

BASICS OF ELECTRICAL CIRCUITS
Practice Midterm

1. For the circuit given in Figure 1, (a) obtain the fundamental cut set equations associated with the tree branches {1, 2, 4, 5, 6}. (b) Write mesh-current equations.
2. For the circuit given in Figure 2, (a) obtain the fundamental loop equations associated with the tree branches {1, 2, 3, 7}. (b) Write the incidence matrix.
3. Obtain the unknown currents in the circuit give in Figure 3, choosing a proper tree. ($I_2 = 3Amps$, $I_3 = 2Amps$, $I_7 = 4Amps$)
4. Draw $v - i$ characteristic of the circuit in Figure 4.

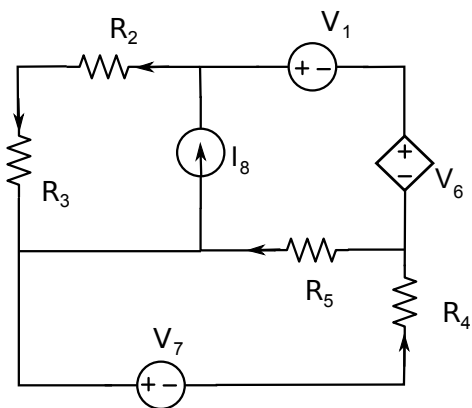


Figure 1

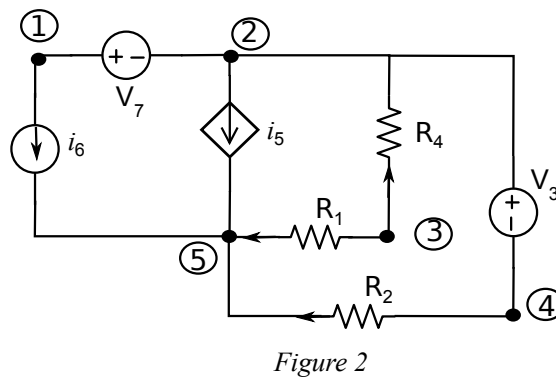


Figure 2

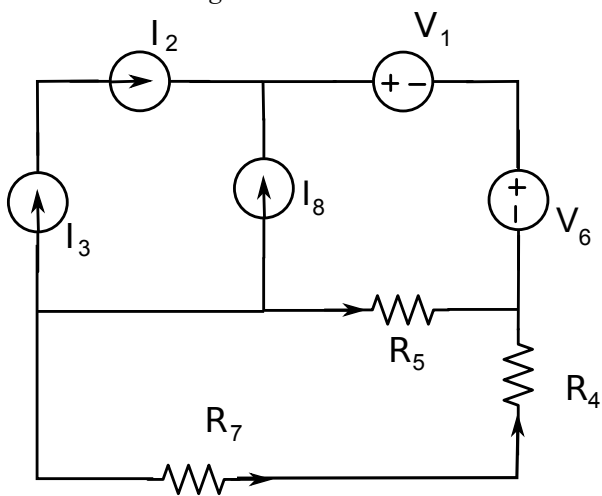


Figure 3

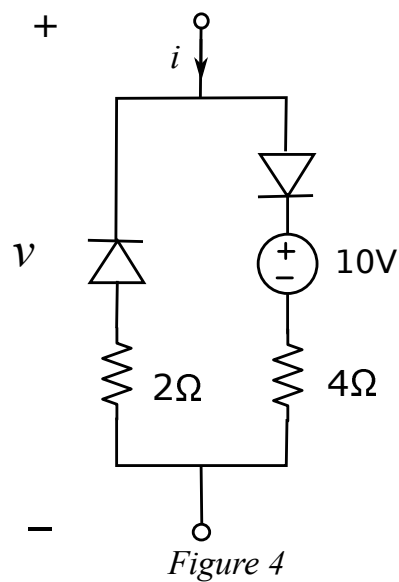


Figure 4