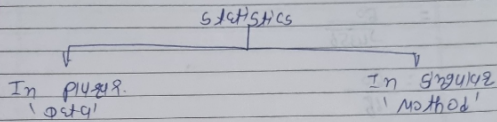


Ch-13

Q- what is statistics?

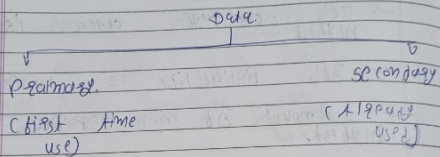


- uses :- In commerce
In Economics
In Business Management
In Industries

• Limitations :-

- It can be use on group not on individual
- It is use on quantitative and qualitative both type of data but more effective on quantitative.
- Based on approximation

Part-2
Collection of data



* Primary data collection Methods :-

i) Interview Method

(i) Direct (Personal) Interview
e.g. Natural calamity (Earthquake)
Epidemic (plague)

(ii) Indirect Interview Method

e.g. Rail Accident

(iii) Telephone Interview

→ It's coverage area is higher than other two.

→ Reliability is lower than the other two.

→ Quickest among all methods.

② Mail Questionnaire Method.

→ It's coverage area is highest.

→ It's reliability is lowest.

→ Amount of non-response is highest.

③ Observation Method

→ Most Accurate Best Method to collect primary data

④ Questionnaire by Enumerators

* Sources of Secondary Data.

① International Sources } Main

② Government Sources }

③ Private Sources

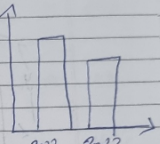
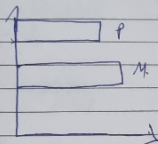
④ Unpublished Data.

①0 Bar Diagram.

Bar diagram

Horizontal

Vertical



→ Quantitative

→ Quantitative

→ Data vary over space (Geographical)

→ Data vary over time (Time series)

→ For single series → Simple Bar Diagram

→ For multiple series → Multiple or Group Bar Diagram.

→ If we want to compare different components and also want to know their share proportion to the total, we use divided, sub-divided or step bar diagram and for the same purpose we use

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→ To know the relationship between variable

eg. ogive
Graph

→ For single series → simple line diagram.

→ For multiple series (with same unit) → Multiple line diagram

→ For multiple series (with different unit) → Multiple Axis line diagram

Page _____
Date _____

CB Box head :- Entire upper part of table

→ Units are given in this part

CRD caption :- last upper part of table

→ Column headings are in this part

CRB stub :- The left part of table

→ Row headings are in this part

CRD Body :- Main part of table

→ All numerical comparisons is done in this part.

- Foot Note :- Source of data is given in this part

③ Diagram Presentation :- Most attractive

CRD line diagram

→ Mainly used for time series data.

→ For comparison of two or more series

Part - 3

Presentation of Data

① Textual presentation :-

→ Paragraphs are used

→ The Numerical data is presented in descriptive form

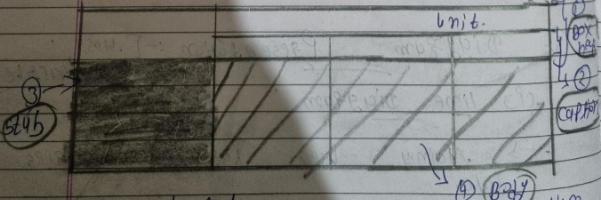
② Tabular presentation :-

→ Most Accurate (Best Method)

→ Details can be shown using this Method.

→ Table has 4 parts

* Title



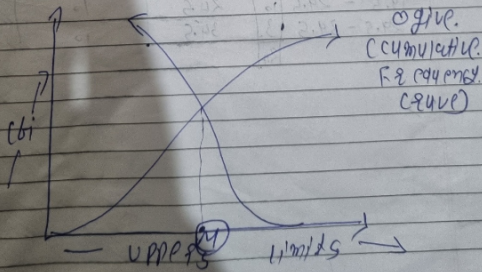
* Foot Note :- Source of data is shown in this part

→ Relative Frequency always lies between 0 to 1

• EXCLUSIVE distribution

⇒ Cumulative Frequency distribution (statistical table)

Less than	Cf.	More than	Cf.
0	0	0	35
10	5 = 5	10	30
20	10 + 5 = 15	20	20
30	5 + 10 + 5 = 30	30	5
40	5 + 10 + 15 + 5 = 35	40	0



Excluding First and last of the other class boundaries lie at the midway between the upper limit of class and lower limit of next class

For the construction of group or ungrouped distribution we use class limits.

For any statistical calculations and diagrams we use class boundaries.

Inclusive \rightarrow Exclusive.

Class boundaries	fi	Mid-Value $= \frac{LCB + UCB}{2}$	Width of class $= UCB - LCB$	Relative F $\frac{fi}{\Sigma f}$
-0.5 - 9.5	4	4.5	9.5 - (-0.5) = 10	$\frac{4}{24}$
9.5 - 19.5	7	14.5	10	$\frac{7}{24}$
19.5 - 29.5	10	24.5	10	$\frac{10}{24}$
29.5 - 39.5	3	34.5	10	$\frac{3}{24}$
	24			

\rightarrow

Inclusive \rightarrow Exclusive

Limits \rightarrow Boundaries

$$\Rightarrow \text{Upper control Boundary} = \text{Upper limit} + \frac{D}{2}$$

$$UCB = UCL + \frac{D}{2}$$

$$\Rightarrow \text{Lower control Boundary} = \text{Lower limit} - \frac{D}{2}$$

$$LCB = LCL - \frac{D}{2}$$

Class limits \rightarrow Class Boundaries

0 - 13	-0.5 - 13.5
20 - 34	13.5 - 34.5
40 - 54	34.5 - 54.5
60 - 79	54.5 - 79.5

Upper boundary of one class coincides with lower boundary of the next class.

Upper limit of any class is different from lower limit of the next class.

→ Histogram, Frequency Polygon and Curve are limiting form of each other and having same Area.

→ Frequency Polygon and Frequency Curve are approximate idea about each other.

→ Attribute Measures Quality of Variable

e.g. → Nationality of a student

→ Habit of a person

→ Colour of a flower

→ Discrete Variables :-

e.g. → Marks of a student

→ Annual Income of a person

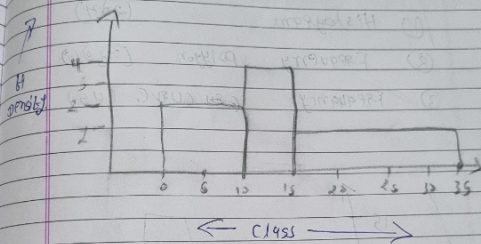
→ Number of shares

→ Continuous Variables

e.g. → Age of a person

→ Profit of a big chip company

Class	h	Frequency	Area of class
0-10	20	20%	2
10-15	20	20%	4
15-35	20	20%	1



→ If class length are same, height of histogram depends on Frequency

→ If class length are different, height of histogram depends on Frequency density

• Points to Remember :-

→ Histogram is an area diagram

→ For group frequency distribution mainly histogram used.

→ In More than or Less than cumulative distribution the frequency adds up to total frequency.

* Exclusive distribution :-

- (1) Histogram (2021)
- (2) Frequency polygon (2020)
- (3) Frequency ~~curve~~ curve (05)

