Exercise 9C

Question 4:
As the class 1500 - 2000 has maximum frequency, so it os modal class

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

$$\text{Mode, } m_o = x_k + \left[h \times \frac{(f_k - f_{k-1})}{(2f_k - f_{k-1} - f_{k+1})}\right]$$

$$= 1500 + \left[500 \times \frac{(40 - 24)}{(2 \times 40 - 24 - 31)}\right]$$

$$= 1500 + \left(500 \times \frac{16}{25}\right)$$

$$= 1500 + 320 = \text{Rs } 1820$$

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

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

$$\text{Mode, } m_o = x_k + \left[h \times \frac{(f_k - f_{k-1})}{(2f_k - f_{k-1} - f_{k+1})}\right]$$

$$= 5000 + \left[5000 \times \frac{(150 - 90)}{(300 - 90 - 100)}\right]$$

$$= 5000 + 2727.27$$

$$= \text{Rs. } 7727.27$$

Hence, mode = Rs. 7727.27

Question 6:
As the class 15 - 20 has maximum frequency so it is modal class.

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

$$\text{Mode, } m_o = x_k + \left[h \times \frac{(f_k - f_{k-1})}{(2f_k - f_{k-1} - f_{k+1})}\right]$$

$$= 15 + \left[5 \times \frac{(24 - 18)}{(48 - 18 - 17)}\right]$$

$$= (15 + 2.30) = 17.3 \text{ years}$$

Hence mode = 17.3 years

********** END **********