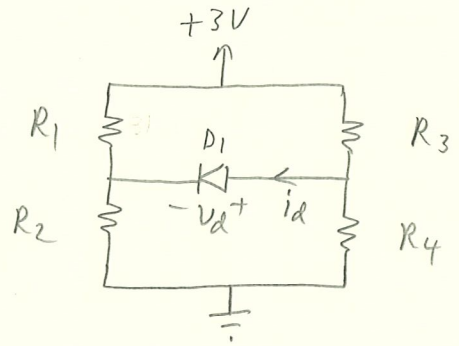
Due Wednesday 9/30/20

Problem 1

Find the Q-point for the diode using (a) the ideal diode model and (b) the CVD diode model with $V_{ON} = 0.6V$

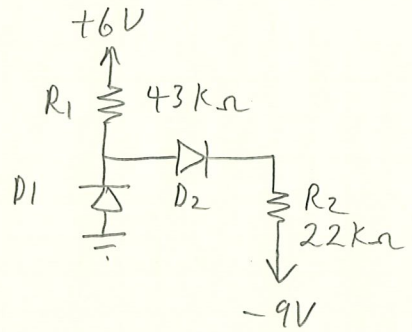


$R_1 = 3k\Omega$, $R_2 = R_3 = R_4 = 2k\Omega$

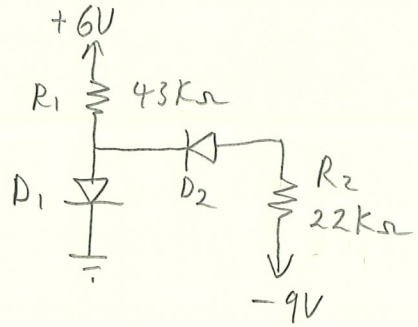
Problem 2

Find the Q-point for the diode circuits below using the ideal diode model:

(a)

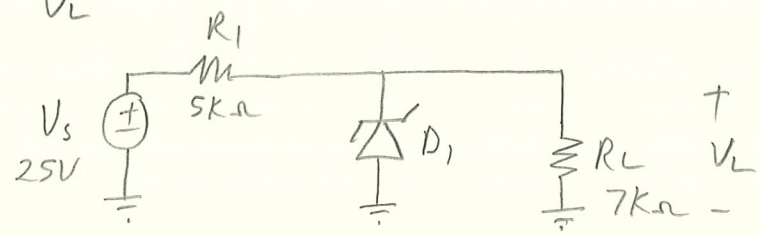


(b)



Problem 3

Find V_L



a. For $V_Z = 5V$, $R_Z = 0\Omega$

b. For $V_Z = 5V$, $R_Z = 100\Omega$

c. For $V_Z = 5V$, $R_Z = 0\Omega$: what is $R_{L_{min}}$?

Problem 4

What is f_T for an NMOS transistor with $L = 1\mu m$, $\mu_n = 1000\ cm^2/V \cdot s$, $V_{GS} = 3.3V$, and $V_{TN} = 1V$?

Problem 5

Find the Q-point for M_1