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Program

Bs DI

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Q. NO. 1 :-

∴ MEAN ∴

Given data:

48, 50, 68, 70, 77, 79, 89, 90, 92

$$\text{Mean} = \frac{\sum x}{n}$$

$$\text{Mean} = \frac{663}{9}$$

$$\text{Mean} = 73.66$$

∴ MEDIAN ∴

$$\text{Median} = \frac{n+1}{2}$$

$$\text{Median} = \frac{9+1}{2}$$

Median = 5th term is given data

$$\text{Median} = 77$$

when data is arranged in order of lowest to greatest

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∴ MODE:-

Mode = 0 because there is no  
repetition of data in a set  
of given observation.

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Q. NO # 2 :-

## :- PRESENTATION OF RESEARCH DATA :-

This refers to the organization of data into tables, graphs or charts, so that logical and statistical conclusion can be derived from the collected measurements.

Data may be presented in 3 (method)

- Textual
- Tabular
- Graphical.

### ① :- TEXTUAL PRESENTATION :-

The data gathered are presented in paragraph form.

- Data are written and read.

- It is a combination of text and figures.

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## 2 - TABULAR PRESENTATION:-

- Method of presenting data using the statistical table.
- A systemic organization of data in columns and rows.

## GRAPHICAL PRESENTATION:-

- 1 - Bar graph - used to show relationship comparison b/w group.
- 2 - Line graph - most useful in display data changes continuously overtime.
- 3 - Pictograph uses small identical or figure of object called isotopes to making comparisons. Each picture represent a definite quantity.

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Q. NO :- 3

## RELATIVE RISK:-

- Incidence in exposed individuals =

$$a/atb$$

OR proportion of exposed people who developed the disease.

- Incidence in non-exposed individuals =

$$c/ctd.$$

OR Proportion in nonexposed people who develop disease

Relative Risk =  $\frac{\text{Incidence in exposed}}{\text{Incidence in non exposed}}$

$$R.R = \frac{a/atb}{c/ctd}$$

- can only used for data from studies with a randomly selected example e.g cohort and cross sectional studies.

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# -: Calculating the Relative Risk :-

	CHD+	CHD-	TOTAL
Smoker	112	176	288
Non-smoker	88	224	312

Incidence is exposed =  $a / (a+b) = 112 / 288$   
 $= 0.38$

Incidence is non exposed =  $c / (c+d) = 88 / 312$   
 $= 0.28$

$RR = 0.38 / 0.28 = 1.38$

**EXAMPLE:-** You could have two groups of women one group has a mother sister or daughter who has breast cancer. The other group does not have any close female relative who have had the disease.



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## ∴ ODDS RATIO :-

Incidence cannot be measured in case control studies because we start with the diseased people (cases) and non diseased people (control) hence we calculate OR.

	Cases	Control	
Exposed	a	b	a+b
Non exposure	c	d	c+d
	a+c	b+d	

$$OR = a/c / b/d \text{ or } ad/bc$$



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## EXAMPLE:

In: the treatment group the odds of an event is the number of tutored students who failed a class / the number of students in the tutored group who passed all their classes.

The numerator is the same as that of probability but the denominator here is different. It's not a measure of events out of all possible events. It is a ratio of events to non-events.

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Q. NO 4:

∴ PREVALENCE:

Prevalence quantifies the proportion of individuals in a population who have the disease at a specific instant and provides an estimate of the probability (risk) that an individual will be ill at a point of time.

The formula for calculating the prevalence  $P = \frac{\text{number of existing cases of disease}}{\text{total population}}$  at a given point of time.

∴ POINT PREVALENCE:

Prevalence can be thought of as the status of the disease in a population at a point in time and such is also referred to as point prevalence.

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- This point can refer to a specific point in calendar time or to a fixed point in the course of events that varies in real time from person to person such as the onset of menopause or puberty of the third postoperative day.

PERIOD PREVALENCE:

- It represents the proportion of cases that exists within a population at any point during a specified period of time.
- The numerator thus includes cases that were presents at the start of the period plus new cases that developed during this time.

E.g :- Frequency of patients receiving psychiatric Rx b/w may 31 - Dec 1 - 2018



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Q. NO: 5 :-

What is hypothesis? Also explain different steps in testing of hypothesis?

ANSWER :-

:- HYPOTHESIS :-

A testable theory or statement of belief used in evaluation of a population parameter of interest e.g. Mean or proportion.

:- STEPS :-

1: Statement of research questions in terms of statistical hypothesis (Null and alternate hypothesis).

2: Selection of an appropriate level of significance. The significance level is the risk we are willing to take that a sample which showed a difference was misleading.



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5% significance level means that we are ready to take a 5% chance of wrong result.

3 :- Choosing an appropriate statistics t test, z test for continuous data, chi squares for proportion etc. Tests generates p value.

P-value :- To prevent indicates the probability or likelihood of obtaining of a result at least as extreme as that observed in a study by chance alone assuming that there is truly no association between exposure and outcome under consideration.

4 :- Performing calculations and obtaining P value.

5 :- Drawing conclusions, rejecting null hypothesis if the P value is less than the set significant level.