



by transforming to voltage source of current source we get,

$$I_2 = \frac{12}{20} = 0.6 \text{ A}$$

and by transforming voltage source 3 to current source

$$\text{we get } I_3 = \frac{16}{40} = 0.4 \text{ A}$$

$$\therefore \text{ total current } \Rightarrow I = I_1 + I_2 + I_3$$

$$= 3 + 0.6 + 0.4$$

$$= 4 \text{ A}$$

\therefore equivalent resistance \rightarrow

$$\frac{1}{R_{eq}} = \frac{1}{R_1} + \frac{1}{R_2} + \frac{1}{R_3}$$

$$= \frac{1}{10} + \frac{1}{20} + \frac{1}{40}$$

$$= \frac{7}{40}$$

$$\Rightarrow R_{eq} = \frac{90}{7} = 12.857 \Omega$$

∴ After transforming all the source the new circuit is



Ans.

$$R_{eq} = \frac{21}{2} = 10.5 \Omega$$

$$I_1 + I_2 + I_3 = I \text{ (total current)}$$

$$I_1 + I_2 + I_3 = 10$$

Ans.

∴ equivalent resistance

$$\frac{1}{R_{eq}} = \frac{1}{10} + \frac{1}{20} + \frac{1}{30} = \frac{1}{6}$$

$$\frac{1}{R_{eq}} = \frac{1}{10} + \frac{1}{20} + \frac{1}{30}$$

$$\frac{6}{R_{eq}}$$