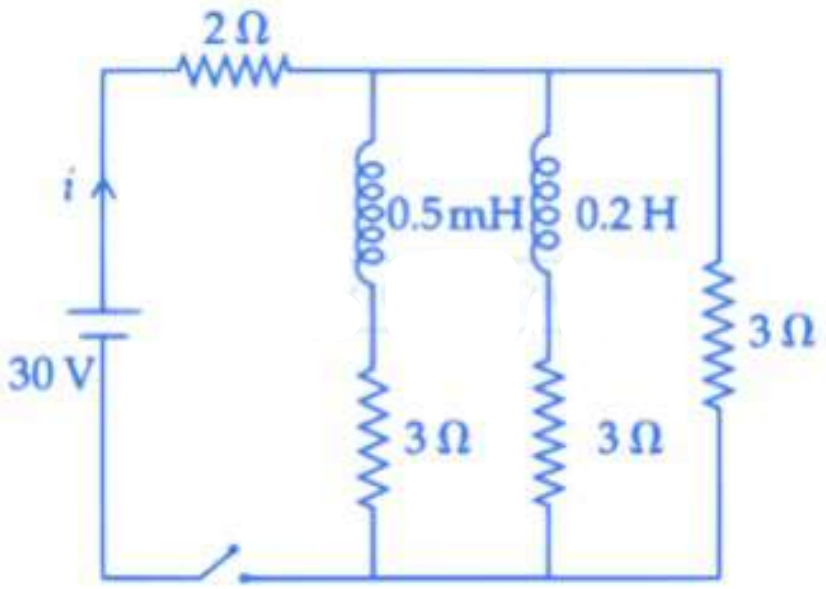
For the given circuit the current i through the battery when the key in closed and the steady state has been reached is _____. (JEE MAIN 2021)



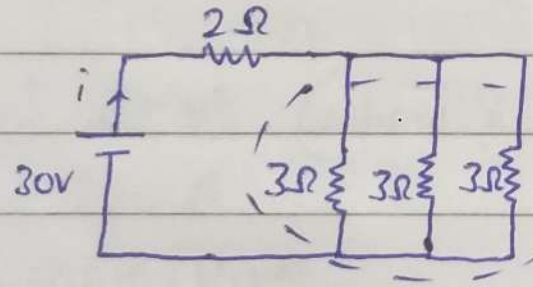
A 6 A

B 25 A

C 10 A

D 0 A

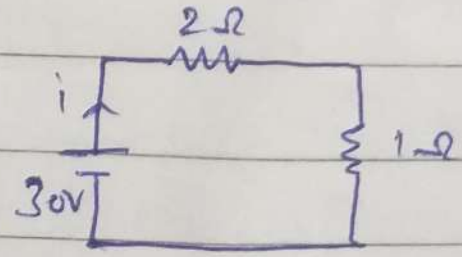
2. When, key is closed, then, in steady state inductor becomes short circuited and offers no resistance. Hence, equivalent circuit becomes:-



$\Rightarrow \frac{1}{R_p} = \frac{1}{3} + \frac{1}{3} + \frac{1}{3}$

$\Rightarrow \boxed{R_p = 1\Omega}$

$\therefore R_{net} = 2 + 1 \Rightarrow 3\Omega$



$\therefore I = \frac{V}{R} = \frac{30}{3} \Rightarrow 10A$

$\Rightarrow \boxed{I = 10A}$