



### Exercise 9D

Question 1:

Let assumed mean be 35,  $h = 10$ , now we have

Class	Frequency $f_i$	Mid-value $x_i$	$u_i = \frac{x_i - A}{h}$	C.F	$f_i u_i$
0-10	5	5	-3	5	-15
10-20	10	15	-2	15	-20
20-30	18	25	-1	33	-18
30-40	30	35 = A	0	63	0
40-50	20	45	1	83	20
50-60	12	55	2	95	24
60-70	5	65	3	100	15
	N = 100				$\Sigma f_i u_i = 6$

$$\begin{aligned} \text{(i) Mean } \bar{x} &= A + h \left( \frac{\Sigma f_i u_i}{N} \right) \\ &= 35 + 10 \times \left( \frac{6}{100} \right) = 35 + 0.6 = 35.6 \end{aligned}$$

$$\text{(ii) } N = 100, \frac{N}{2} = 50$$

Cumulative frequency just after 50 is 63

$\therefore$  Median class is 30 - 40

$$\therefore l = 30, h = 10, N = 100, c = 33, f = 30$$

$$\begin{aligned} \therefore \text{Median } M_e &= l + h \left( \frac{\frac{N}{2} - c}{f} \right) = 30 + 10 \left( \frac{50 - 33}{30} \right) \\ &= 30 + 10 \left( \frac{17}{30} \right) = 30 + 5.67 = 35.67 \end{aligned}$$

$$\begin{aligned} \text{(iii) Mode} &= 3 \times \text{median} - 2 \times \text{mean} \\ &= 3 \times 35.67 - 2 \times 35.6 = 107.01 - 71.2 \\ &= 35.81 \end{aligned}$$

Thus, Mean = 35.6, Median = 35.67 and Mode = 35.81

\*\*\*\*\* END \*\*\*\*\*