

BASICS OF ELECTRICAL CIRCUITS
Practice Midterm

1. (a) Draw the graf to represent the circuit given in Figure 1, (b) obtain the fundamental cut set and (c) fundamental loop equations associated with the tree branches $\{1, 2, 3, 4\}$.
2. For the circuit given in Figure 2, (a) calculate incidence matrix from KCL. (b) express the voltages of all two-terminal circuit elements in terms of the node voltages. (c) express the currents of all two-terminal circuit elements in terms of the mesh currents.
3. For the circuit given in Figure 3, obtain the equation to analysis the circuit using Chord (Line) current method such that unknown variable is i_2 .
4. For the circuit given in Figure 3, obtain the equation to analysis the circuit using Branch Voltages method such that unknown variable is v_4 .

