

Question 1.

Find the median of the following data:

(i) 3, 1, 5, 6, 3, 4, 5

(ii) 3, 1, 5, 6, 3, 4, 5, 6

Solution:

(i) 3, 1, 5, 6, 3, 4, 5

Arranging in ascending order, 1, 3, 3, 4, 5, 5, 6

Here, $N = 7$ which is odd

Median = $\frac{7+1}{2}$ th term = 4th term = 4

(ii) 3, 1, 5, 6, 3, 4, 5, 6

Arranging in ascending order, 1, 3, 3, 4, 5, 5, 6, 6

Here, $N = 8$ which is even

$$\therefore \text{Median} = \frac{1}{2} \left[\frac{n}{2} \text{th term} + \left(\frac{n}{2} + 1 \right) \text{th term} \right]$$

$$= \frac{1}{2} \left[\frac{8}{2} \text{th term} + \left(\frac{8}{2} + 1 \right) \text{th term} \right]$$

$$= \frac{1}{2} [4\text{th} + 5\text{th}] \text{ term}$$

$$= \frac{1}{2} [4\text{th} + 5\text{th}] \text{ term}$$

$$= \frac{1}{2} (4 + 5) = \frac{9}{2} = 4.5$$

Question 2.

Find the mode of the following data:

(i) 3, 1, 5, 6, 3, 4, 5, 3

(ii)

Marks obtained	15	17	20	22	25
Number of students	6	17	12	18	13

Solution:

(i) 3, 1, 5, 6, 3, 4, 5, 3

Solution:

(i) 3, 1, 5, 6, 3, 4, 5, 3

Arranging in order, 1, 3, 3, 3, 4, 5, 5, 6

Here, 3 comes maximum times

Mode = 3

(ii)

Marks obtained	15	17	20	22	25
Number of students	6	17	12	18	13

Here, 22 comes maximum times

Mode = 22

Question 3.

Find the median and the mode of the data:

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

Solution:

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

Arranging in ascending order, 12, 12, 13, 13, 14, 14, 14, 16, 19

(i) Median = $\frac{9+1}{2}$ th = $\frac{10}{2}$ th = 5th term = 14

(Here $n = 9$ which is odd)

(ii) 14 comes maximum times

Mode = 14

Question 4.

The scores in mathematics test (out of 25) of 15 students is 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 the same?

Solution:

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

Arranging in ascending order, 5, 9, 10, 12, 15, 16, 19, 20, 20, 20, 20, 23, 24, 25, 25

Here, $N = 15$ which is odd

(i) Median = $\frac{15+1}{2}$ th term = 8th term = 20

Mode = 20 comes maximum times

Mode = 20

Yes, they are same.

Question 5.

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 median and mode of this data.

(ii) Is there more than one mode?

Solution:

38, 42, 35, 37, 45, 50, 32, 43, 43, 40, 36, 38, 43, 38, 47

Arranging in ascending order, 32, 35, 36, 37, 38, 38, 38, 40, 42, 43, 43, 43, 45, 47, 50

Here $n = 15$ which is odd

Median = $\frac{15+1}{2}$ th = 8th term = 40

Mode : 38 and 43 have come maximum times

Mode is 38 or 43

Yes, there is more than one mode : 38 and 43

Question 6.

The runs scored in a cricket match by 11 players is 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?

Solution:

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

Arranging in ascending order, 6, 8, 10, 10, 15, 15, 15, 50, 80, 100, 120

Here $n = 11$ which is odd

$$\begin{aligned} \text{(i) Mean} &= \frac{6 + 8 + 10 + 10 + 15 + 15 + 15 + 50 + 80 + 100 + 120}{11} \\ &= \frac{429}{11} = 39 \end{aligned}$$

$$\text{(ii) Median} = \frac{11+1}{2} \text{ th term} = 6 \text{ th term} = 15$$

(iii) Mode : 15 comes maximum times

Mode = 15

No, the three are not same, only median and mode are same.

Question 7.

Find the mode of the following data:

12, 14, 12, 15, 16, 13, 14, 18, 19, 12, 14, 15, 16, 15,
16, 16, 15, 17, 13, 16, 16, 15, 15, 13, 15, 17, 15, 14,
15, 13, 15, 14.

Solution:

Number	Tally marks	Frequency
12	III	3
13	IIII	4
14	IIII	5
15	IIII IIII	10
16	IIII I	6
17	II	2
18	I	1
19	I	1

We see that the frequency of 15 is the maximum.

Mode = 15