Statistics Ex 7.3 Q3

Answer :

Let the assumed mean be $A = 120$ and $h = 20$.

Daily wages (in Rs.)	Mid value (x_i):	No. of workers (f_i):	$d_i = x_i - A$ $= x_i - 150$	$u_i = \frac{1}{h}(d_i)$ $= \frac{1}{20}(d_i)$	$f_i u_i$
100–120	110	12	–40	–2	–24
120–140	130	14	–20	–1	–14
140–160	150	8	0	0	0
160–180	170	6	20	1	6
180–200	190	10	40	2	20
		$\sum f_i = 50$			$\sum f_i u_i = -12$

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

Now, we have $N = \sum f_i = 50,\ \sum f_i u_i = -12,\ h = 20 \text{ and } A = 150$.

Putting the values in the above formula, we have

$$\overline{X} = A + h\left(\frac{1}{N}\sum f_i u_i\right)$$
$$= 150 + 20\left(\frac{1}{50} \times (-12)\right)$$
$$= 150 - \frac{240}{50}$$
$$= 150 - 4.8$$
$$= 145.2$$

Hence, the mean daily wage of the workers is Rs 145.20.

Statistics Ex 7.3 Q4

Answer :

Let the assumed mean be $A = 75.5$ and $h = 3$.

No. of Heart Beats per Min:	Mid Value xi	No. of Women fi:	di=xi-A	ui=1h×di	fiui
65-68	66.5	2	-9	-3	-6
68-71	69.5	4	-6	-2	-8
71-74	72.5	3	-3	-1	-3
74-77	**75.5 = A**	8	0	0	0
77-80	78.5	7	3	1	7
80-83	81.5	4	6	2	8
83-86	84.5	2	9	3	6
		∑fi=30			∑fiui=4

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

Now, we have $N = \sum f_i = 30,\ \sum f_i u_i = 4,\ h = 3 \text{ and } A = 75.5$.

Putting the values in the above formula, we have

$$\overline{X} = A + h\left(\frac{1}{N}\sum f_i u_i\right)$$
$$= 75.5 + 3\left(\frac{1}{30} \times (4)\right)$$
$$= 75.5 + \frac{12}{30}$$
$$= 75.5 + 0.4$$
$$= 75.9$$

Hence, the mean heart beats per minute for women is 75.9.

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