comparing eq (11) & (13) $\Rightarrow$ $\boxed{R_{eq} = R_1 + R_2}$ — (14)

by (13)

$$\frac{(l_1 + l_2)}{K_{eq} A} = \frac{l_1}{K_1 A} + \frac{l_2}{K_2 A}$$

$$\frac{(l_1 + l_2)}{K_{eq}} = \frac{l_1}{K_1} + \frac{l_2}{K_2}$$

$$\boxed{K_{eq} = \frac{l_1 + l_2}{\left(\frac{l_1}{K_1} + \frac{l_2}{K_2}\right)}} \quad \text{— (15)}$$

EXAMPLE: Three bars of equal lengths and equal area of cross-section are connected in series. Their thermal conductivities are in ratio of 2:4:3. If the open ends of the first and the last bars are at temperatures 200°C and 18°C respectively in steady state, calculate the temperatures of both the junctions.

[Ans: 116°C and 74°C]