



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, $\bar{X} = A + h \left(\frac{1}{N} \sum f_i u_i \right)$

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

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

Hence, the mean literacy rate is approximately 69.43%.

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