**Question 1.**
**The following number of goals were scored by a team in a series of 10 matches**
**2, 3, 4, 5, 0, 1, 3, 3, 4, 3.**
**Find the mean, median and mode of these scores.**
**Solution:**
To find the mean :
Here, n = 10

$$\therefore \quad \overline{X} = \frac{\displaystyle\sum_{i=1}^{n=10} x_i}{n}$$

$$= \frac{2+3+4+5+0+1+3+3+4+3}{10}$$

$$= \frac{28}{10} = 2.8$$

Thus, mean = 2.8

To find median:
Now arranging the given data in ascending order,
we have 0,1, 2, 3, 3, 3, 3, 4, 4, 5
$\because$ n = 10, an even number

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

$$= \frac{\left[ \left(\frac{10}{2}\right)^{th} \text{term} + \left(\frac{10}{2}+1\right)^{th} \text{term} \right]}{2}$$

$$= \frac{[5^{th} \text{ term} + 6^{th} \text{ term}]}{2} = \frac{3+3}{2} = \frac{6}{2} = 3$$

Thus, median = 3

To find mode:
In the given data, the observation 3 occurs 4 times,
i.e., maximum number of times.
Thus, mode = 3

**Question 2.**
**In a mathematics test given to 15 students, the following marks (out of 100) are recorded**
**41, 39, 48, 52, 46, 62, 54, 40, 96, 52, 98, 40, 42, 52, 60**
**Find the mean, median and mode of this data.**
**Solution:**
To find the mean:
Here, n = 15

$$As, \ \bar{X} = \frac{\sum\limits_{i=1}^{n=15} x_i}{n}$$

$$= \frac{[41 + 39 + 48 + 52 + 46 + 62 + 54 + 40 + 96 + 52 + 98 + 40 + 42 + 52 + 60]}{15}$$

$$= \frac{822}{15} = 54.8$$

Thus, mean = 54.8

To find median:
Arranging the given data in ascending order,
we have
39, 40, 40, 41, 42, 46, 48, 52, 52, 52, 54, 60, 62, 96,98
∵ n = 15, an odd number

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

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

$$= 8^{th} \text{ term} = 52$$

Thus, median = 52

To find mode:
In the given data, the observation 52 occurs 3 times,
i.e., the maximum number of times.
Thus, mode = 52

**29, 32, 48, 50, x, x + 2, 72, 78, 84, 95**
**Solution:**
Here, the given observations are in ascending order.
Since, n = 10 (an even number)

$$\therefore \text{ Median} =$$

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

$$= \frac{\left[\left(\frac{10}{2}\right)^{th} \text{observation} + \left(\frac{10}{2}+1\right)^{th} \text{observation}\right]}{2}$$

$$= \frac{[5^{th} \text{ observation} + 6^{th} \text{ observation}]}{2}$$

$$= \frac{x + (x+2)}{2} = \frac{2x+2}{2} = x+1$$

Since, median = 63 [Given]
$\therefore$ x + 1 = 63 $\Rightarrow$ x = 63 − 1 = 62
Thus, the required value of x is 62.