

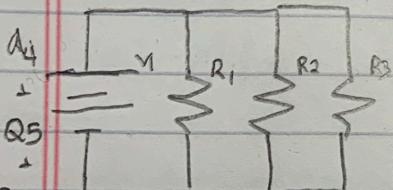
ASSIGNMENT 1e - Quiz Questions

Q1 $R_+ = ???$

$$R_+ = R_1 // R_2 + R_3$$

Q2 $+ \frac{V_1}{R_1} \rightarrow R_2 \rightarrow R_3 \rightarrow + [R_4 // (R_5 + R_6)]$

$$\begin{aligned} Q3 \quad R_4 &\parallel R_5 \parallel R_6 \\ R_+ &= 150 // 150 + 50 + (150 // 300) \\ &= \frac{1}{\frac{1}{150} + \frac{1}{50}} + 150 + \left(\frac{1}{\frac{1}{150} + \frac{1}{300}} \right) \\ &= 75 + 150 + 100 \\ &= 325 \Omega \end{aligned}$$



$$R_+ = R_1 // R_2 // R_3$$

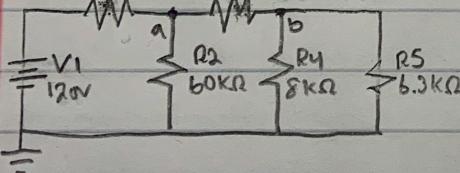
$$= \frac{1}{270} + \frac{1}{540} + \frac{1}{210}$$

$$= \frac{5}{1620} + \frac{2}{1620} + \frac{2}{1620}$$

$$\begin{aligned} Q5 \quad V &= IR \quad I = \frac{24}{147.27} \\ &= 0.1629 \end{aligned}$$

$$I = \frac{V}{R} \quad I = 0.1629 \quad = \frac{1620}{147.27} = 147 \Omega$$

$$R_1 = 40 \text{ k}\Omega \quad R_2 = 36.5 \text{ k}\Omega \quad I = 163 \text{ mA}$$



$$Q11 - I_1 = \frac{V_A}{R_8} \quad 94.6 \text{ mA}$$

$$I_1 = \frac{45}{60} = 0.75 \text{ mA}$$

$$I_1 = 120 / 170$$

$$Q12 - I_2 = \frac{V_A}{R_3} \quad 75 \text{ mA}$$

$$I_2 = \frac{45}{165} = 0.27 \text{ mA}$$

$$I_2 = 1.125 \text{ mA}$$

$$Q8 - R_+ = R_1 + (R_2 // (R_3 + (R_4 // R_5)))$$

$$R_1 + R_2 = R_2 // R_3 \dots$$

$$\begin{aligned} 24 + 40 &= \frac{1}{60} + \frac{1}{40} \\ &= \frac{2}{120} + \frac{3}{120} \\ &= 64 \text{ k}\Omega \end{aligned}$$

$$\frac{1}{60} + \frac{1}{63}$$

$$\frac{6.3}{50.4} + \frac{8}{60.4}$$

$$(36.5 + 3.52)$$

$$40.02$$

$$Q13 - V_B = I_B R_B$$

$$V_B = I_{(2)} R_{(50.4)} = 1.125 \text{ mA} \times 3.5 \text{ k}\Omega$$

$$V_B = 1.125 \times 3.5$$

$$= 3.94 \text{ V}$$

$$Q9 - V = IR$$

$$I = \frac{V}{R}$$

$$I = \frac{120}{64}$$

$$I = 1.875 \text{ mA}$$

$$Q10 - I = \frac{(R_A)}{R_T} \text{ of } V = IR$$

$$I = \frac{40}{64}$$

$$= 0.625$$

$$OR \quad V_A = 1.875 \times 24 \text{ k}\Omega$$

$$= 45 \text{ V}$$

$$= 45 \text{ V}$$

$$Q14 - V_3 = I_3 R_3$$

$$I_3 = \frac{V_1}{R_3}$$

$$= \frac{3.94}{8}$$

$$= 0.4925$$

$$= 493 \mu\text{A}$$