



Exercise 9B

Question 11: Given series is in inclusive form converting it into exclusive form and preparing the cumulative frequency table, we get

Wages per day (in Rs)	Frequency f_i	C.F
60.5 - 70.5	5	5
70.5 - 80.5	15	20
80.5 - 90.5	20	40
90.5 - 100.5	30	70
100.5 - 110.5	20	90
110.5 - 120.5	8	98
	$\sum f_i = N = 98$	

$$N = 98 \Rightarrow \frac{N}{2} = 49$$

The cumulative frequency just greater than 49 is 70 and corresponding class is 90.5 - 100.5.

\therefore median class is 90.5 - 100.5

\therefore $l = 90.5$, $h = 10$, $f = 30$, $c = \text{CF preceding median class} = 40$

$$\begin{aligned} \text{Median} &= l + \left[h \times \frac{\left(\frac{N}{2} - c \right)}{f} \right] = 90.5 + \left[10 \times \frac{49 - 40}{30} \right] \\ &= 90.5 + 3 = \text{Rs } 93.50 \end{aligned}$$

Hence, Median = Rs 93.50

Question 12: The given series is converted from inclusive to exclusive form and preparing the cumulative frequency table, we get

Marks	Frequency f_i	C.F
10.5 - 15.5	2	2
15.5 - 20.5	3	5
20.5 - 25.5	6	11
25.5 - 30.5	7	18
30.5 - 35.5	14	32
35.5 - 40.5	12	44
40.5 - 45.5	4	48
45.5 - 50.5	2	50
	$\sum f_i = N = 50$	

$$N = 50 \Rightarrow \frac{N}{2} = \frac{50}{2} = 25$$

The cumulative frequency just greater than 25 is 32.

\therefore The corresponding class is 30.5 - 35.5.

Thus, the median class is 30.5 - 35.5

$\therefore l = 30.5, h = 5, f = 14, c = \text{C.F preceding median class} = 18$

$$\begin{aligned} \text{Median} &= l + \left[h \times \frac{\left(\frac{N}{2} - c \right)}{f} \right] = 30.5 + \left[5 \times \frac{(25 - 18)}{14} \right] \\ &= 30.5 + 2.5 = 33 \end{aligned}$$

Hence, Median = 33

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