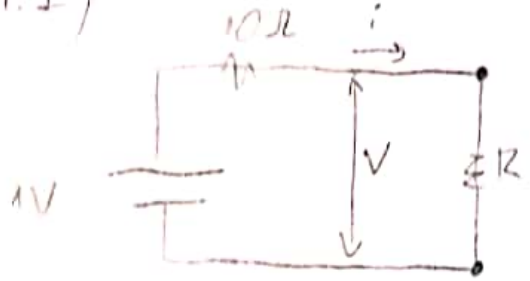
4.1)



$i = \frac{1}{10+R}$ $\quad V = \frac{R}{R+10}$ $\quad R = \frac{10V}{1-V}$

$V = 0 \Rightarrow R = 0$

$V = 0,2 \Rightarrow R = 2,5\,\Omega$

$V = 0,4 \Rightarrow R = 6,7\,\Omega$

$V = 0,6 \Rightarrow R = 15\,\Omega$

$V = 0,8 \Rightarrow R = 40\,\Omega$

$V = 1 \Rightarrow R \to \infty$

4.2) Si $\Rightarrow V = 1 - 10i$ ①

p/ $V > 0,6$

$V = 0,6 + 2i$ ②

de ① e ② $\Rightarrow V = 0,66\,V$

$\boxed{R = 20\,\Omega}$

é possível verificar condição

GaAs $\Rightarrow V = 1 - 10i$ ①

p/ $V > 1,4$

$V = 1,4 + 4i$ ②

① e ② $\to V = 1,25 < 1,4$

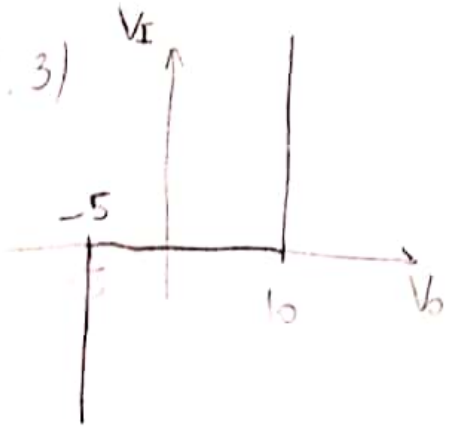
p/ $0 < V < 1,4 \quad i = 0$ ③

① e ③ $\to V = 1$

$\boxed{R \Rightarrow \infty}$

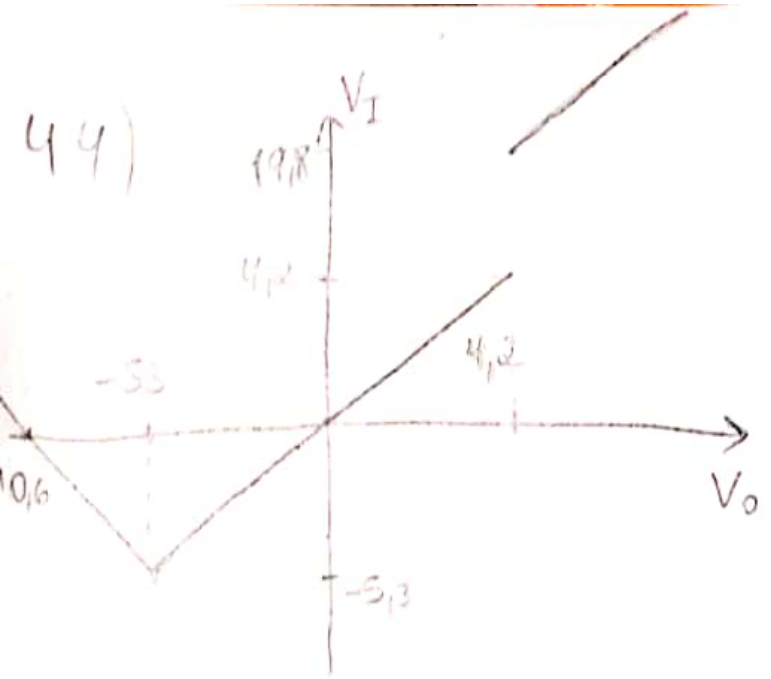
não é possível verificar condição

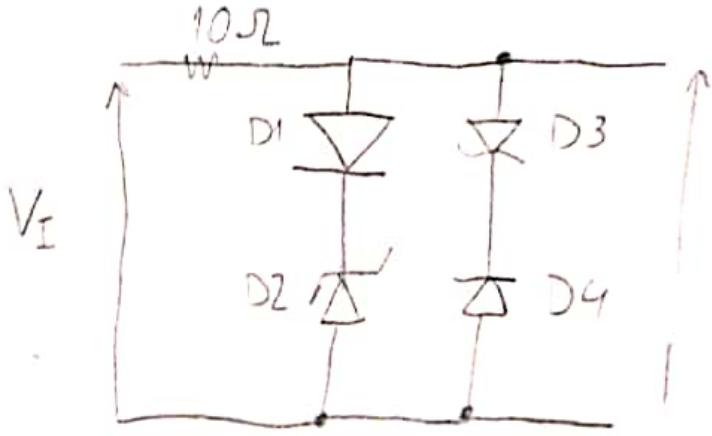
4.3)

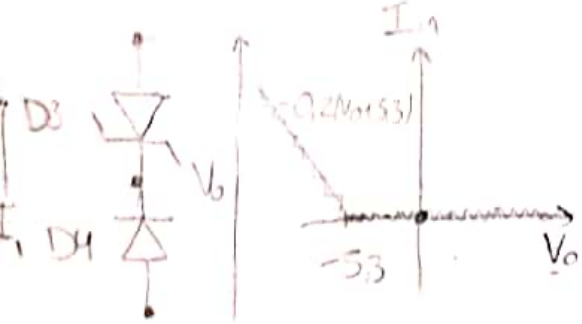


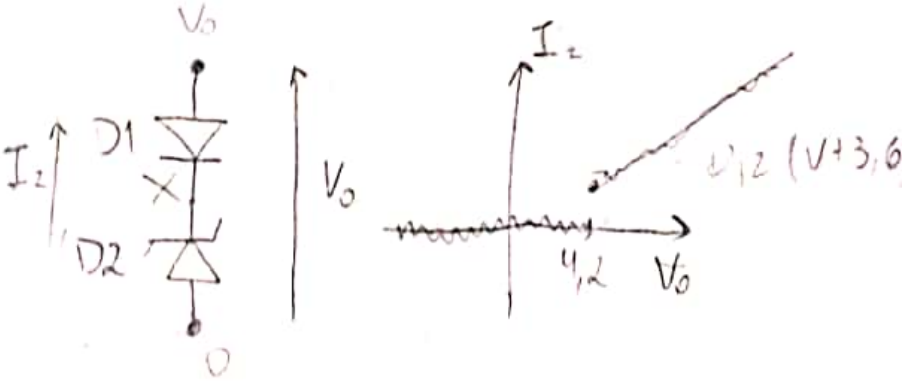
$-5 < V_o$

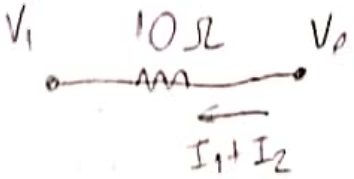
4.4)











$V_o < -5,3$: $I_1 + I_2 = -0,2\,(V_o + 5,3)$

$V_1 = V_o - 2V_o - 10,8 = -V_o - 10,6$

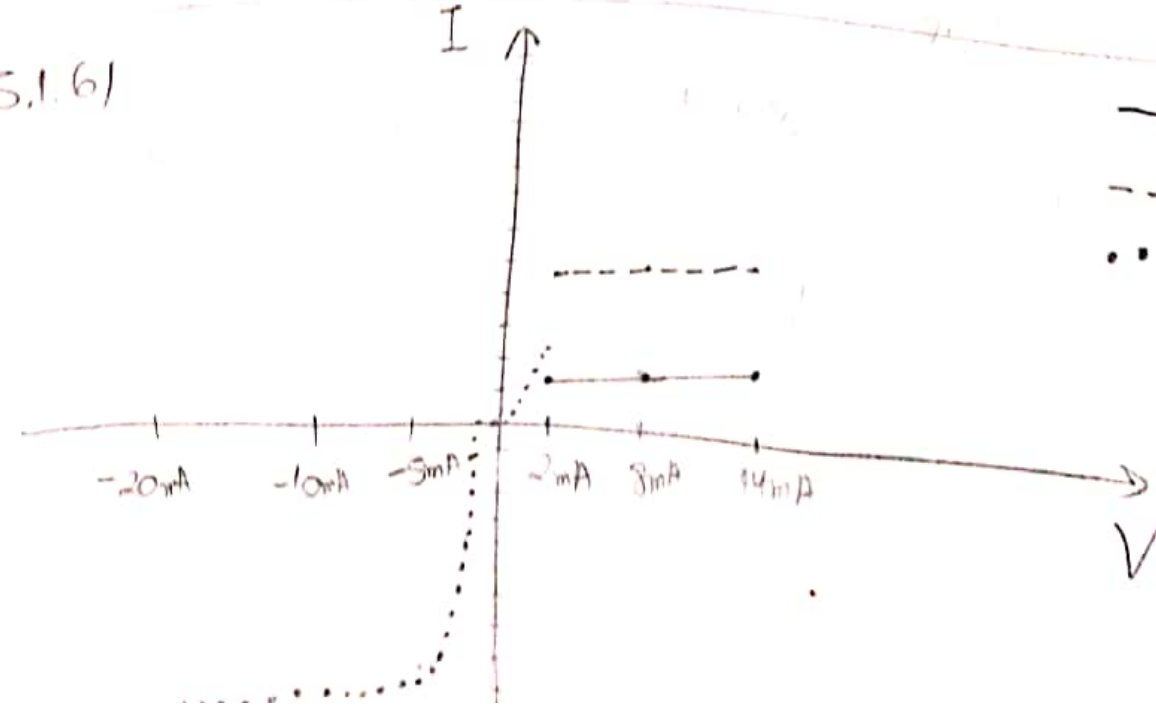
$V_o > 4,2$; $I_1 + I_2 = 0,2\,(V_o + 3,6)$

$V_1 = V_o + 2V_o + 7,2 = 3V_o + 7,2$

$-5,3 < V_o < 4,2$: $I_2 + I_3 = 0$

$V_1 = V_o$

5.1.6)



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