Exercise 9A

Question 21:

We have h = 6 and let assumed mean A = 99. For calculating the mean we prepare the table:

Class	f_i	x_i	$u_i = \left(\frac{x_i - A}{h}\right) = \left(\frac{x_i - 99}{6}\right)$	$(f_i \times u_i)$
84 - 90	15	87	-2	-30
90 - 96	22	93	-1	-22
96 - 102	20	99=A	0	0
102 - 108	18	105	1	18
108 - 114	20	111	2	40
114 - 120	25	117	3	75
	$\Sigma f_i = 120$			$\Sigma (f_i \times u_i) = 81$

Thus, A = 99, h = 6 and $\Sigma f_i = 120$, $\Sigma (f_i \times u_i) = 2$

$$\therefore \text{Mean}, \bar{x} = A + \left[h \times \frac{\Sigma (f_i \times u_i)}{\Sigma f_i}\right]$$
$$= 99 + \left(6 \times \frac{81}{120}\right) = 103.05$$

Hence, Mean = 103.05

Question 22:

Let h = 20 and assume mean = 550, we prepare the table given below:

Age	Frequency f_i	Mid value x_i	$u_i = \left(\frac{x_i - 550}{20}\right)$	$(f_i \times u_i)$
500 - 520	14	510	-2	-27
520 - 540	9	530	-1	-9
540 - 560	5	550 = A	0	0
560 - 580	4	570	1	4
580 - 600	3	590	2	6
600 - 620	5	610	3	15
	$\Sigma f_i = 40$			$\Sigma(f_i \times u_i) = -12$

Thus, A = 550, h = 20, and $\Sigma f_i = 40$, $\Sigma (f_i \times u_i) = -12$

$$\therefore \text{Mean}, \bar{x} = A + \left[h \times \frac{\Sigma (f_i \times u_i)}{\Sigma f_i}\right]$$
$$= 550 + \left(20 \times \frac{-12}{40}\right)$$
$$= 550 - 6 = 544$$

Hence the mean of the frequency distribution is 544

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