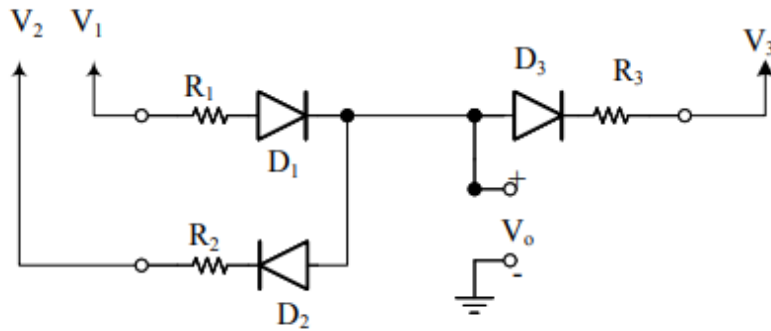
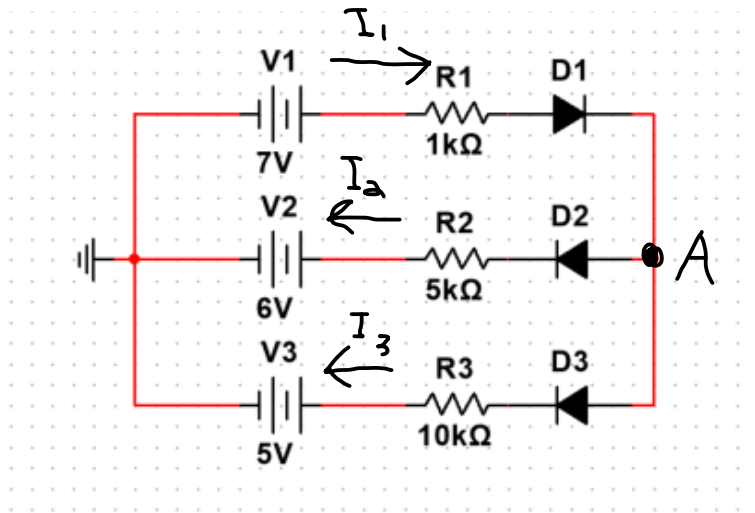


Part I



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Assumption 1 - All diodes on

KCL @ node A

$$i_1 = i_2 + i_3$$

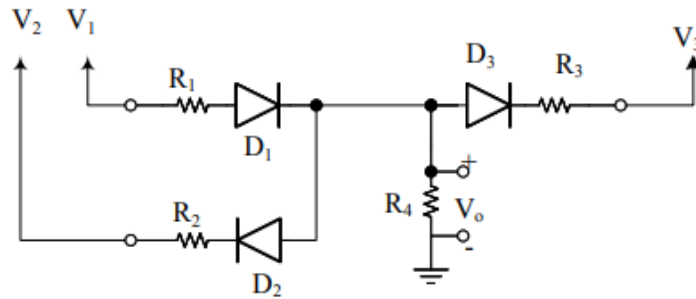
$$\frac{7 - V_A}{1000} = \frac{V_A - 5}{10000} + \frac{V_A - 6}{5000}$$

$$V_A = 0.17mA$$

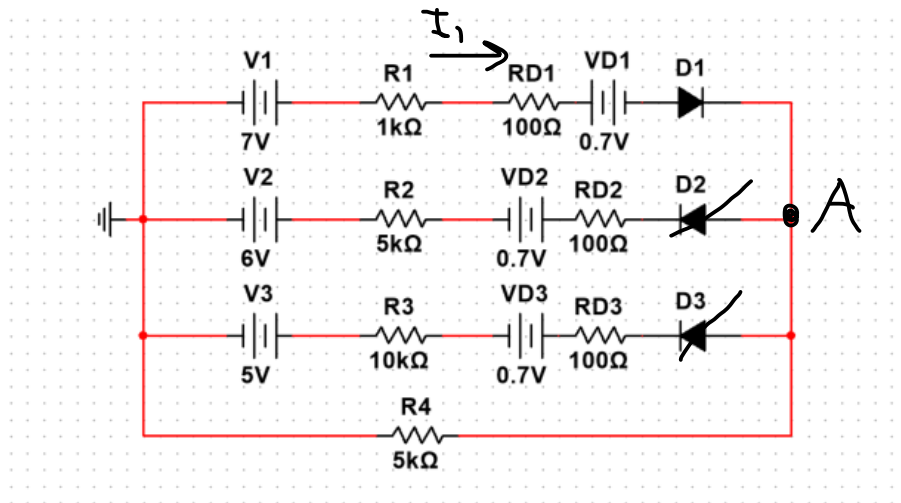
$$i_1 = 0.3mA \quad i_2 = 0.1mA \quad i_3 = 0.17mA$$

All i positive

Part II



=



D2 & D3 off / D1 on

$$i_1 = \frac{7 - 0.7}{1000 + 100 + 5000} = \frac{6.3}{6100} = 1.03mA$$

$$V_a = (V_1 - V_{D1}) - ((R_1 + R_2) * i_1) = 6.3 - (1100 * 1.03mA)$$

$$V_a = 5.164V = V_0$$

$$i_1 = 1.03mA \quad i_2 = 0mA \quad i_3 = 0.0mA \quad i_4 = 1.03mA$$

D1 is good

Voltage at D2 cathode = 6.7, anode < cathode D2 is good

Voltage at D3 cathode = 5.7, anode < cathode D3 is good