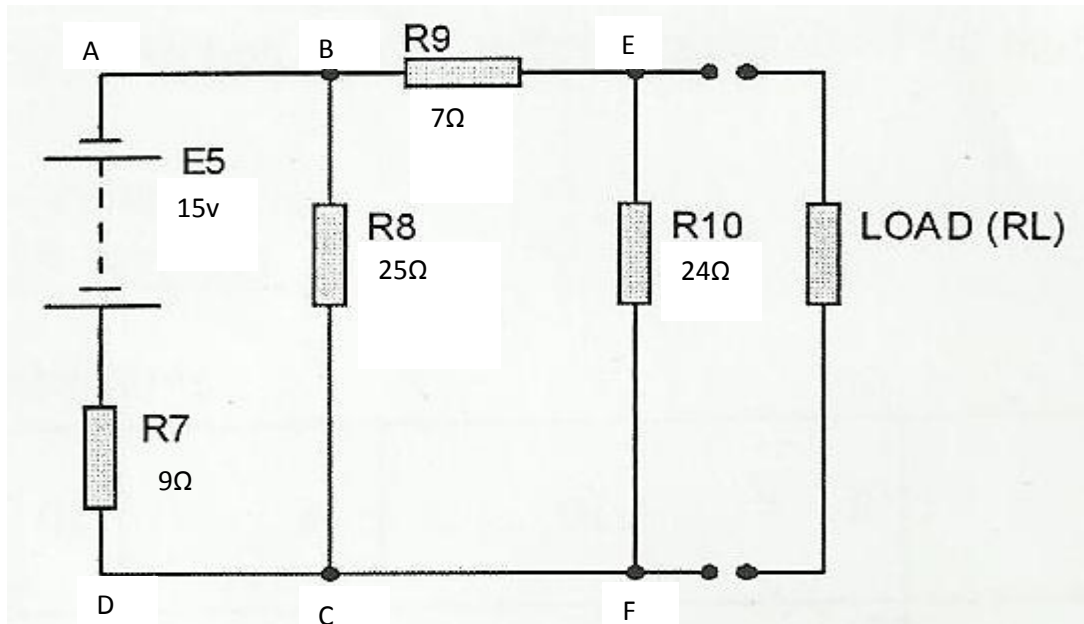


Task Two
Kirchoffs Law



Loop A B C D

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

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

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

Loop B E F C

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

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

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

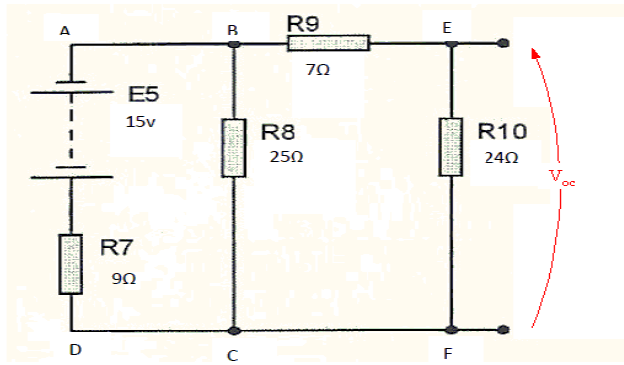
$$0\text{v} = -25\Omega I_1 + 56\Omega I_2 \text{----- } \textcircled{2} \times 34$$

$$375\text{v} = 850\Omega I_1 - 625\Omega I_2$$

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

$$375\text{v} = 1279\Omega I_2$$

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



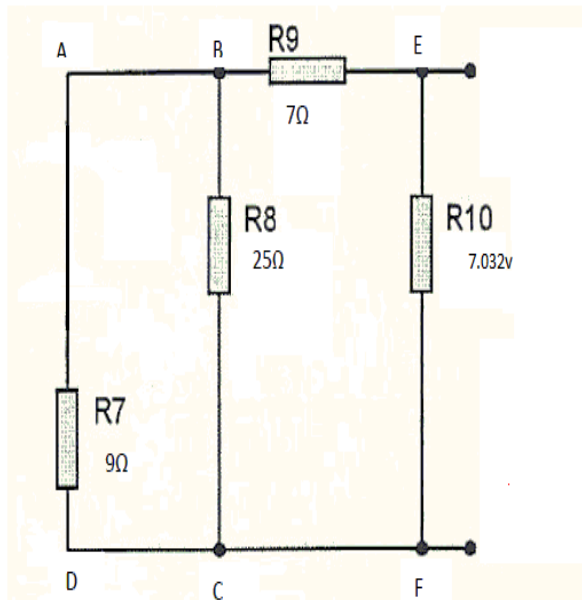
$$V_o = 0.293a * 24\Omega^2 = 7.032v$$

$$I_{SC} = 25\Omega I_1 * 15v = 375v$$

$$25\Omega I_1 * 9\Omega I = 225\Omega$$

$$34\Omega I_1 * 7\Omega I_2 = 238\Omega$$

$$\frac{375v}{463\Omega} = 0.81a$$



$$R_L = \frac{V_o}{I_{SC}} = \frac{7.032v}{0.81a} = 8.68\Omega$$