## Chapter 3




| value | Frequency (F) |
| :---: | :---: |
| $0-20$ | $10+15=25$ |
| $20-40$ | 50 |
| $40-60$ | $20+10=30$ |
| $60-80$ | 20 |
| $80-100$ | 5 |

$\begin{aligned} & \text { Modal Class }= \text { class corresponding to the } \\ & \text { Maximum Frequency }-50\end{aligned}$ Maximum Frequency. -50

$$
=20-40
$$

where $L=20, F_{1}=50, F_{0}=25, F_{2}=30, h=20$

$$
\begin{aligned}
& \Delta_{1}=F_{1}-F_{0}=50-25=25 \\
& \Delta_{2}=F_{1}-F_{2}=50-30=20
\end{aligned}
$$

we know that,

$$
\begin{aligned}
M_{0} & =1+\frac{\Delta_{1}}{\Delta_{1}+\Delta_{2}} \times h \\
& =20+\frac{25}{25+20} \times 20 \\
& =20+\frac{25}{45} \times 20 \\
& =31.11 \text { so that mode }\left(M_{10}\right)=31.11
\end{aligned}
$$

Relation between Mean, Median and mode

Formula $M_{0}=3 \mathrm{Md}-2 \bar{x}$


Again.
Since $\operatorname{mode}\left(\mathrm{MO}_{0}\right)=54$
$\because$ modal class $=40-60$
Here, $L=40, F_{1}=30, F_{0}=a, F_{2}=b$

$$
\begin{aligned}
& \Delta_{1}=F_{1}-F_{0}=30-a \\
& \Delta_{2}=F_{1}-F_{2}=30-b
\end{aligned}
$$

We know

$$
\begin{aligned}
& M_{1}=L+\frac{\Delta_{1}}{\Delta_{1}+\Delta_{2}} \times n \\
& \text { or, } 54=40+\frac{30-a}{30-a+(30-b)} \times 20 \\
& \text { or, } 54-40=\frac{30-a}{60-(a+b)} \times 20 \\
& \text { or, } 14=\frac{30-a}{60-40} \times 20 \quad[\because a+b=40) \\
& \text { or, } 14=\frac{30-a}{20} \times 20 \\
& \text { or, } 14=30-a \\
& \text { or, } a=30-14 \\
& \text { or, } a=16
\end{aligned}
$$

From equation (i) $b=40-16=24$
00 missing Frequency are 16 and $2 y$ respectively.






we know,
Average speed $(H \cdot m)=\frac{\varepsilon w}{\varepsilon \frac{k i}{x}}$ vie by table

| Speed per hor. | $\omega$ | $1 / x \quad 山 / x$ |  |
| :---: | :---: | :---: | :---: |
| $x$ |  |  |  |
| 8 | 3 | $1 / 8=0.125$ | 0.375 |
| 3 | 2 | $1 / 3=0.333$ | 0.6667 |
| 2 | 2 | $42=0.5$ | 1.0 |

$$
\frac{\varepsilon \frac{w}{x}}{7}=2.0417
$$

We know HAm $=\frac{\varepsilon_{k / L}}{\varepsilon \mid k / x}=\frac{x}{2.0417}=3.43$
"o weighted $(\mathrm{HM})=3.43 \mathrm{Mph}$.
End


