



Exercise 9C

Question 4:

As the class 1500 - 2000 has maximum frequency, so it is modal class

$$x_k = 1500, f_k = 40, f_{k-1} = 24, f_{k+1} = 31, h = 500$$

$$\begin{aligned}\text{Mode, } m_0 &= x_k + \left[h \times \frac{(f_k - f_{k-1})}{(2f_k - f_{k-1} - f_{k+1})} \right] \\ &= 1500 + \left[500 \times \frac{(40 - 24)}{(2 \times 40 - 24 - 31)} \right] \\ &= 1500 + \left(500 \times \frac{16}{25} \right) \\ &= 1500 + 320 = \text{Rs } 1820\end{aligned}$$

Hence the average expenditure done by maximum number of workers = Rs. 1820

Question 5:

As the class 5000 - 10000 has maximum frequency, so it is modal class

$$x_k = 5000, f_k = 150, f_{k-1} = 90, f_{k+1} = 100 \text{ and } h = 5000$$

$$\begin{aligned}\text{Mode, } m_0 &= x_k + \left[h \times \frac{(f_k - f_{k-1})}{(2f_k - f_{k-1} - f_{k+1})} \right] \\ &= 5000 + \left[5000 \times \frac{(150 - 90)}{(300 - 90 - 100)} \right] \\ &= 5000 + 2727.27 \\ &= \text{Rs. } 7727.27\end{aligned}$$

Hence, mode = Rs. 7727.27

Question 6:

As the class 15 - 20 has maximum frequency so it is modal class.

$$x_k = 15, f_k = 24, f_{k-1} = 18, f_{k+1} = 17 \text{ and } h = 5$$

$$\begin{aligned}\text{Mode, } m_0 &= x_k + \left[h \times \frac{(f_k - f_{k-1})}{(2f_k - f_{k-1} - f_{k+1})} \right] \\ &= 15 + \left[5 \times \frac{(24 - 18)}{(48 - 18 - 17)} \right] \\ &= (15 + 2.30) = 17.3 \text{ years}\end{aligned}$$

Hence mode = 17.3 years

***** END *****

