

ENEE3304 Differential Amplifiers Problem

7.1-4 Find i_L in terms of the common- and differential-mode signals in Fig. P7.1-4.

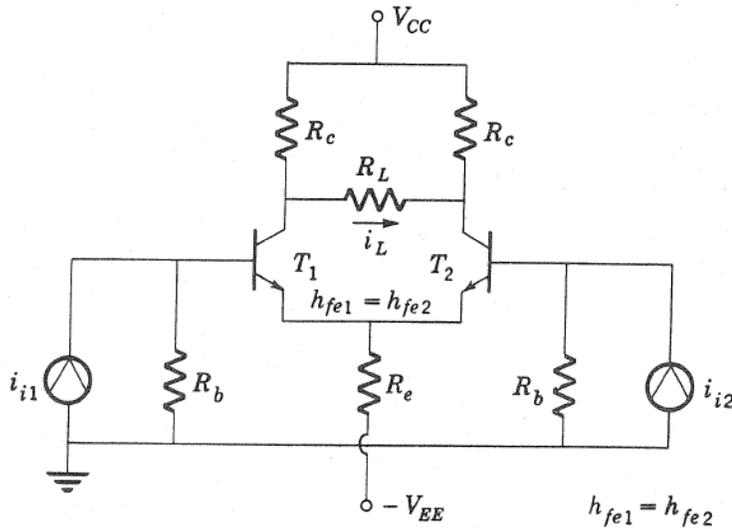


FIGURE P7.1-4

7.4-1 In Fig. P7.4-1 $h_{fe1} = 100$, and $h_{fe2} = 200$. If $R_c = 1.5 \text{ k}\Omega$, $r_i = 4 \text{ k}\Omega$, $R_e = 6 \text{ k}\Omega$, $V_{CC} = 10 \text{ V}$, $V_{BB} = 5 \text{ V}$, and R_x is a $100\text{-}\Omega$ potentiometer, find (a) R_1 and R_2 and (b) the CMRR.

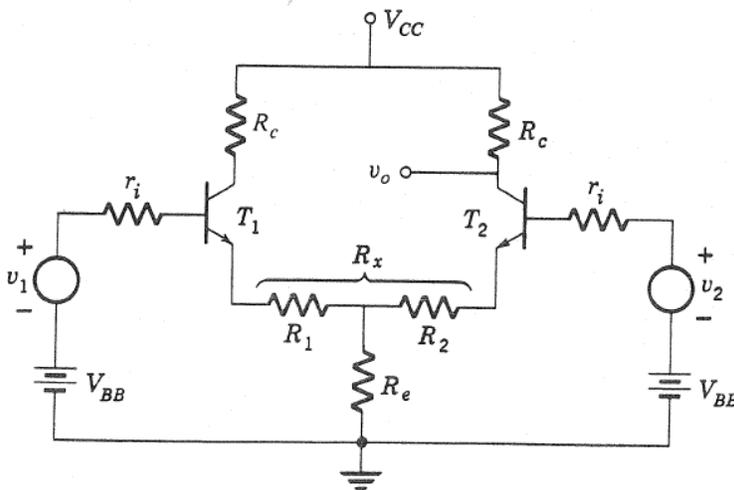


FIGURE P7.4-1

7.6-6 Find (a) quiescent conditions throughout the circuit of Fig. P7.6-6, (b) v_1/i_i and v_2/i_i , and (c) Z_i , Z_{o1} , and Z_{o2} .

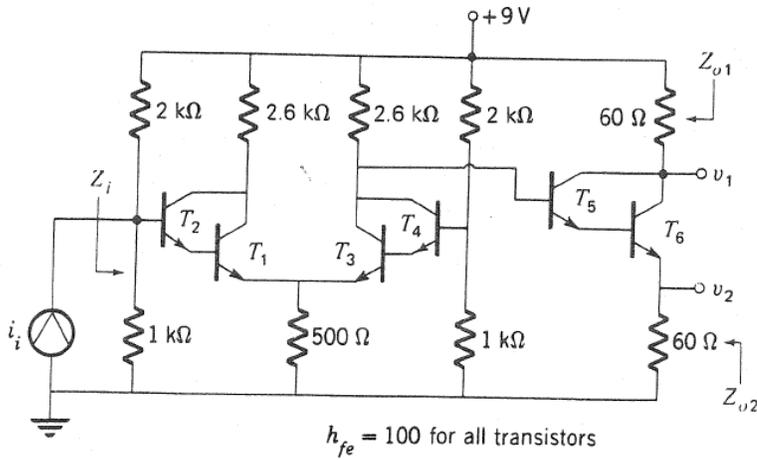


FIGURE P7.6-6

7.7-2 In Fig. P7.7-2 the transistors are identical with $h_{FE} = h_{fe} = 200$ and $h_{ob} = 10 \mu\text{S}$ at 5 mA.

- Find R_c to set the dc component of the output equal to 0.
- Find the small-signal gain v_L/v_i .

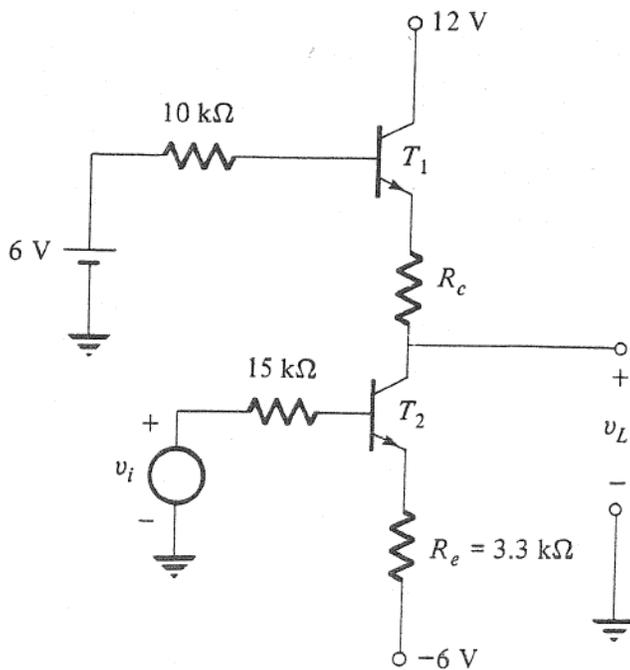


FIGURE P7.7-2