Quiz 1 (repeat) **A**

1) Subset of population which is selected for making inference about the respective population is called Sample.

2) To check the average response of patient about some medicine Ali records the data from health department. The collected data is called Secondary data.

3) To calculate the average for data which is about the chance of rain, the mean is calculated is known as G.M.

4) If the marks of 8 students are as 9,2,9,5,2,7,9,5. The mode of the given data set is 9.

5) To calculate the average for data which is about the car speed of 2 km per hour, the mean is calculated is known as H.M.

6) To calculate the average for data 2, 4, 3, 0, 1.
The H.M mean is can't be calculated, but the G.M mean is can be calculated but gives incorrect interpretation.

7) To calculate the average for data 2, 4, -3, 6, 1.
The G.M mean is can't be calculated, but the H.M mean is can be calculated but gives incorrect interpretation.

8) Any numerical measure or quantity which is calculated from a sample data is known as statistic.

9) Any numerical measure or quantity which is calculated from a population data is known as parameter.

10) If class marks of 4 students are given as: 6, 4, 9, 2.
Then calculate the following.

G.M

$n = 4$

$G.M = \bar{x} = \text{Anti-log}\left[\frac{\sum \log x_i}{n}\right]$

x_i	$\log x_i$
6	0.778
4	0.602
9	0.954
2	0.301
Total	2.635

$= \text{Anti-log}\left[\frac{2.638}{4}\right]$

$= \text{Anti-log}[0.65875]$

$= 4.558$

Median

For $n = 4$

1st 2nd 3rd 4th

2, 4, 6, 9

$Medi = \frac{1}{2}\left[\left\{\left(\frac{n}{2}\right)^{th} \text{val}\right\} + \left\{\left(\frac{n}{2}+1\right)^{th} \text{val}\right\}\right]$

$= \frac{1}{2}\left[\left\{\left(\frac{4}{2}\right)^{th} \text{val}\right\} + \left\{\left(\frac{4}{2}+1\right)^{th} \text{val}\right\}\right]$

$= \frac{1}{2}\left[2\text{nd val} + 3\text{rd val}\right]$

$= \frac{1}{2}[4+6]$

$= \frac{10}{2}$

$= 5$

11) The frequency distribution is given as:

CLASSES	C.B	Mid point(X)	f	f_i/x_i	c.f		
3 -------7	2.5 – 7.5	5	2	0.4	2		
8 -------12	7.5 – 12.5	10	3	0.3	5		
13 ------17	12.5 – 17.5	15	2	0.133	7		
18 ------22	17.5 – 22.5	20	9	0.45	16	→ Modal class	
TOTAL	—	—	16	1.283	—		

HARMONIC MEAN: $\frac{\sum f_i}{\sum(\frac{f_i}{x_i})} = \frac{16}{1.283} = 12.47$

MODE:

$$L + \left[\frac{(f_m - f_{-1})}{(f_m - f_{-1}) + (f_m - f_{+1})}\right] \times h$$

$$= 17.5 + \left[\frac{(9-2)}{(9-2)+(9-0)}\right] \times 5$$

$$= 17.5 + \left[\frac{7}{16}\right] \times 5$$

$$= 17.5 + (0.4375) \times 5$$

$$= 17.5 + 2.1875$$

$$= 19.6875$$

Quiz 1 (repeat) **B**

1) Any numerical measure or quantity which is calculated from a sample data is known as STATISTIC.
2) Any numerical measure or quantity which is calculated from a population data is known as PARAMETER
3) Subset of population which is selected for making inference about the respective population is called SAMPLE.
4) To check the average response of patient about some medicine Ali records the data from patients of a hospital. The collected data is called PRIMARY DATA.
5) To calculate the average for data which is about the wind speed, the mean is calculated is known as H.M.
6) If the marks of 8 students are as 2,2,9,5,2,7,9,5. The mode of the given data set is 2.
7) To calculate the average for data 12, 10, -13, 20, 10.
The H.M mean is can be calculated but gives incorrect interpretation but the G.M mean is can't be calculated.
8) To calculate the average for data which is about the chance of defective item in a particular stock, the mean is calculated is known as G.M.
9) To calculate the average for data 22, 14, 0, 60, 10.
The G.M mean is can be calculated but gives incorrect interpretation but the H.M mean is can't be calculated.
10) If class marks of 4 students are given as: 7, 6, 8, 2.
Then calculate the following.

H.M

$$H.M = \bar{x} = \frac{n}{\sum_{i=1}^{n}\left(\frac{1}{x_i}\right)}$$

$$= \frac{4}{0.935}$$

$$= 4.278$$

x_i	$1/x_i$
7	0.143
8	0.167
6	0.125
2	0.5
Total	0.935

Median

$n = 4$

$$Median = \left(\frac{n+1}{2}\right)^{th} \text{ val}$$

$$= \left(\frac{4+1}{2}\right)^{th} \text{ val}$$

$$= (2.5)^{th} \text{ val}$$

$$= 2\text{nd val} + 0.5(3\text{rd val} - 2\text{nd val})$$

$$= 6 + 0.5(7-6)$$

$$= 6 + 0.5$$

$$= 6.5$$

S-N	x_i
1st	2
2nd	6
3rd	7
4th	8

11) The frequency distribution is given as:

LASSES	C.B	Mid point(X)	f	c.f.		$\log x_i$	$f_i \log x_i$
3-------9	2.5–9.5	6	8	8	→ Medi class	0.778	6.225
10 -------16	9.5–16.5	13	2	10		1.114	2.228
17 ------23	16.5–23.5	20	2	12		1.301	2.602
24 ------30	23.5–30.5	27	2	14		1.431	2.862
TOTAL	----	---	14	---		---	13.917

GEOMETRIC MEAN:

$$\bar{X} = G.M = \text{Anti-log}\left[\frac{\sum f_i \log x_i}{\sum f_i}\right]$$

$$= \text{Anti-log}\left[\frac{13.917}{14}\right] = \text{Anti-log}\,[0.994]$$

$$= 9.686$$

MEDIAN:

$$\text{Medi} = L + \frac{h}{f}\left(\frac{n}{2} - c\right)$$

To locate Medi class in above f_i distn search.

$\frac{n}{2} = \frac{\sum f_i}{2} = \frac{14}{2} = 7$ in c.f colm.

Now

$$\text{Medi} = 2.5 + \frac{7}{8}(7 - 0)$$

$$= 2.5 + \frac{49}{8}$$

$$= 2.5 + 6.125$$

$$= 8.625$$