CENTRAL TENDENCIES ASSIGNMENT

Q.(1) Find the mean of the following data

(a) 9, 7, 11, 13, 2, 4, 5, 5

$$\text{Mean} = \frac{\text{Sum of total}}{\text{No. of Elements}} = \mu = \frac{\Sigma x_i}{n}$$

Here $n = 8$, so $\mu = \frac{9+7+11+13+2+4+5+5}{8} = \frac{56}{8} = 7$

$$\boxed{\mu = 7}$$

(b) 2.2, 10.2, 14.7, 5.9, 4.9, 11.1, 10.5

$$\mu = \frac{\Sigma x_i}{n} = \frac{2.2+10.2+14.7+5.9+4.9+11.1+10.5}{7}$$

$$= \frac{59.5}{7}$$

$$\boxed{\mu = 8.5}$$

(c) $1\frac{1}{4}, 2\frac{1}{2}, 5\frac{1}{2}, 3\frac{1}{4}, 2\frac{1}{2}$

[improper fraction
$2\frac{1}{2} = 2+\frac{1}{2} = \frac{5}{2}$]

$1+\frac{1}{4}, 2+\frac{1}{2}, 5+\frac{1}{2}, 3+\frac{1}{4}, 2+\frac{1}{2}$

$5/4, 5/2, 11/2, 13/4, 5/2$

$$\mu = \frac{\Sigma x_i}{n} = \frac{5/4 + \frac{5}{2} + \frac{11}{2} + \frac{13}{4} + \frac{5}{2}}{5}$$

$$\boxed{\mu = 3}$$

(2) Find the mean of first 10 fibonacci numbers

Ans First 10 numbers:

0, 1, 1, 2, 3, 5, 8, 13, 21, 34

$$\text{mean } \mu = \frac{0+1+1+2+3+5+8+13+21+34}{10}$$

$$\boxed{\mu = 8.8}$$

(3) Find the mean & median of first 5 prime Numbers

Ans First 5 prime Number → 2, 3, 5, 7, 11

(No. greater than 1 & cannot be written as product of 2 smaller No.)

$$\text{mean } \boxed{\mu = \frac{2+3+5+7+11}{5} = \frac{28}{5} = 5.6}$$

median is = 5 ($\frac{n+1}{2}$ th number is median)

(4) The mean of 8, 11, 6, 14, x & 13 is 66. Find the value of x.

Ans

$$66 = \frac{8+11+6+14+x+13}{6}$$

$$66 \times 6 = 52 + x$$

$$\boxed{x = 344}$$

(5) The mean of 6, 8, x+2, 10, 2x-1, & 2 is 9. Find x.

Ans

$$9 = \frac{6+8+x+2+10+2x-1+2}{6}$$

$$54 = 27 + 3x$$

$$27 = 3x$$

$$\boxed{x = 9}$$

6, 8, 11, 10, 17, 2

(6) Find the mean of following distribution

(a) The age of 20 boys in a locality is given

Age in years	12	10	15	14	8
No. of boys	5	3	2	6	4

Ans → mean $= \frac{12\times5 + 10\times3 + 15\times2 + 14\times6 + 8\times4}{20}$

$= \frac{236}{20} = 11.8$

(b) Marks obtained by 40 students in an exam are given below

Marks	25	30	15	20	24
No. of std	8	12	10	6	4

$$\text{mean} = \frac{25\times8 + 30\times12 + 15\times10 + 20\times6 + 24\times4}{40}$$

mean = 23

(7) Find the mode of the following data

(a) 12, 8, 4, 8, 1, 8, 9, 11, 9, 10, 12, 8

Arrange → 1, 4, 8, 8, 8, 8, 9, 9, 10, 11, 12, 12

mode is = 8

(8) The following observations are arranged in ascending order. The median of the data is 25. Find the x.

17, x, 24, x+7, 35, 36, 46

1 2 3 4 5 6 7

Ans 17, x, 24, x+7, 35, 36, 46

median is above series = $x+7 = 25$

$x = 25-7$

$= 18$

so series is = 17, 18, 24, 25, 35, 36, 46

(9) In the above problem, how would you approach if the no. are not in ascending order. What are possible value of x then

Ans

10. In which of these situation would you use the mode to measure the central tendency of the data

(a) Justin records the temperature at noon every day for 2 weeks and wants to know the temperature of a 'typical' day.

(b) Would you use the mean in all of these situations

(c) Julians measure the height of all the girls on her soccer team & wants to know the typical height of soccer player.

(d) Sam asks the students in her class to identify their favoirte colors and wants to know which color is the most common.

Ans

(a) → mean

(b) → NO

(c) → median

(d) → mode (most common)