

Ex. 14.4 Class IX

③ 29, 32, 48, 50, x, x+2, 72, 78, 84, 95

no. of obs. = 10 (even)

$$\begin{aligned} \text{Middlemost obs. } & \frac{n}{2}, \frac{n}{2} + 1 \\ & = \frac{10}{2}, \frac{10}{2} + 1 \\ & = 5^{\text{th}}, 6^{\text{th}} \end{aligned}$$

Median = 63

$$\frac{x + x + 2}{2} = 63$$

$$\Rightarrow 2x + 2 = 126$$

$$\Rightarrow 2x = 126 - 2$$

$$\Rightarrow x = \frac{124}{2}$$

$$= 62$$

6(B) cont.

Middlemost obs.

$$\frac{n}{2}, \frac{n}{2} + 1$$

$$= \frac{10}{2}, \frac{10}{2} + 1$$

$$= 5^{\text{th}}, 6^{\text{th}}$$

$$\text{Median} = \frac{4+5}{2}$$

$$= 4.5$$

④ obs. in asc. order are 14, 14, 14, 14, 17, 18, 18, 18, 22, 23, 25, 28

Most frequent obs = 14

Mode = 14

⑤

$x_i$	$f_i$	$f_i x_i$
3000	16	48 000
4000	12	48 000
5000	10	50 000
6000	8	48 000
7000	6	42 000
8000	4	32 000
9000	3	27 000
1000	1	10 000
Total		305 000

$$\text{Mean} = \frac{\sum f_i x_i}{\sum f_i} = \frac{305000}{60} = 5083.33$$

6(B) let obs be

0, 1, 2, 3, 4, 5, 6, 7, 8, 1000

$$\text{Mean} = \frac{1036}{10}$$

= 103.6 which is not an appropriate central tendency

no. of obs = 10 (even)

Middlemost obs.

$$\frac{n}{2}, \frac{n}{2} + 1$$

$$= \frac{10}{2}, \frac{10}{2} + 1$$

$$= 5^{\text{th}}, 6^{\text{th}}$$

$$\text{Median} = \frac{4+5}{2}$$

$$= 4.5$$

which is an appropriate central tendency

⑥ let obs. be

0, 0, 1, 1, 2, 2, 3, 3, 4, 4, 5, 6

$$\text{Mean} = \frac{\text{Sum of all obs}}{\text{no. of obs.}}$$

$$= \frac{31}{10}$$

$$= 3.1$$