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Q1 The scores in mathematics test (out of 25) of 15 students are as follows:

19, 25, 23, 20, 9, 20, 15, 10, 5, 16, 25, 20, 24, 12, 20

Find the mode and median of this data. Are they same?

Sol. Ascending order → 5, 9, 10, 12, 15, 16, 19, 20, 20, 20, 23, 24, 25, 25

Highest occuring observation is 20

Mode = 20 $\quad N = 15$

$$\text{Median} = \left[\frac{N+1}{2}\right]\text{th term}$$

$$= \frac{15+1}{2} = \frac{16}{2} = 8^{th} \text{ term} = 20$$

So Mode and Median are same.

Q2. The runs scored in a cricket match by 11 players are as follows:

6, 15, 120, 50, 100, 80, 10, 15, 8, 10, 15

Find the mean, mode and Median of this data, are the three same?

Sol. Mean = $\frac{\text{Sum of the observation}}{\text{No of the observation}}$

$= \frac{6+15+120+50+100+80+10+15+8+10+15}{11}$

$= \frac{429}{11} = 39$ Ans

In Ascending order

6, 8, 10, 10, 15, 15, 15, 50, 80, 100, 120

The highest occuring observation is 15

Mode = 15

N = 11 (which is odd)

Median $= \left(\frac{N+1}{2}\right)$th term

$= \frac{11+1}{2} = \frac{12}{2} = 6^{th}$ term $= 15$

Hence Mean, Mode, Median are not same.

Q3. The weights (in kg) of 15 students of a class are: 38, 42, 35, 37, 45, 50, 32, 43, 43, 40, 36, 38, 43, 38, 47

(i) find the mode and Median of this data

(ii) Is there more than one mode

Sol. Ascending order:- 32, 35, 36, 37, 38, 38, 38, 40, 42, 43, 43, 43, 45, 47, 50

Mode are 38 and 43 Ans

Number of data is odd $N = 15$

Median $= \left(\frac{N+1}{2}\right)$ th term

$= \left(\frac{15+1}{2}\right) = \frac{16}{2} = 8^{th}$ term $= 40$

(ii) yes, there is more than one mode

Q4 Find the mode and median of the data: 13, 16, 12, 14, 19, 12, 14, 13, 14

Sol Ascending order:-

12, 12, 13, 13, 14, 14, 14, 16, 19

Mode = 14

Number of data is odd. $N = 9$

Median $= \left(\frac{N+1}{2}\right)$-th term

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

$= \frac{10}{2} = 5^{th}$ term $= 14$ Ans

Q5 Tell whether the statement is true or false

Sol. (i) The mode is one of the numbers in a data → True

(ii) The mean is one of the numbers in a data → false

(iii) The median is always one of the numbers in a data → false

(iv) The data 6, 4, 3, 8, 9, 12, 13, 9 has mean 9 — false.