

Chapter → 9

Statistical description of data

↳ Information

Types of data as per collection :-

① Primary data :- It is collected by investigator himself and more reliable.

② Secondary data :- It is collected by one person and used by other person. It is not much reliable.
 e.g., Govt. sources, etc.

Types of data as per Nature :-

① Time series data :- as per time

• Chronological data / Temporal data

e.g.,	Years	Pop ⁿ
	2001	90cr
	2002	110cr
	2003	104cr

② Geographical data :- as per space or location

• Spatial data

e.g.,	State	pop ⁿ
	Rajasthan	10cr
	Gujarat	5cr
	Punjab	8cr

Method of collection of data :->

① Interview Method :->

(i) Personal / Direct

e.g. -> natural calamity as earthquake, flood etc

(ii) Indirect

- accident

(iii) Telephonic

- fastest method

② Mailed Questionnaire Method :->

- data is collected by either by mail or post.

- It covers widest area.

- Chances of response are very less.

③ Observation Method :->

#

Types of Continuous data

#

Inclusive Series

Exclusive Series

Class Mark	f
0-9	12
10-19	15
20-29	7

Class Mark	f
0-10	7
10-20	8
20-30	6

Concepts about Continuous data:→

(a) Class limit →

UCL

LCL

(b) Class Boundary →

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

$$LCB = UCL - \frac{diff}{2}$$

(c) Midpoint / Midvalue / Class Mark →

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

(d) Class width / length / Interval →

$$H = UCB - LCB$$

(e) Relative frequency →

$$Rof = \frac{f}{\sum f}$$

$$\sum Rof = 1$$

$$0 \leq Rof \leq 1$$

Percentage frequency,

$$= \frac{f}{\Sigma f} \times 100$$

PANKAJ
Page No.:

Date: / /

(A) Frequency density \rightarrow

$$f \cdot D = \frac{f}{h}$$

Methods of presentation of data \rightarrow

(1) Textual Method \rightarrow

(2) Tabular Method \rightarrow

• Best Method

• row & column

* Parts of Table \rightarrow

(a) Header / Title \rightarrow name of table

(b) Footer \rightarrow source of data

(c) Caption \rightarrow upper ~~part~~ most row giving information about each column

(d) Box head \rightarrow Caption + Unit

(e) Stub \rightarrow left most column giving information about each row.

(f) Table body \rightarrow

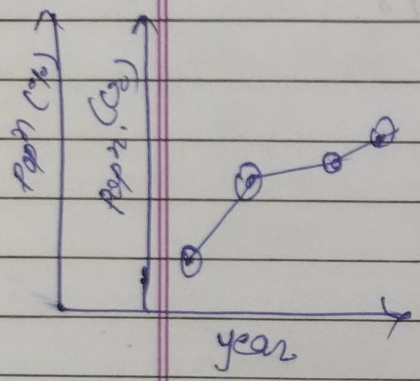
<u>Header</u>				
Caption \leftarrow	Name	Marks	Weight kg	Height cm
Stub $\left\{$	A \downarrow	300	50	5
	B \downarrow	100	60	4
	C \rightarrow	7	500	15
	D	2,8	10	200

(3) Diagrammatic Method :->

- Most attractive.
- * Types :->

(a) Line diagram

- It is drawn for time series data
- X-axis -> year
- Y-axis -> data



* Types :-

(i) Multiple Line diagram :-

- for 2 or more data with same unit

(ii) Multiple axis diagrams :-

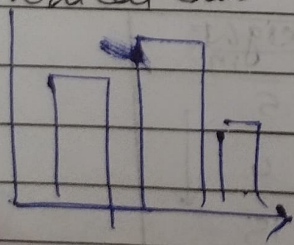
- for 2 or more data with ~~with~~ different unit.

(iii) Ratio Chart :->

- for logarithmic data.

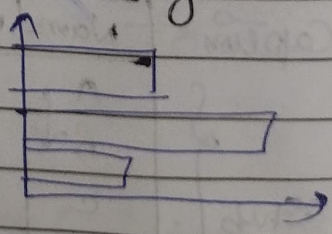
(b) Bar diagram

Vertical Bar



- Time Series
- Quantity

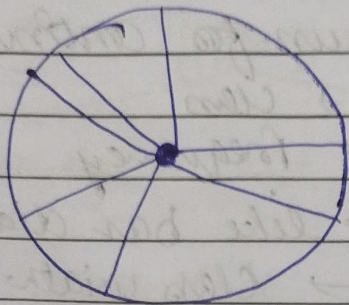
Horizontal Bar



- Geographical
- Quality

(c) Pie Chart

• It is used when entire data is divided in small parts.



Types of frequency.

Normal frequency (F)

Cumulative Frequency (C^oF)

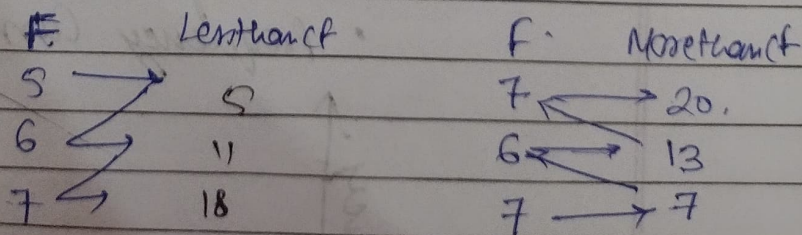
~~More than~~

Less than CF

More than CF

Class	f	Less than CF	More than CF
0-10	8	8	22
10-20	6	14	16
20-30	4	18	12
30-40	5	23	7
40-50	7	30	

Shortcut:-



Upper limit

Lower Limit

Simple-discrete
Grouped \rightarrow Continuous

Page No.: PANKAJ

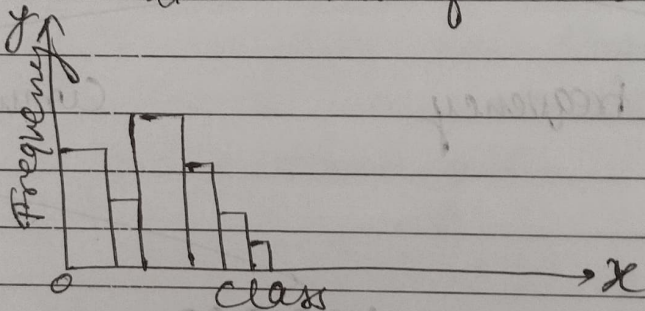
Date: / /

Types of frequency diagrams \rightarrow

(a) Histogram \rightarrow

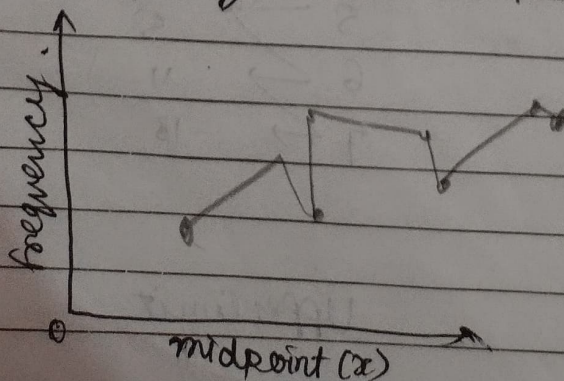
- It is drawn for continuous data
- x-axis \rightarrow class
- y-axis \rightarrow frequency.
- It looks like bar diagram
- Breadth \rightarrow class width
- length \rightarrow frequency.
- It is also called as area diagram.
- We obtain value of MODE from it.

• classes
should overlap



(b) Frequency Polygon \rightarrow

- It can be drawn for discrete & continuous
- x-axis \rightarrow x midpoint
- y-axis \rightarrow f
- It looks like line diagram
- Frequency Polygon is limiting form of histogram
- Frequency Curve is limiting form of



x-axis \rightarrow abscissa
y-axis \rightarrow ordinate

(c) Ogive :-
• It is also called as Cumulative Area Curve

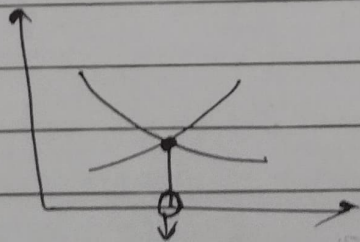
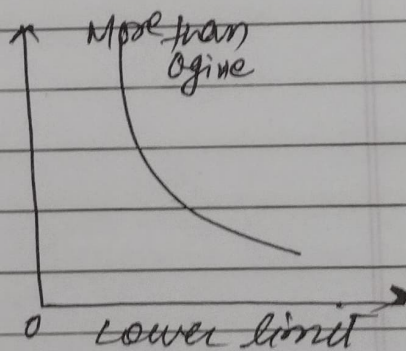
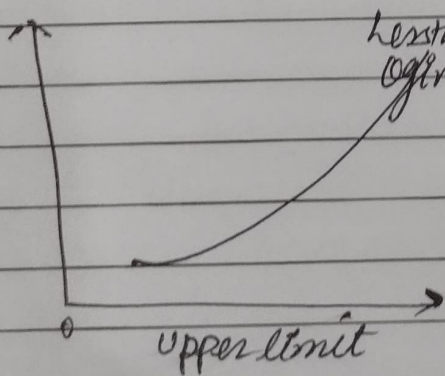
* Types of Ogive

Less than Ogive

More than Ogive

\downarrow
x-axis \rightarrow Upper limit
y-axis \rightarrow Less than c.f

\downarrow
x-axis \rightarrow Lower limit
y-axis \rightarrow More than c.f



Median

- Intersection of two ogives give median
- Ogive \rightarrow we also obtain quartile, decile, percentile.

Theory of Attribute

		A	α	
Boys \rightarrow A Girls \rightarrow α	B	AB	αB	30 = B
	β	A β	$\alpha \beta$	70 = β
How \vee \rightarrow B How X \rightarrow β		40 A	60 α	N = 100