2 (iii) let speed of train = x km/h
speed of bus = y km/h

acc. to condition I

$$\frac{60}{x} + \frac{240}{y} = 4$$

[dis. trav. by train = 60 km
dis trav by bus = 300 − 60 = 240 km]

$$\text{Speed} = \frac{d}{t}$$

acc to condition II

$$\frac{100}{x} + \frac{200}{y} = 4 + \frac{10}{60}$$

[dis. trav. by train = 100 km
dis. trav by bus = 300 − 100 = 200 km]

$$\Rightarrow \frac{100}{x} + \frac{200}{y} = \frac{25}{6}$$

Put $\frac{1}{x} = a$, $\frac{1}{y} = b$ in both the equations

$60a + 240b = 4 \quad \cdots$ (iii) $\times$ ~~100~~ 5

$100a + 200b = 25/6 \quad \cdots$ (iv) $\times$ ~~60~~ 3

(iii) $\times 5$ − (iv) $\times 3$

$300a + 1200b = 20$

$300a + 600b = 25/2$

$600b = 20 - \frac{25}{2}$

$\Rightarrow b = \frac{15}{2 \times 600}$ (40)

$\Rightarrow b = \frac{1}{80}$

Sub in (iii)

$60a + \overset{3}{\cancel{240}} \times \frac{1}{\cancel{80}_1} = 4$

$60a = 4 - 3$

$\Rightarrow a = \frac{1}{60}$

$a = \frac{1}{60}$, $b = \frac{1}{80}$

$\frac{1}{x} = \frac{1}{60}$ $\quad$ $\frac{1}{y} = \frac{1}{80}$

$\Rightarrow x = 60$ $\quad$ $y = 80$

∴ speed of train = 60 km/h
speed of bus = 80 km/h