BASIC ELECTRICAL AND ELECTRONICS ENGINEERING

1. Find the equivalent resistance across terminal a-b as shown in Fig-1.
2. Find the currents i_1 through i_4 and the voltage $\mathbf{v_o}$ in the circuit in Fig-2.

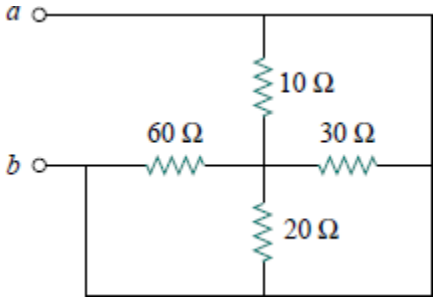

Fig-1

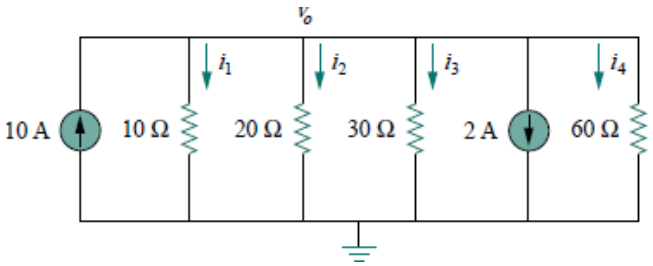

Fig-2

3. For the bridge network shown in Fig- 3, Find i_o using mesh analysis.

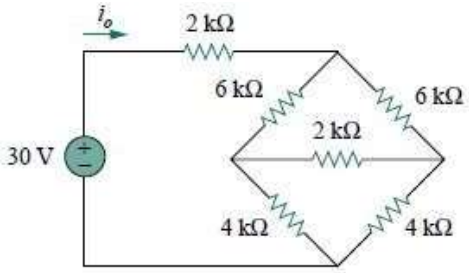

Fig-3

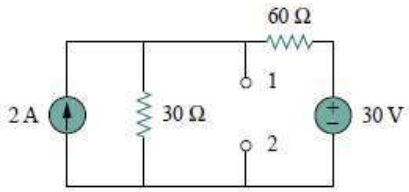

Fig-4

4. Determine R_{Th} and V_{Th} at terminals 1-2 as shown in Fig-4.
5. What reactance will be offered by
   (a) An inductor of 0.2 henry to an ac voltage source of 100 Hz.
   (b) A capacitor of 20 micro farad to an ac voltage source of 60 Hz.
6. What is the instantaneous voltage across a 2-μF capacitor, when the current through it is $\mathbf{i(t) = 4 \sin (10^6 t + 25^\circ)}$ A .