Statistics Ex 7.3 Q25

Answer :

Let the assumed mean $A = 70$ and $h = 10$.

Literacy rate (in %):	Mid value (x_i):	No. of cities (f_i)	$d_i = x_i - A = x_i - 70$	$u_i = \frac{1}{h}(d_i) = \frac{1}{10}(d_i)$	$f_i u_i$
45 – 55	50	3	−20	−2	−6
55 – 65	60	10	−10	−1	−10
65 – 75	70	11	0	0	0
75 – 85	80	8	10	1	8
85 – 95	90	3	20	2	6
		$\sum f_i = 35$			$\sum f_i u_i = -2$

We know that mean, $\overline{X} = A + h\left(\frac{1}{N}\sum f_i u_i\right)$

Now, we have $N = \sum f_i = 35$, $\sum f_i u_i = -2$, $h = 10$ and $A = 70$

Putting the values in the above formula, we have

$$\overline{X} = A + h\left(\frac{1}{N}\sum f_i u_i\right)$$
$$= 70 + 10\left(\frac{1}{35} \times (-2)\right)$$
$$= 70 - \frac{20}{35}$$
$$= 70 - 0.571$$
$$= 69.428$$

Hence, the mean literacy rate is approximately 69.43%.

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