them clearly visible.
- If the fluctuations in the value are very small as compared to the size of item.
- It ensures that the graph drawn gives more importance to that part of data where there are values and neglects that part where there is no data. It is just like "krink" mark.
- Example :- XYZ Ltd. Profits

Year	Profit(in lakh Rs)
2018	45
2019	50
2020	65
2021	60



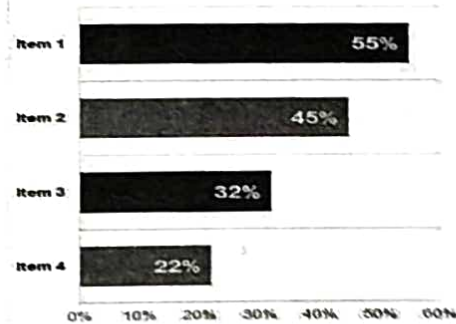
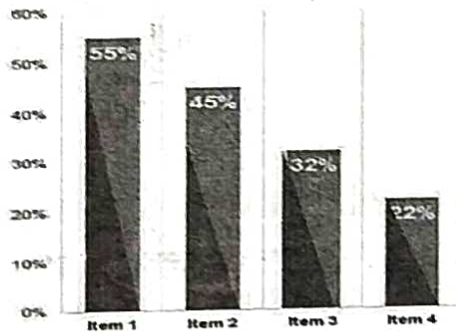
i) **Control Chart** :- The control chart is a graph used to study how a process changes over time. Data are plotted in time order. A control chart always has a central line for the average, an upper line for the upper control limit, and a lower line for the lower control limit. These lines are determined from historical data. By comparing current data to these lines, you can draw conclusions about whether the process variation is consistent (in control) or is unpredictable (out of control, affected by special causes of variation)



ii) **Z Chart** :- It is used in Normal Distribution.

2) **Bar Diagram** :- Consists of either horizontal or vertical rectangular bars.
 Horizontal – Qualitative data (Geographical).
 Vertical – Quantitative data (Time series).

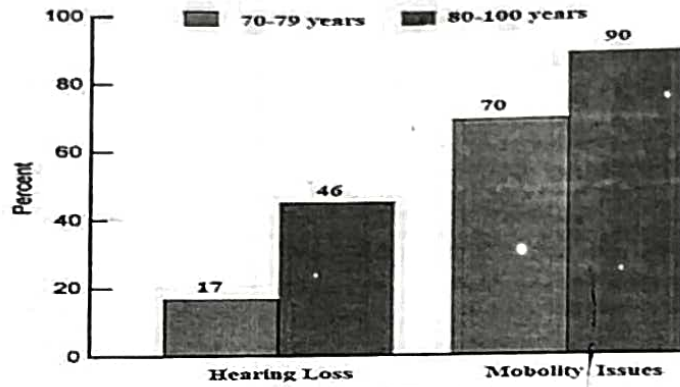
Vertical Horizontal Bar Graph Showing Item & Percentages



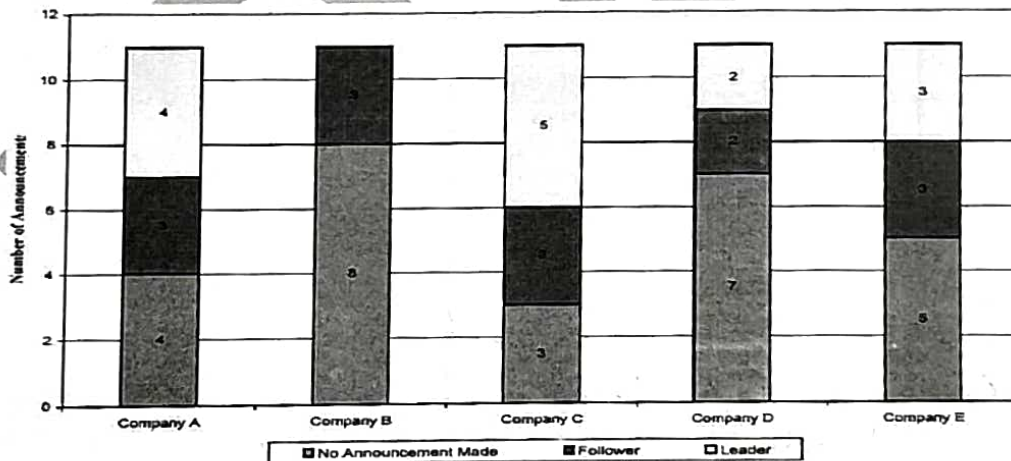
This graph/chart is linked to excel, and changes automatically based on data. Just left click on R and select "Edit Data"

Six types of bar diagrams are as under:-

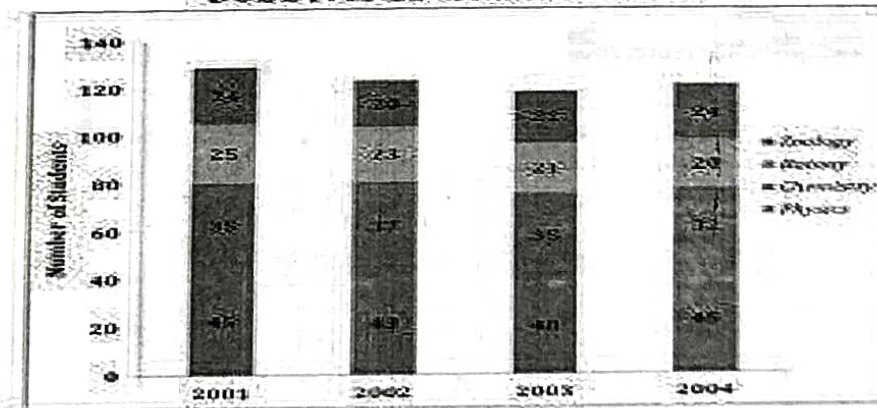
- i) **Simple bar diagram :-**
- ii) **Multiple or grouped bar diagram:-** Can represent information about sub groups of main component hence useful for comparison .



- iii) **Subdivided or component bar diagram:-** the groups are stacked one above the other. Hence it facilitates
 - A) Comparison between different components of a variable.
 - B) Understanding the relation of different components with the data (i.e., in tabular form).



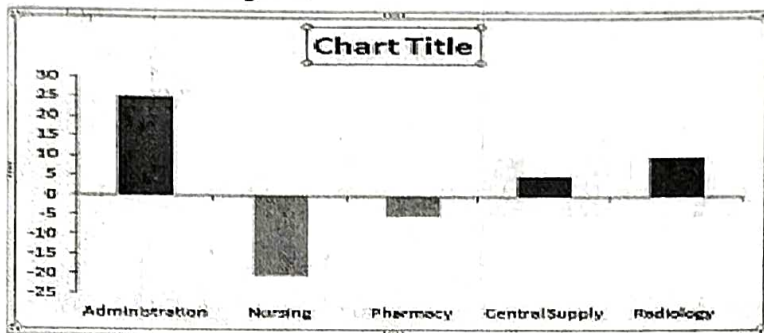
SUBDIVIDED BAR DIAGRAM



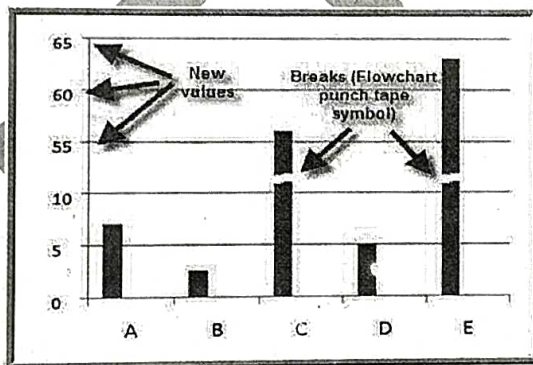
iv) Percentage subdivided bar diagram (useful for Pie charts)



v) Deviation or bilateral bar diagram:-



vi) Broken bars.

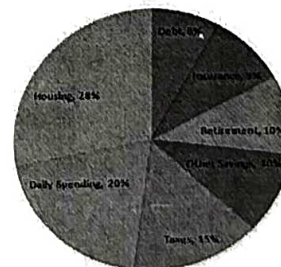


- Bar graphs can show trends over time but line graphs have an advantage in that it's easier to see small changes on line graphs than bar graphs, and that the line makes the overall trends very clear. They are less versatile than bar graphs, but better for many purposes.

3) Pie chart or Angular diagram -

A circular graph which represents the total value with its components. Generally used for comparing the relation between components of total value.

$$\text{Angle} = (\text{value} / \text{Sum of values}) \times 360$$



Dimensions :-

- One Dimensional → Line diagram, Bar diagram, Historiogram.
- Two Dimensional → Rectangle, Square, Pie chart, Circle.
- Three Dimensional → Cube, Sphere diagram.
- No Dimensional → Pictograms.

Error (or residue) :- It is the difference between exact and predicted value.

There are mainly 2 types of errors in statistics

- A) Sampling error.
- B) Non Sampling error.

Frequency Distribution :-

A table which represent numerical groups and number of observations in each group is called 'Frequency distribution. There are two types of frequency distribution.

1. Ungrouped Frequency Distribution :

Difference between highest and lowest value of observation is called range. If range is small number then all possible number from lowest to highest are considered is called ungrouped frequency distribution.

Eg. In a survey of 50 families frequency distribution of number of children in each family.

2. Grouped Frequency Distribution :

If range is large then numerical groups are considered to classify the data is called grouped frequency distribution.

Eg. Frequency distribution of marks obtained by 100 students in a certain test of 50 marks.

Types of Class Intervals :**(i) Inclusive or Discontinuous Class Intervals :**

- Upper limit of any class and lower limit of next class are not equal.
- If value of an observation is equal to the upper limit then the observation belongs to the same interval.
- It is suitable to classify only discrete variable.
- In the process of analysis Inclusive classes are converted to exclusive.

E.g. 10-19, 20-29, 30-39.....

(ii) Exclusive Or Continuous Class Interval :

- Upper limit of any class and lower limit of next class must be equal.
- If value of an observation is equal to the upper limit then observation does not belongs to the same class interval but it belongs to the next class interval.
- It is suitable to classify discrete as well as continuous variable.
- In the process of analysis exclusive class intervals are considered.
- E.g. 10-20, 20-30, 30-40.....

(iii) Open End Class Interval :

- Lower limit of first interval and upper limit of last interval are not given then it is called open end class interval.
- It suitable to classify the data in which very few observations are extremely small or extremely large.

- It is not suitable for analysis.
E.g. Marks : Below 50, 50-60, 60-70, 70-80, 80 and above.

3. Class Limits, Boundaries, Width and Class Mark:

(i) Class Limits :

Lower Class limit Smaller number of any class is called lower class limit (LCL)

Upper Class Limit Greater number of the class interval is called upper class limit (UCL)

Inclusive

10-19

20-29

For First Interval

Lower class limit = 10

Upper class limit = 19

Exclusive

10-15

15-20

For First Interval

Lower class limit = 10

Upper class limit = 15

(ii) Class Boundaries

Smaller number of exclusive class interval is called lower class boundary (LCB) and greater number is called upper class boundary (UCB) For writing class boundary it is necessary that class intervals should be of an exclusive type.

Lower class limit = 9.5 Lower class limit = 10

Upper class limit = 19.5 Upper class limit = 15

(iii) Class width or Class Size :

Difference between upper class boundary and lower class boundary is called width of class interval or length of C.I.

Length of C.I. = U.C. B - L.C. B.

(iv) Class Mark (Midpoint)

Average of class limits or class boundaries is called Class Mark.

Class Mark = $\frac{LCL+UCL}{2}$ Or $\frac{LCB+UCB}{2}$

4. Types of Frequencies

(i) Relative Frequency :

→ It is defined as ratio of Frequency of class intervals and total of all frequencies

Relative Frequency = $\frac{\text{Frequency of CI}}{\text{Total Frequency}}$

→ Sum of all relative frequencies must be one.

(ii) Percentage Relative Frequency :

→ It is defined as percentage ratio of Frequency of class intervals and total frequency.

PRF = $\frac{\text{Frequency of CI}}{\text{Total frequency}} \times 100$

→ Sum of all percentage relative frequencies must be hundred.

(iii) Frequency Density :

It is defined as ratio of frequency of class interval & length of corresponding class intervals.

$$\text{Frequency Density} = \frac{\text{Frequency of Class}}{\text{Length of corresponding class}}$$

It is used in construction of histogram case of class intervals of unequal size.

(iv) Cumulative Frequencies :

There are two types of cumulative frequencies

(a) Less than cumulative frequencies

- These frequencies obtained by adding given frequencies from top to bottom.
- These frequencies are always referred with upper class boundaries of corresponding class.

(b) Greater than cumulative Frequencies

- These frequencies are obtained by adding given frequencies from bottom to top.
- These frequencies are referred with lower class boundary of corresponding class.

Individual



Discrete

No. of cars, no. of accidents,
No. of anything, normally assumes
integral values.

X_i	f_i
4	7
5	9
9	3

Continuous

Temperature, height, weight,
can be assume value from the
range.

Class	f_i	Class	f_i
0-9	10	0-10	10
10-19	15	10-20	15
20-29	5	20-30	5

1) Inclusive to Exclusive Conversion

Class	f_i	Boundary Points	Mid value (class mark)	Class size (length width)	Relative Freq.
0 – 9	10	-0.5 – 9.5	4.5	10	10/30
10 – 19	15	9.5 – 19.5	14.5	10	15/30
20 – 29	5	19.5 – 29.5	24.5	10	5/30
Total	30				

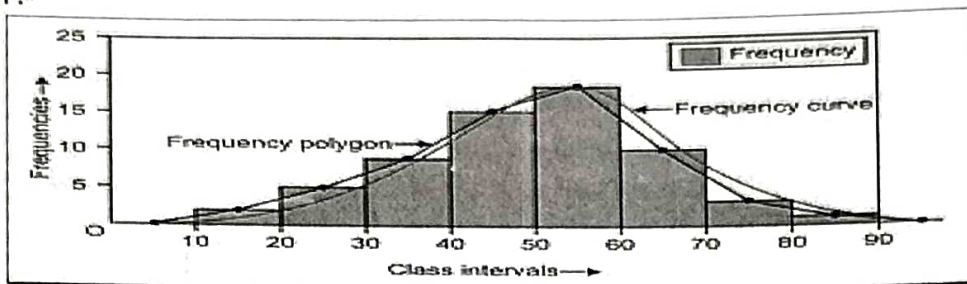
↑
D/2

Class Length = UCB – LCB

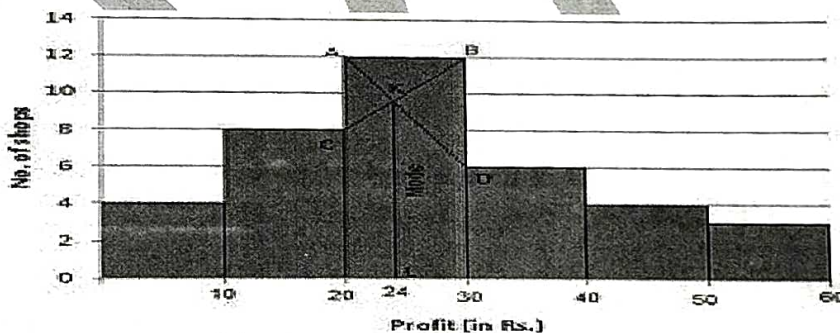
Relative freqⁿ = $f_i / \Sigma F_i$

Presentation of frequency distribution :-

1. Histogram :-



1. The length of histogram depends upon frequency provided class length remains same.
2. The data must be continuous for plotting Histogram.
3. Joining the mid-points of Histogram by a straight line gives frequency polygon and by free hand curve gives frequency curve
4. Histograms are used to graphically find Mode.
5. It is the most common form of diagrammatic representation of frequency distribution.
6. The area of frequency polygon is equal to the area of Histogram provided that Class width is same.
7. Frequency polygon are used in representing frequency distribution of a discrete variable.
8. Frequency polygon is the limiting form of Histogram.
9. Frequency curve is the limiting form of frequency polygon and Histogram.



Frequency Density = $\frac{f_i}{w_i}$ w_i → width of class

Histogram is best of above 3 methods.

Class	F_i	Frequency Density
0 – 5	20	$20 / 5 = 4$
5 – 25	40	$40 / 20 = 2$
25 – 35	10	$10 / 10 = 1$

As the class lengths are different the length of Histogram now depends on **frequency density** and not on frequency.

∴ Lengths are 4, 2, 1.

5. Frequency Polygon :

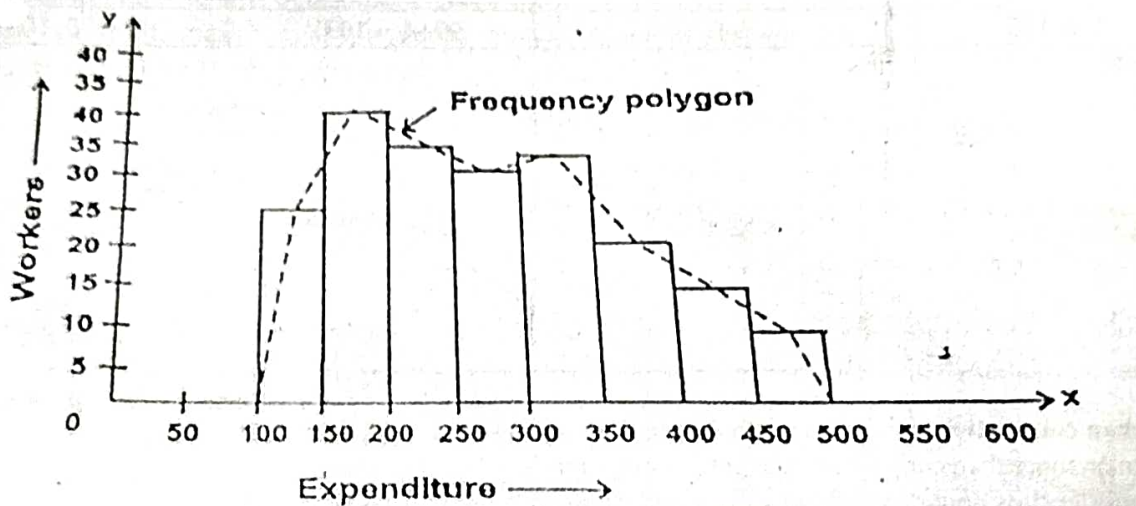
- It is used to represent frequency distribution.
- In this method points are plotted for frequencies against mid-point of corresponding class intervals.
- Plotted points are joined by line segments.

- It is limiting form of histogram.
- It is used to compare two or more distributions of same variable.

Eg. The following is the distribution of total household expenditure (in Rs.) of 202 workers in a city.

Expenditure	Number of workers	Expenditure	Number of workers
100-150	25	300-350	32
150-200	40	350-400	22
200-250	33	400-450	16
250-300	31	450-500	8

Solution :



Cumulative frequency					
Class	f_i	More than	C_{ff}	Less than	C_{ff}
0 - 10	10	0	30	0	0
10 - 20	15	10	20	10	10
20 - 30	5	20	5	20	25
		30	0	30	30

3. **Ogives** - are used for representing cumulative frequencies graphically.

Less than type ogive is used to find median and all partition values.

Hence ogive can be used in 2 ways:-

1. Only less than ogive.
2. Less than ogive along with more than ogive.

Less than cumulative frequency curve (less than ogive) :

- (i) It used to represent cumulative frequency distribution.
- (ii) For construction of curve, obtain less than cumulative frequencies from given frequencies.
- (iii) Consider class boundaries along x – axis and cumulative frequencies only- axis
- (iv) Plot the points for cumulative frequencies against corresponding upper class boundary.
- (v) Plotted points are joined by free had curve.
- (vi) It is used to find partition values such as quartiles, deciles and percentiles.

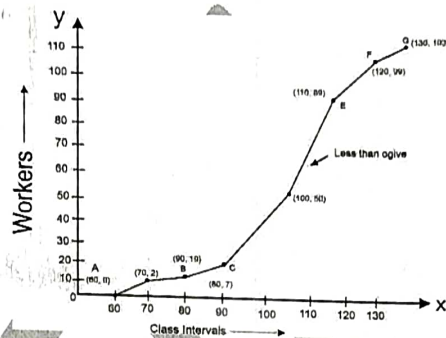
Ex. Draw a less than ogive for the following frequency distribution.

I.Q.	60-70	70-80	80-90	90-100	100-110	110-120	120-130
No. of Students	2	5	12	31	39	10	4

Solution : Let us prepare following table showing the cumulative frequencies more than the upper limit.

Class Interval (I. Q.)	Frequency (f)	Cumulative Frequency	Plots to be plotted
50-60	0	0	(60, 0)
60-70	2	2	(70, 2)
70-80	5	2+5 = 7	(80, 7)
80-90	12	7+12 = 19	(90, 19)
90-100	31	19+31 = 50	(100, 50)
100-110	39	50 + 39 = 89	(110, 89)
110-120	10	89 + 10 = 99	(120, 99)
120-130	4	99+4 = 103	(130, 103)

Diagram :



More than cumulative frequency curve (More than ogive) :

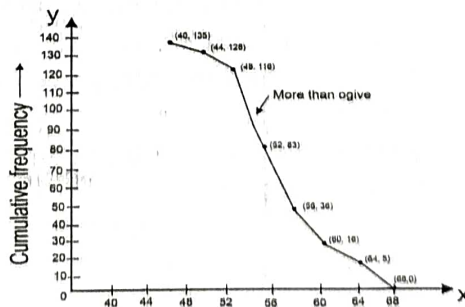
- (i) Obtain more than cumulative frequency distribution.
- (ii) Consider class boundaries along x – axis and cumulative frequencies on y- axis.
- (iii) Plot the points for cumulative frequencies against corresponding lower class boundary.
- (iv) Plotted points are joined by freehand curve.
- (v) It is used to find median.

Class	Frequency (f)	Cumulative Frequency	Plots to be plotted
40-44	7	128 + 7 = 135	(40, 135)
44-48	12	116 + 12 = 128	(44, 128)
48-52	33	83+33 = 116	(48, 116)
52-56	47	36 + 47 = 83	(52, 83)
56 – 60	20	16 + 20 = 36	(56, 36)
60 – 64	11	5 + 11 = 16	(60, 16)
64 – 68	5	5 = 5	(64, 5)

From the table we get the points of numbers corresponding to the lower class limits and the respective cumulative frequency as : (40, 135), (44, 128), (48, 116), (52, 83), (56, 36), (60, 16) and (64, 5).

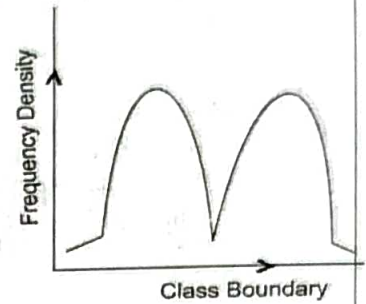
Plot these points and join them by a free hand curve to get the More than Ogive as shown in the Fig. In order to complete it, we join the curve to the hypothetical point (upper limit of last interval, 0) i.e., (68, 0) (Shown by dotted lines)

Diagram :

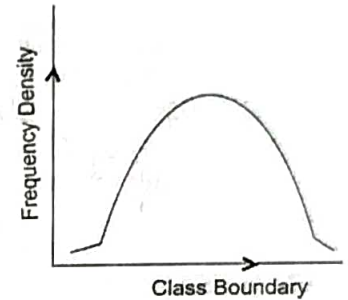


Types Frequency Curve :-

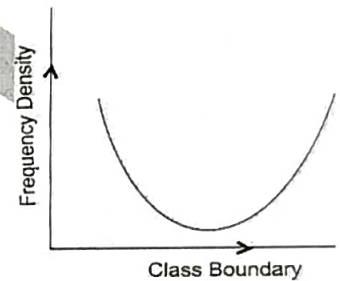
(a) Bell – Shapes curve : Most of the commodity used distributions provide bell – shaped curve frequency distributions of this types has lower frequencies at the extreme and maximum frequency at the centre of frequency distribution.
Ex. Distribution of marks, heights, weights profit, etc.



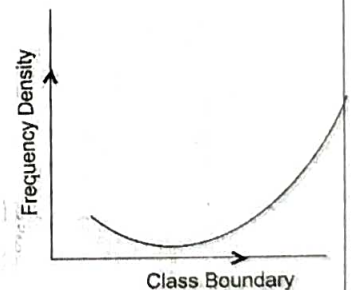
(b) U- Shaped Curve : This type of distributions has lowest frequency at the centre but steadily reaches its maximum at the two extremities. Graph of average cost function is an example of U- shaped curve.



(c) J- Shaped Curve : If distribution has lower frequency and steadily decreases, then it lowest and then gradually increases and reaches to the highest. Graph of Marginal cost function is an example of J-shaped Curve.



(d) Mixed- Shaped Curve : Combination of all above curve is called mixed shaped curve. Trade cycle is an example of mixed- shaped curve.



Descriptive Statistics	Inferential Statistics
1. Describes data	1. Makes predictions (Data is collected from sample & generalizations are made about population.)
2. It is used to find : a) Sample mean b) Sample Standard deviation c) Bar charts d) Describing the shape of probability distribution.	2. It is used in a) Estimating parameter b) Hypothesis Testing i) Z- score ii) Normal distribution iii) Binomial Theorem iv) T- distribution v) Regression analysis vi) Central Limit Theorem (C.L.T.) vii) Confidence Intervals

Ideographs :- Ideographs is a graphic symbol that represents an idea or concept.

Data collection**Section - A**

1. 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
2. In collection of data which of the following interview methods: **(Scanner)**
 - a) Personal interview method
 - b) Telephone interview method
 - c) Published data
 - d) (a) and (b)
3. In indirect oral investigation: **(Scanner)**
 - a) Data is not capable of numerical expression
 - b) Not possible or desirable to approach informant directly.
 - c) Data is collected from the books.
 - d) None of these
4. The quickest method to collect primary data is:
 - a) Personal Interview
 - b) Indirect Interview
 - c) Mailed Questionnaire Method
 - d) Telephonic Interview
5. 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) none
6. The Primary data are collected by
 - a) Interview method
 - b) Observation method
 - c) Questionnaire method
 - d) All these
7. 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
8. 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
9. Which method of data collection covers the widest area?
 - a) Telephone interview method
 - b) Mailed questionnaire method
 - c) Direct interview method
 - d) All these
10. The amount of non-responses is maximum in
 - a) Mailed questionnaire method
 - b) Interview method
 - c) Observation method
 - d) All these
11. Some important sources of secondary data are **(Scanner)**
 - a) International and Government sources
 - b) International and primary sources
 - c) Private and primary sources
 - d) Government sources
12. The data obtained by the internet is
 - a) Primary data
 - b) Secondary data
 - c) Both (a) and (b)
 - d) none of these
13. Census reports are used as a source of ___ data. **(Scanner)**
 - a) Secondary
 - b) Primary
 - c) Organize
 - d) Confidential
14. Data collected on religion from the census reports are **(Scanner)**
 - a) Primary data
 - b) Unclassified data
 - c) Sample data
 - d) Secondary data

Data analysis**Section - A**

1. ___ means separating items according to similar characteristics grouping them into various classes. **(Scanner)**
 - a) Classification
 - b) Editing
 - c) Separation
 - d) Tabulation
2. Classification is of ___ kinds. **(Scanner)**
 - a) Two
 - b) Three
 - c) One
 - d) Four
3. The Chronological classification of data are classified on the basis of: **(Scanner)**
 - a) Attributes
 - b) Area
 - c) Time
 - d) Class Interval
4. Nationality of a person is: **(Scanner)**
 - a) Discrete variable
 - b) An attribute
 - c) Continuous variable
 - d) None

5. 100 persons are classified into male/female and graduate/non-graduate classes. This data classification is: **(Scanner)**
 a) Cardinal data b) Ordinal data
 c) Spatial Series data d) Temporal data
6. 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
7. The accuracy and consistency of data can be verified by
 a) Internal checking b) External checking
 c) Scrutiny d) Both (a) and (b)
8. The primary rules that should be observed in classification **(Scanner)**
 i) As far as possible, the class should be of equal width
 ii) The classes should be exhaustive
 iii) The classes should be unambiguously defined.
 Then which of the following is correct
 a) only (i) and (ii) b) only (ii) and (iii)
 c) only (i) and (iii) d) all (i), (ii) and (iii)
9. A National Institute arranged its students data in accordance with different states. This arrangement of data is known as _____.
 a) Temporal Data b) Geographical Data
 c) Ordinal Data d) Cardinal Data
10. Sweetness of a sweet dish is ____ **(Scanner)**
 a) Attribute b) Discrete Variable
 c) Continuous Variable d) Variable
4. The column headings of table are known as:
 a) Body b) Stub
 c) Box – head d) Caption
5. The entire upper part of a table is known as
 a) Caption b) Stub
 c) Box head d) Body
6. The unit of measurement in tabulation is shown in
 a) Box head b) Body
 c) Caption d) Stub
7. 'Stub' of a table is the **(Scanner)**
 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) Left part of the table describing the rows.
8. In tabulation, source of data, if any, is shown in the: **(Scanner)**
 a) Stub b) Body
 c) Caption d) Footnote
9. 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.
10. In general the number of types of tabulation are
 a) Two b) Three c) One d) Four

(1) Data representation (Tabular)**Section - A**

1. Mode of presentation data **(Scanner)**
 a) Textual presentation b) Tabulation
 c) Oral presentation d) (a) and (b)
2. A table has ____ parts. **(Scanner)**
 a) Four b) Two c) Five d) None
3. 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
11. The best method of presentation of data is
 a) Textual b) Tabular
 c) Diagrammatic d) (b) and (c)
12. The most accurate mode of data presentation
 a) Diagrammatic method b) Tabulation
 c) Textual presentation d) None of these
13. 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.

(2) Data representation (Diagrammatic)**Section - A**

1. The most attractive method of data presentation
 - a) Tabular
 - b) Textual
 - c) Diagrammatic
 - d) (a) or (b)
2. Hidden trend, if any, in the data can be noticed
 - a) Textual presentation
 - b) Tabulation
 - c) Diagrammatic representation
 - d) All these
3. 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)
4. A suitable graph for representing the portioning of total into sub parts in statistics is: **(Scanner)**
 - a) A Pie chart
 - b) A pictograph
 - c) An ogive
 - d) Histogram
5. If the data represent costs spent on conducting an examination under various needs, then the most suitable diagram will be:
 - a) Pie diagram
 - b) Frequency diagram
 - c) Bar diagram
 - d) Multiple bar diagram
6. The most appropriate diagram to represent the five - year plan outlay of India in different economic sectors is: **(Scanner)**
 - a) Pie diagram
 - b) Histogram
 - c) Line-Graph
 - d) Frequency Polygon
7. The most appropriate diagram to represent the data relating to the monthly expenditure on different items by a family is **(Scanner)**
 - a) Histogram
 - b) Pie-diagram
 - c) Frequency polygon
 - d) Line graph.
8. The chart that uses logarithm of variable is known as: **(Scanner)**
 - a) Ratio chart
 - b) Line chart
 - c) Multiple line chart
 - d) Component line chart
9. Diagrammatic representation of data is done by
 - a) Diagrams
 - b) Charts
 - c) Pictures
 - d) All these
10. 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.
11. 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)
12. Multiple axis line chart is considered when
 - a) There is more than one time series
 - b) The units of the variables are different
 - c) In any case
 - d) If there are more than one time series and unit of variables are different
13. Divided bar chart is good for: **(Scanner)**
 - a) Comparing various components of a variable
 - b) Relating the different components to the whole.
 - c) (a) and (b)
 - d) (a) or (b)
14. In order to compare two or more related series, we consider: **(Scanner)**
 - a) Multiple Bar Chart
 - b) Grouped Bar Chart
 - c) (a) or (b)
 - d) (a) and (b)
15. A graph that uses vertical bars to represent data is called a **(Scanner)**
 - a) Line graph
 - b) Scatter plot
 - c) Vertical graphs
 - d) Bar graph
16. Horizontal bar diagram is used for
 - a) Qualitative data
 - b) Data varying over time
 - c) Data varying over space
 - d) (a) or (c)
17. 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)
18. Which of the following diagram is the most appropriate to represents various heads in total cost? **(Scanner)**
 - a) Pie chart
 - b) Bar graph
 - c) Multiple line chart
 - d) Scatter plot

19. If the fluctuations in the observed value are very small as compared to the size of the item, it is presented by: **(Scanner)**

- a) Z chart
- b) Ogive curve
- c) False base line
- d) Control chart

20. The relationship between two variables are shown in

- a) Pictogram
- b) Histogram
- c) Bar diagram
- d) Line diagram

21. Graph is a

- a) Line diagram
- b) Bar diagram
- c) Pie diagram
- d) Pictogram

22. Arrange the dimensions of Bar diagram, Cube diagram, Pie diagram in sequence. **(Scanner)**

- a) 1, 3, 2
- b) 2, 1, 3
- c) 2, 3, 1
- d) 3, 2, 1

23. Which of the following is not a two dimensional diagram? **(Scanner)**

- a) Square diagram
- b) Line diagram
- c) Rectangular diagram
- d) Pie-chart

24. Circular diagrams are always: **(Scanner)**

- a) One – dimensional
- b) Two – dimensional
- c) Three – dimensional
- d) Cartograms

25. Which of the following is not a two-dimensional figure? **(Scanner)**

- a) Line Diagram
- b) Pie Diagram
- c) Square Diagram
- d) Rectangle Diagram

Section - B

1. The Profits in lakhs of Rupees of an industrial house for 2009, 2010, 2011, 2012, 2013, 2014 and 2015 are 5,8,9,6,12,15, and 24 respectively. Suitable diagram is _____

- a) Pie chart
- b) Ogive
- c) Line chart
- d) Histogram

2. The production of wheat and rice of a region are given below:

Year	Production in metric tones	
	Wheat	Rice
2012	12	25
2013	15	30
2014	18	32
2015	19	36

Suitable diagram is _____

- a) Ogive
- b) Multiple Line chart
- c) Multiple bar diagram
- d) (b) or (c)

3. An appropriate diagram with a view to represent the following data is _____

Source	Revenue in millions of (Rs.)
Customs	80
Excise	190
Income Tax	160
Corporate Tax	75
Miscellaneous	35

- a) Pie Chart
- b) Line Diagram
- c) Ogive
- d) Histogram

Frequency distribution

Section - A

1. The number of times a particular items occurs in a class interval is called its: **(Scanner)**

- a) Mean
- b) Frequency
- c) Cumulative frequency
- d) None of these

2. The number of observations falling within a class is called

- a) Density
- b) Frequency
- c) Both
- d) None

3. Classes with zero frequencies are called

- a) Nil class
- b) Empty class
- c) Class
- d) None

4. Tally marks determines

- a) class width
- b) class boundary
- c) class limit
- d) class frequency

5. Mid values are also called _____ **(Scanner)**

- a) Lower limit
- b) Upper limit
- c) Class mark
- d) None

6. A representative value of the class interval for the calculation of mean, standard deviation, mean deviation etc. is

- a) Class interval
- b) Class limit
- c) Class mark
- d) None

7. The lower extreme point of a class is called

- a) lower class limit
- b) lower class boundary
- c) both
- d) none

8. The number of types of cumulative frequency

- a) one
- b) two
- c) three
- d) four

9. What is an exclusive series? **(Scanner)**
 a) In which both upper and lower limit are not included in class frequency.
 b) In which lower limit is not included in class frequency.
 c) In which upper limit is not included in class frequency.
 d) None of the above.
10. 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)
11. Excepting the first and the last, all other class boundaries lie midway between the upper limit of a class and the lower limit of the next higher class.
 a) True b) False c) Both d) None
12. Mutually exclusive classification is usually meant for
 a) A discrete variable b) Continuous variable
 c) An attribute d) All these
13. For determining the class frequencies, it is necessary that these classes are
 a) mutually exclusive
 b) Not mutually exclusive
 c) independent
 d) None
14. Most extreme values which would ever be included in a class interval are called
 a) class limits b) class interval
 c) class boundaries d) None of these
15. In the construction of a frequency distribution, it is generally preferable to have classes of
 a) equal width b) unequal width
 c) maximum d) None of these
16. For the construction of grouped frequency distribution from ungrouped data we use
 a) Class limit b) Class boundaries
 c) Class width d) None
17. 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)
18. To find the number of observations less than any given value
 a) Single frequency distribution
 b) Grouped frequency distribution
 c) Cumulative frequency distribution
 d) None is used.
19. The number of "Frequency distribution" is
 a) Two b) One c) Five d) Four
20. Upper limit of any class is ____ from the lower limit of the next class
 a) Same b) Different c) Both d) None
21. Upper boundary of any class coincides with the Lower boundary of the next class.
 a) True b) False c) Both d) None
22. Class boundaries should be considered to be the real limits for the class interval.
 a) True b) False c) Both d) None
23. Difference between the maximum and minimum value of a given data is called
 a) Width b) Size c) Range d) Class
24. Difference between the lower and the upper class boundaries is
 a) Width b) Size c) Both d) None
25. When one end of a class is not-specified, the class is called
 a) closed-end class b) open-end class
 c) both d) none
26. The difference between the upper and lower limit of a class is called ____ **(Scanner)**
 a) Class Interval b) Mid Value
 c) Class boundary d) Frequency
27. "Cumulative Frequency" only refers to the
 a) less-than type b) more-than type
 c) both d) none
28. The lower class boundary is: **(Scanner)**
 a) An upper limit to Lower Class Limit
 b) A lower limit to Lower Class Limit.
 c) Both (a) & (b)
 d) None of these

29. The UCB is
 a) An upper limit to UCL b) A lower limit to LCL
 c) Both (a) and (b) d) (a) or (b)
30. $(\text{Class frequency})/(\text{Width of class})$ is defined as
 a) Frequency density b) Frequency distribution
 c) Both d) None
31. Frequency Density can be termed as:
 a) Class frequency to the cumulative frequency
 b) Class frequency to the total frequency
 c) Class frequency to the class length
 d) Class length to the class frequency.
32. Relative frequency for a particular class lies between:
 (Scanner)
 a) 0 and 1 b) 0 and 1, both inclusive
 c) -1 and 0 d) -1 and 1
33. 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
34. Cumulative Frequency Distribution is a
 a) graph b) frequency
 c) Statistical Table d) distribution
35. Types of cumulative frequencies are _____
 a) 1 b) 2 c) 3 d) 4
36. 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
37. 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)
38. For overlapping class-intervals the class limit & class boundary are
 a) Same b) Not same
 c) Zero d) None

(1) Histogram**Section - A**

1. An area diagram is: (Scanner)
 a) Histogram b) Ogive
 c) Frequency Polygon d) None of these
2. The most common form of diagrammatic representation of a grouped frequency distribution is: (Scanner)
 a) Histogram b) Ogive
 c) Both d) None
3. Histogram can be shown as (Scanner)
 a) Ellipse b) Rectangle
 c) Hyperbola d) Circle
4. In representing simple frequency distributions of a discrete variable
 a) Ogive b) Histogram
 c) Frequency polygon d) both is useful
5. Vertical bar chart may appear somewhat alike
 a) Histogram b) Frequency Polygon
 c) Both d) None
6. In Histogram, the classes are taken
 a) overlapping b) non-overlapping
 c) both d) none
7. When all classes have equal width, the heights of the rectangles in Histogram will be numerically equal to the
 a) class frequencies b) class boundaries
 c) both d) none
8. In Histogram if the classes are of unequal width then the heights of the rectangles must be proportional to the frequency densities.
 a) true b) false
 c) both d) none
9. Frequency density is used in the construction of
 a) Histogram
 b) Ogive
 c) Frequency polygon
 d) None when the classes are of unequal width
10. Unequal widths of classes in the frequency distribution do not cause any difficulty in the construction of
 a) Ogive b) Frequency Polygon
 c) Histogram d) None

11. Consecutive rectangles in a Histogram have no space in between
a) True b) False c) Both d) None
12. Histogram emphasizes the widths of rectangles between the class boundaries.
a) True b) False c) Both d) None.
13. Histogram is used for the presentation of the following type of series (Scanner)
a) Time series
b) Continuous frequency distribution
c) Discrete frequency distribution
d) Individual observation
14. For constructing a histogram, the class-intervals of a frequency distribution must be
a) equal b) unequal
c) equal or unequal d) none of these
15. With the help of histogram one can find.
a) Mean b) Median
c) Mode d) First Quartile
16. Mode can be obtained from (Scanner)
a) Frequency polygon b) Histogram
c) Ogive d) All of the above
17. A comparison among the class frequencies is possible only in
a) Frequency polygon b) Histogram
c) Ogives d) (a) or (b)
18. An approximate idea of the shape of frequency curve is given by
a) Ogive b) Frequency Polygon
c) Both d) None
19. For obtaining frequency polygon we join the successive points whose abscissa represent the corresponding class frequency ____
a) True b) False c) Both d) None
20. Frequency curve is a limiting form of
a) Frequency polygon b) histogram
c) (a) or (b) d) (a) and (b)
21. When the width of all classes is same, frequency polygon has not the same area as the Histogram:
a) True b) False c) Both d) None

(2) Ogive
Section - A

1. Curve obtained by joining the points whose x coordinates are the upper limits of the class intervals and y coordinates are the corresponding cumulative frequencies is called. **(Scanner)**
a) Frequency Polygon b) Frequency curve
c) Histogram d) Ogive.
2. Diagrammatic representation of the cumulative frequency distribution is
a) Frequency polygon b) Ogive
c) Histogram d) None
3. If we plot less than and more than type frequency distribution, then graph plotted is ____ **(Scanner)**
a) Histogram b) Frequency Curve
c) Ogive d) None of these
4. If we draw a perpendicular on x-axis from the point of inter-section of both 'less than' and 'more than' frequency curves we will get the value of ____ **(Scanner)**
a) mode b) median
c) arithmetic mean d) third quartile
5. Median of distribution can be obtained from:
a) Histogram b) Frequency Polygon
c) Less than type Ogives d) None of these
6. When the two curves of ogive intersect, the point of intersection provides: **(Scanner)**
a) First Quartile b) Second Quartile
c) Third Quartile d) Mode.
7. Using Ogive Curve we can determine
a) Median b) Quartile
c) Both (a) and (b) d) None.
8. An Ogive can be prepared in ____ different ways.
a) 2 b) 3 c) 4 d) none
9. From which graphical representation, we can calculate partition values? **(Scanner)**
a) Lorenz curve b) Ogive curve
c) Histogram d) None of the above
10. Ogive is a
a) Line diagram b) Bar diagram
c) Both d) None
11. "The less than Ogive" is a: **(Scanner)**
a) U-Shaped Curve b) J-Shaped Curve
c) S-Shaped d) Bell Shaped Curve

Sums
Section - A

1. The frequency of class 20-30 in the following data

Class	Cumulative Frequency
0-10	5
10-20	13
20-30	28
30-40	34
40-50	38

- a) 5 b) 28 c) 15 d) 13

2. If class interval is 10 – 14, 15 – 19, 20 – 24, then the first class is

- a) 10 – 15 b) 9.5 – 14.5
c) 10.5 – 15.5 d) 9 – 15

3. For the overlapping classes 0-10, 10-20, 20-30 etc. the class mark of the class 0-10 is

- a) 5 b) 0 c) 10 d) none

4. For the non-overlapping classes 0-19, 20-39, 40-59 the class mark of the class 0-19 is

- a) 0 b) 19 c) 9.5 d) none

5.

Class:	0-10	10-20	20-30	30-40	40-50
Frequency	5	8	15	6	4

For the class 20-30, cumulative frequency is

- a) 20 b) 13 c) 15 d) 28

6. The number of accidents for seven days in a locality are given below

No. of accidents	0	1	2	3	4	5	6
Frequency	15	19	22	31	9	3	2

What is the number of cases when 3 or less accidents occurred?

- a) 56 b) 6 c) 68 d) 87

7.

Class	0-10	10-20	20-30	30-40	40-50
Frequency	4	6	20	8	3

For the class 20-30. Cumulative frequency is:

- a) 10 b) 26 c) 30 d) 41

8. The number of car accidents in seven days in a locality are given below:

No. of accidents	Frequency :
0	12
1	9
2	11

3	13
4	8
5	9
6	6
7	3

What will be the number of cases when 4 or more accidents occurred? (Scanner)

- a) 32 b) 41 c) 26 d) 18

9. The following data relate to the incomes of 86 persons:

Income in Rs.:	500-999	1000-1499	1500-1999	2000-2499
No. of persons:	15	28	36	7

What is the percentage of persons earning more than Rs. 1500?

- a) 50 b) 45 c) 40 d) 60

10. The following data relates to the incomes of 90 persons:

Income in Rs.	No. of Persons:
1500-1999	13
2000-2499	32
2500-2999	20
3000-3499	25

What is the percentage of persons earning more than Rs.2,500? (Scanner)

- a) 45 b) 50 c) 52 d) 55

11. From the following data find the number class intervals if class length is given as 5.

72, 72, 65, 41, 54, 80, 50, 46, 49, 53. (Scanner)

- a) 6 b) 5 c) 7 d) 8

Section – B

1. Find the number of observations between 250 and 300 from the following data:

Value	More than 200	More than 250	More than 300	More than 350
No. of observations	56	38	15	0

- a) 56 b) 23 c) 15 d) 8

2. The number of observations between 150 and 200 based on the following data is (Scanner)

Value:	More than 100	More than 150	More than 200	More than 250
No. of observations	76	63	28	05

- a) 46 b) 35 c) 28 d) 23

3. Find the number of observations between 350 and 400 from the following data: **(Scanner)**

Value:	More than 200	More than 350	More than 400	More than 450
No. of observations	48	25	12	0

- a) 13 b) 15 c) 17 d) 19

4. The following data relates to the marks of a group of students.

Marks	No. of Students
More than 70%	07
More than 60%	18
More than 50%	40
More than 40%	60
More than 30%	75
More than 20%	100

How many students have got less than 50% marks? **(Scanner)**

- a) 60 b) 82 c) 40 d) 53

5. The following data relate to the marks of a group of students:

Marks	No. of Students
Below 10	15
Below 20	38
Below 30	65
Below 40	84
Below 50	100

How many students got marks more than 30?

- a) 65 b) 50 c) 35 d) 43

7. A pie diagram is used to represent the following data:

Source:	Revenue in million (Rs.)
Customs	120
Excise	180
Income tax	240
Wealth tax	180

The central angles in the pie diagram corresponding to income tax and wealth tax respectively: **(Scanner)**

- a) (120, 90) b) (90, 120)
c) (60, 120) d) (90, 60)

8. Cost of sugar in a month under the heads raw materials, labour, direct production and others were 12, 20, 35 and 23 units respectively. What is the difference between the central angles for the largest and smallest components of the cost of sugar? **(Scanner)**

- a) 72° b) 48° c) 56° d) 92°

9. A student marks in five subject S1, S2, S3 and S4 and S5 are 86, 79, 90, 88 and 89. If we need to draw a Pie chart to represent these marks, then what will be the central angle for S3? **(Scanner)**

- a) 103.2° b) 75° c) 105.6° d) 94.8°

10. There were 200 employees in an office in which 150 were married. Total male employees were 160 out of which 120 were married. What was the number of female unmarried employees?

- a) 30 b) 10 c) 40 d) 50

11. Out of 1000 persons, 25 per cent were industrial workers and the rest were agricultural workers. 300 persons enjoyed world cup matches on TV. 30 per cent of the people who had not watched world cup matches were industrial workers. What is the number of agricultural workers who had enjoyed world cup matches on TV?

- a) 260 b) 240 c) 230 d) 250

12. A sample study of the people of an area revealed that total number of women were 40% and the percentage of coffee drinkers were 45 as a whole and the percentage of male coffee drinkers was 20. What was the percentage of female non-coffee drinkers?

- a) 10 b) 15 c) 18 d) 20

Section - C

1. The weight of 50 students in pounds are given below:

82, 95, 120, 174, 179, 176, 159, 91, 85, 175, 88, 160, 97, 133, 159, 176, 151, 115, 105, 172, 170, 128, 112, 101, 123, 117, 93, 117, 99, 90, 113, 119, 129, 134, 178, 105, 147, 107, 155, 157, 98, 117, 95, 135, 175, 97, 160, 168, 144, 175,

If the data are arranged in the form of a frequency distribution with class intervals as 81-100, 101-120, 121-140, 141-160, and 161-180, then the frequencies for these 5 class intervals are

- a) 6, 9, 10, 11, 14 b) 12, 8, 7, 11, 12
c) 10, 12, 8, 11, 9 d) 12, 12, 6, 9, 11

2. The following data relate to the marks of 48 students in statistics:

56, 10, 54, 38, 21, 43,
12, 22, 48, 51, 39, 26,
12, 17, 36, 19, 48, 36,
15, 33, 30, 62, 57, 17,
5, 17, 45, 46, 43, 55,
57, 38, 43, 28, 32, 35,
54, 27, 17, 16, 11, 43,

45, 2, 16, 46, 28, 45
What are the frequency densities for the class intervals 30-39, 40-49, and 50-59

- a) 0.20, 0.50, 0.90 b) 0.70, 0.90, 1.10
c) 0.1875, 0.1667, 0.2083 d) 0.90, 1.1, 0.7

3. The following information relates to the age of death of 50 persons in an area:

36, 48, 50, 45, 49, 31,
50, 48, 42, 57, 43, 40,
32, 41, 39, 39, 43, 47,
45, 52, 47, 48, 53, 37,
48, 50, 41, 49, 50, 53,
38, 41, 49, 45, 36, 39,
31, 48, 59, 48, 37, 49,
53, 51, 54, 59, 48, 38,
39, 45

If the class intervals are 31-33, 34-36, 37-39

Then the percentage frequencies for the last five class intervals are

- a) 18, 18, 10, 2 & 4 b) 10, 15, 18, 4 & 2
c) 14, 18, 20, 10 & 2 d) 10, 12, 16, 4 & 6.

4. In a study about the male and female students of commerce and science departments of a college in 5 years, the following datas were obtained:

1995	2000
70% male students	75% male students
65% read commerce	40 read Science
20% of female students read Science	50% of male students read Commerce
3000 total No. of students	3600 total no. of students

After combining 1995 and 2000 if x denotes the ratio of female commerce student to female Science student and y denotes the ratio of male commerce student to male Science student, then

- a) $x = y$ b) $x > y$ c) $x < y$ d) $x \geq y$

5. In a study relating to the labourers of a jute mill in West Bengal, the following information was collected.

'Twenty per cent of the total employees were females and forty per cent of them were married. Thirty female workers were not members of Trade Union. Compared to this, out of 600 male workers 500 were members of Trade Union and fifty per cent of the male workers were married. The unmarried non-member male employees were 60 which formed ten per cent of the total male employees. The unmarried non-members of the employees were 80'. On the basis of this information, the ratio of married male non-members to the married female non-members is

- a) 1 : 3 b) 3 : 1 c) 4 : 1 d) 5 : 1

6. In 2000, out of total of 1,750 workers of a factory, 1,200 were members of a trade union. The number of women employed was 200 of which 175 did not belong to a trade union. In 2004, there were 1,800 employees who belong to a trade union and 50 who did not belong to trade union. Of all the employees in 2004, 300 were women of whom only 8 did not belong to the trade union. On the basis of this information, the ratio of female members of the trade union in 2000 and 2004 is:

- a) 292 : 25 b) 8 : 175 c) 175 : 8 d) 25 : 292

Section - A

- Which of the following statement is true?
 - Statistics is derived from the French word 'Statistik'
 - Statistics is derived from the Italian word 'Statista'.
 - Statistics is derived from the Latin word 'Statistique'.
 - None of these.
- Which of the following statements is false
 - Statistics is derived from the Latin word 'Status'
 - Statistics is derived from the Italian word Statista'
 - Statistics is derived from the French word 'Statistik'
 - None of these
- The statistical measure computed from the sample observations alone have been termed as
 - estimate b) parameter
 - statistic d) attribute
- Statistics is defined in terms of numerical data in the
 - Singular sense b) Plural sense
 - Either (a) or (b) d) Both (a) and (b)
- Statistics is applied in
 - Economics
 - Business management
 - Commerce and industry
 - All these
- Statistics is concerned with
 - Qualitative characteristic
 - Quantitative information
 - (a) or (b)
 - Both (a) and (b)

7. An attribute is
 a) A qualitative characteristic
 b) A quantitative characteristic
 c) A measurable characteristic
 d) All these
8. Annual income of a person is
 a) An attribute
 b) A discrete variable
 c) A continuous variable
 d) (b) or (c)
9. Marks of a student is an example of
 a) An attribute
 b) A discrete variable
 c) A continuous variable
 d) None of these
10. Nationality of a student is
 a) An attribute
 b) A continuous variable
 c) A discrete variable
 d) (a) or (c)
11. Drinking habit of a person is
 a) An attribute
 b) A variable
 c) A discrete variable
 d) A continuous variable
12. Age of a person is
 a) An attribute
 b) A discrete variable
 c) A continuous variable
 d) A variable.
13. 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)
14. The distribution of profits of a blue-chip company relates to
 a) Discrete variable
 b) Continuous variable
 c) Attributes
 d) (a) or (b)
15. The distribution of profits of a company follows:
 a) J – shaped frequency curve
 b) U – shaped
 c) Bell – shaped frequency curve
 d) Any of these
16. Most of the commonly used frequency curves are
 a) Fixed
 b) Inverted J-shaped
 c) U-shaped
 d) Bell-shaped
17. The number of errors in Statistics are
 a) one
 b) two
 c) three
 d) four
18. Which of the following is a statistical data?
 a) Ram is 50 years old.
 b) Height of Ram is 5'6" and of Shyam and Hari is 5'3" and 5'4" respectively.
 c) Height of Ram is 5'6" and weight is 90kg
 d) Sale of A was more than B and C.
19. Sales of XYZ Ltd. for 4 months is:
- | Months | Sales |
|--------|--------|
| Jan. | 10,000 |
| Feb. | 15,000 |
| May | 18,000 |
| Apr. | 9,000 |
- The above data represents: **(Scanner)**
 a) Discrete
 b) Continuous
 c) Individual
 d) None of these
20. The frequency distribution is classified as:
- | | | | | | |
|----|----|----|----|----|----|
| X: | 12 | 17 | 24 | 36 | 45 |
| F: | 2 | 5 | 3 | 8 | 9 |
- a) Continuous distribution
 b) Discrete distribution
 c) Cumulative frequency distribution
 d) None of the above
21. The average of salaries in a factory is Rs. 47,000. The statement that the average salary Rs. 47,000 is _____. **(Scanner)**
 a) Descriptive Statics
 b) Inferential
 c) Detailed
 d) Undetailed
22. Statistics cannot deal with _____ data.
 a) Quantitative
 b) Qualitative
 c) Textual
 d) Attribute
23. You are an auditor of a firm and the firm earns a profit Rs. 67,000/- you stated to them that the annual profit is Rs. 67,000. This is _____ type of statics. **(Scanner)**
 a) Descriptive
 b) Detailed
 c) Non detailed
 d) Inferential
24. In graphical representation of data, ideographs are also called as _____.
 a) Picto-graphs
 b) Asymmetry graphs
 c) Symmetry graphs
 d) Pictograms
25. Which of the following is statistical data
 a) Price of petrol in India is Rs.70
 b) Price of petrol and Diesel in India is Rs.70 & Rs. 60 resp.
 c) Price of petrol in India and Pakistan is Rs. 70 & Rs. 80 resp.
 d) None