Question 5:

Class	Frequency f_i	Mid-value x_i	$u_i = \left(\dfrac{x_i - A}{h}\right)$	$f_i u_i$	C.F.
100-150	6	125	-2	-12	6
150-200	7	175	-1	-7	13
200-250	12	225	0	0	25
250-300	3	275	1	3	28
300-350	2	325	2	4	30
	N = 30			$\Sigma f_i u_i = -12$	

Let assumed mean = 225 and h = 50

(i) Mean = $A + h\left(\dfrac{\Sigma f_i u_i}{N}\right) = 225 + 50\left(\dfrac{-12}{30}\right) = 225 - 20 = 205$

(ii) $\dfrac{N}{2} = \dfrac{30}{2} = 15$

Cumulative frequency just after 15 is 25

∴ corresponding class interval is 200 - 250

∴ Median class is 200 - 250

Cumulative frequency c just before this class = 13

So, $l = 200, f = 12, \dfrac{N}{2} = 15, h = 50, c = 13$

∴ Median = $l + h\left(\dfrac{\dfrac{N}{2} - c}{f}\right) = 200 + 50\left(\dfrac{15 - 13}{12}\right)$

$= 200 + \dfrac{50 \times 2}{12} = 200 + \dfrac{25}{3} = 200 + 8.33 = 208.33$

Hence, Mean = 205 and Median = 208.33

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