Exercise 9A

Question 23:

The given series is an inclusive series, making it an exclusive series, we have

Class	Frequency f_i	Mid value x_i	$u_i = \left(\frac{x_i - 42}{5}\right)$	$(f_i \times u_i)$
24.5 - 29.5	4	27	-3	-12
29.5 - 34.5	14	32	-2	-28
34.5 - 39.5	22	37	-1	-22
39.5 - 44.5	16	42 = A	0	0
44.5 - 49.5	6	47	1	6
49.5 - 54.5	5	52	2	10
54.5 - 59.5	3	57	3	9
	$\Sigma f_i = 70$			$\Sigma(f_i \times u_i) = -37$

Thus, A = 42, h = 5, $\Sigma f_i = 70$ and $\Sigma (f_i \times u_i) = -37$

$$\therefore \text{Mean, } \bar{x} = A + \left[h \times \frac{\Sigma (f_i \times u_i)}{\Sigma f_i}\right]$$

$$= 42 + \left(5 \times \frac{-37}{70}\right)$$

$$= 42 - 2.64$$

$$= 39.36 \text{ years}$$

Hence, Mean = 39.36 years

Question 24:

The given series is an inclusive series making it an exclusive series, we get

class	Frequency f_i	Mid value x_i	$u_i = \left(\frac{x_i - 29.5}{10}\right)$	$(f_i \times u_i)$
4.5 - 14.5	6	9.5	-2	-12
14.5 - 24.5	11	19.5	-1	-11
24.5 - 34.5	21	29.5=A	0	0
34.5 - 44.5	23	39.5	1	23
44.5 - 54.5	14	49.5	2	28
54.5 - 64.5	5	59.5	3	15
	$\Sigma f_i = 80$			$\Sigma (f_i \times u_i) = 43$

Thus, A = 29.5, h = 10, $\Sigma f_i = 80$ and $\Sigma (f_i \times u_i) = 43$

$$\therefore \text{Mean, } \bar{x} = A + \left[h \times \frac{\Sigma (f_i \times u_i)}{\Sigma f_i}\right]$$

$$= 29.5 + \left(\frac{43}{80} \times 10\right)$$

$$= 29.5 + 5.37$$

$$= 34.87 \text{ years}$$

Hence, Mean = 34.87 years

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