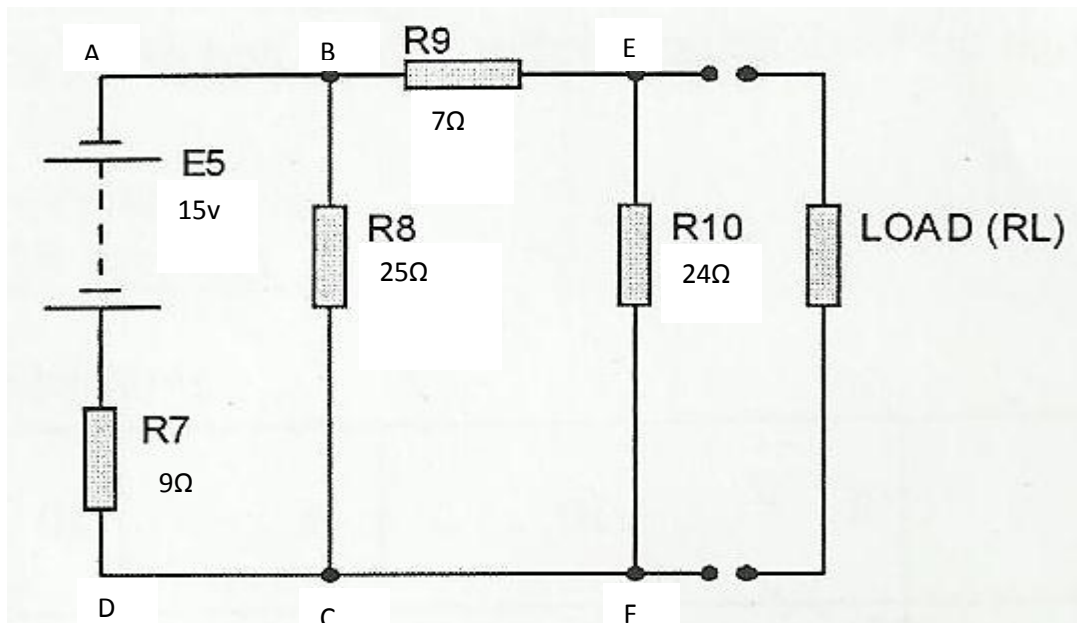


Task Two
Kirchoffs Law



Loop A B C D

$$15v = 9\Omega I_1 + 25\Omega (I_1 - I_2)$$

$$15v = 10\Omega I_1 + 25\Omega I_1 - 25\Omega I_2$$

$$15v = 34\Omega I_1 - 25\Omega I_2 \text{-----} \textcircled{1}$$

Loop B E F C

$$0v = 7\Omega I_2 + 25\Omega (I_2 - I_1) + 24\Omega I_2$$

$$0v = -25\Omega I_1 + 56\Omega I_2 \text{-----} \textcircled{2}$$

$$15v = 34\Omega I_1 - 25\Omega I_2 \text{-----} \textcircled{1} \times 25$$

$$0v = -25\Omega I_1 + 56\Omega I_2 \text{-----} \textcircled{2} \times 34$$

$$375v = 850\Omega I_1 - 625\Omega I_2$$

$$0v = -850\Omega I_1 + 1904\Omega I_2$$

$$375v = 1279\Omega I_2$$

$$I_2 = \frac{375v}{1279\Omega} = 0.293a$$

Sub I_2 in to equation $\textcircled{1}$

$$15v = 34\Omega I_1 - 25\Omega I_2 (0.293a)$$

$$15v = 34\Omega I_1 + 0.692a$$

$$15v + 0.692a = 34\Omega I_1$$

$$I_1 = 15v + \frac{0.293a}{15v} = 15.02$$

$$RL = I_1 + I_2 = 0.293a + 15.02 = 15.31a$$

$$RL = 15.03a$$

