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_iu_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				$\Sigma f_iu_i = 6$

(i) Mean $\bar{x} = A + h\left(\frac{\Sigma f_iu_i}{N}\right)$

$= 35 + 10 \times \left(\frac{6}{100}\right) = 35 + 0.6 = 35.6$

(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

$\therefore$ Median $M_e = l + h\left(\frac{\frac{N}{2} - c}{f}\right) = 30 + 10\left(\frac{50 - 33}{30}\right)$

$= 30 + 10\left(\frac{17}{30}\right) = 30 + 5.67 = 35.67$

(iii) Mode = 3 × median - 2 × mean
= 3 × 35.67 - 2 × 35.6 = 107.01 - 71.2
= 35.81
Thus, Mean = 35.6, Median = 35.67 and Mode = 35.81

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