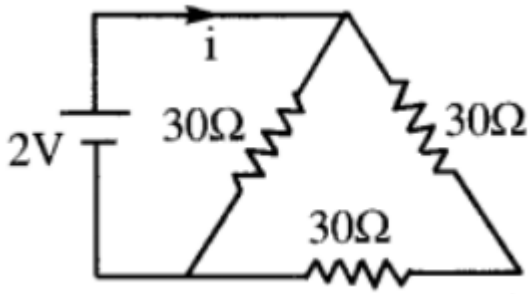
Example 4) The current i in the circuit (see fig) is



a)(1/45) ampere
b) (1/15) ampere
c) (1/10) ampere
d) (1/5) ampere

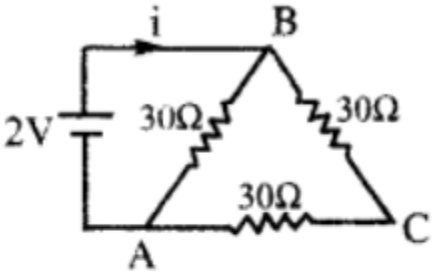
Solution-

(c) BC and CA are in series.

$\therefore R_{BCA} = 30 + 30 = 60\Omega$

BCA and BA are in parallel,

$$\therefore \frac{1}{R_{eq}} = \frac{1}{60} + \frac{1}{30} = \frac{3}{60} = \frac{1}{20}$$



$\therefore R_{eq} = 20\Omega$

$$\therefore i = \frac{V}{R_{eq}}$$

$$\text{or} \quad i = \frac{2\text{volt}}{20\Omega} = 0.1\text{A}$$