



Statistics Ex 7.5 Q16

Answer :

Classes	Frequency (f_i)	x_i	$f_i x_i$	C.f.
0-50	2	25	50	2
50-100	3	75	225	5
100-150	5	125	625	10
150-200	6	175	1050	16
200-250	5	225	1125	21
250-300	3	275	825	24
300-350	1	325	325	25
	$N = \sum f = 25$		$\sum f_i x_i$ $= 4225$	

Here, the maximum frequency is 6 so the modal class 150-200.

Therefore,

$$l = 150$$

$$h = 50$$

$$f = 6$$

$$f_1 = 5$$

$$f_2 = 5$$

$$F = 10$$

$$\begin{aligned}\text{Mean} &= \frac{\sum f_i x_i}{\sum f} \\ &= \frac{4225}{25}\end{aligned}$$

$$\boxed{\text{Mean} = 169}$$

Thus, the mean of the data is 169.

$$\begin{aligned}\text{Median} &= l + \frac{\frac{N}{2} - F}{f} \times h \\ &= 150 + \frac{12.5 - 10}{6} \times 50 \\ &= 150 + \frac{2.5}{6} \times 50 \\ &= 150 + \frac{125}{6}\end{aligned}$$

$$\boxed{\text{Median} = 170.83}$$

Thus, the median of the data is 170.83.

$$\begin{aligned}\text{Mode} &= l + \frac{f - f_1}{2f - f_1 - f_2} \times h \\ &= 150 + \frac{6 - 5}{12 - 5 - 5} \times 50 \\ &= 150 + \frac{1}{2} \times 50 \\ &= 150 + 25 \\ &= 175\end{aligned}$$

Thus, the mode of the data is 175.

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