Exercise 9C

Question 1:
As the class 50 - 60 has maximum frequency, so it is the modal class:

$\therefore x_k = 50,\ h = 10,\ f_k = 20$ and $f_{k-1} = 13$ and $f_{k+1} = 6$

$$\text{Mode}\quad M_0 = x_k + \left[h \times \frac{(f_k - f_{k-1})}{(2f_k - f_{k-1} - f_{k+1})}\right]$$

$$= 50 + \left[10 \times \frac{(20 - 13)}{(2 \times 20 - 13 - 6)}\right]$$

$$= 50 + \left(\frac{70}{21}\right) = (50 + 3.33) = 53.33$$

Hence, mode = 53.33

Question 2:
As the class 40 - 50 as maximum frequency, so it s modal class.

$x_k = 40,\ h = 10,\ f_k = 62,$ and $f_{k-1} = 47$ and $f_{k+1} = 37$

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

$$= 40 + \left[10 \times \frac{(62 - 47)}{(2 \times 62 - 47 - 37)}\right]$$

$$= 40 + \left[\frac{150}{40}\right] = 40 + 3.75 = 43.75$$

Hence, mode = 43.75 years

Question 3:
As the class 26 - 30 has maximum frequency so it is modal class

$x_k = 26,\ f_k = 25,\ f_{k-1} = 20,\ f_{k+1} = 22,\ h = 4$

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

$$= 26 + \left(\frac{(25 - 20)}{(2 \times 25 - 20 - 22)} \times 4\right)$$

$$= 26 + \frac{5}{2} = 26 + 2.5 = 28.5$$

Hence, mode = 28.5

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