



Exercise 9A

Question 17:

We have $h = 20$ and let $A = 70$ be the assumed mean. We have the table given below:

Marks	Frequency f_i	Mid value x_i	$u_i = \left(\frac{x_i - A}{h} \right)$	$(f_i \times u_i)$
0 - 20	12	10	-3	-36
20 - 40	18	30	-2	-36
40 - 60	15	50	-1	-15
60 - 80	25	70 = A	0	0
80 - 100	26	90	1	26
100 - 120	15	110	2	30
120 - 140	9	130	3	27
	$\sum f_i = 150$			$\sum (f_i \times u_i) = -4$

Thus, $A = 70$, $h = 20$, $\sum f_i = 150$ and $\sum (f_i \times u_i) = -4$

$$\begin{aligned}
 \bar{x} &= A + \left[h \times \frac{\sum (f_i \times u_i)}{\sum f_i} \right] \\
 &= 70 + \left[20 \times \frac{-4}{150} \right] \\
 &= 70 - 0.67 = 69.33
 \end{aligned}$$

Hence the mean of given frequency distribution is 69.33

Question 18:

We have $h = 14$ and let $A = 35$ be the assumed mean.

For calculating the mean, we prepare the table given below:

Marks	Frequency f_i	Mid value x_i	$u_i = \left(\frac{x_i - A}{h} \right)$	$(f_i \times u_i)$
0 - 14	7	7	-2	-14
14 - 28	21	21	-1	-21
28 - 42	35	35 = A	0	0
42 - 56	11	49	1	11
56 - 70	16	63	2	32
	$\sum f_i = 90$			$\sum (f_i \times u_i) = 8$

Thus, $A = 35$, $\sum f_i = 90$, $h = 14$ and $\sum (f_i \times u_i) = 8$

$$\begin{aligned}
 \therefore \text{Mean, } \bar{x} &= A + \left[h \times \frac{\sum (f_i \times u_i)}{\sum f_i} \right] \\
 &= 35 + \left(14 \times \frac{8}{90} \right) \\
 &= 35 + \frac{14 \times 8}{90} \\
 &= 35 + 1.24 \\
 &= 36.24
 \end{aligned}$$

Hence, Mean = 36.24

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