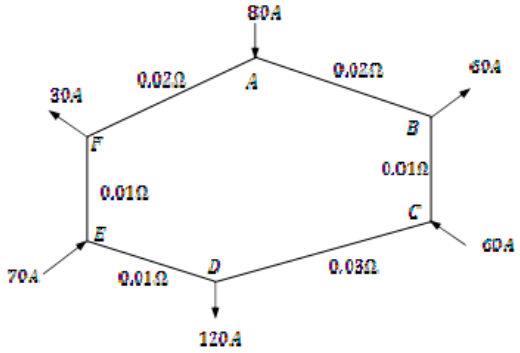
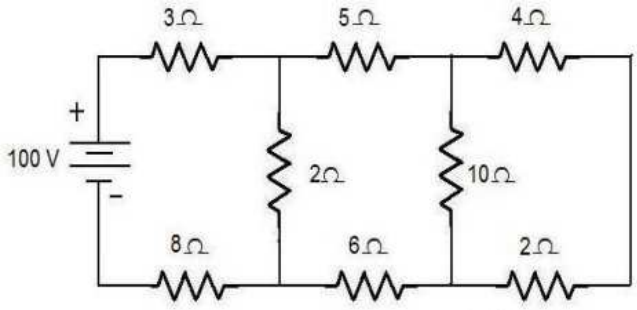
Assignment -1

Module I: DC Circuits and Network Theorems

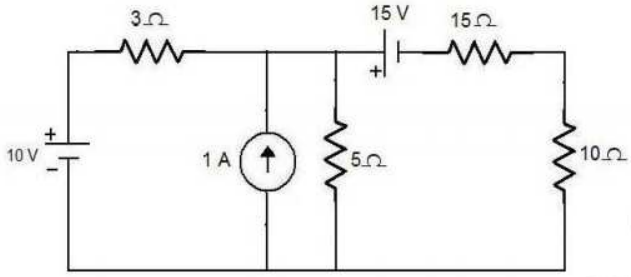
1. A 20V battery with an internal resistance of 5Ω is connected to a resistor of x ohms. If an additional 6Ω resistor is connected across the battery, find the value of x so that the external power supplied by the battery remains the same.
2. Find the current in all the branches of the network shown.



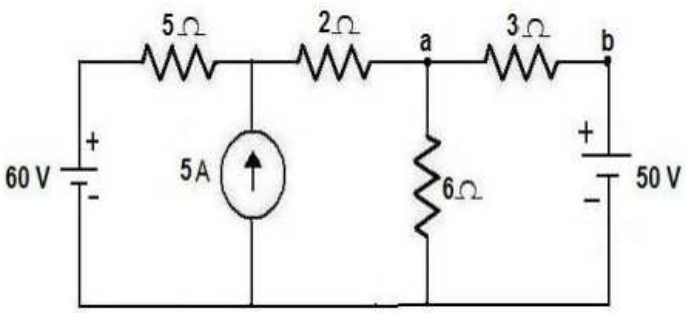
3. Find the current through each branch by network reduction technique.



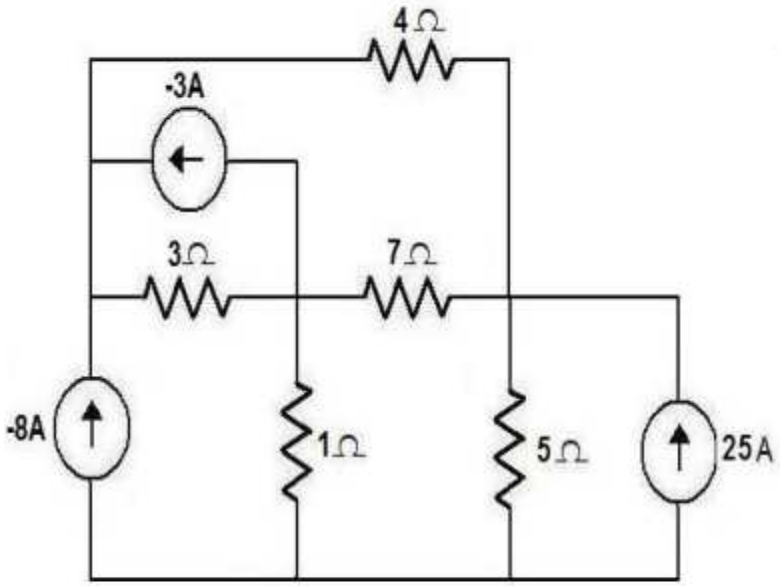
4. Find the power dissipated in 10 ohm resistor for the circuit shown in figure.



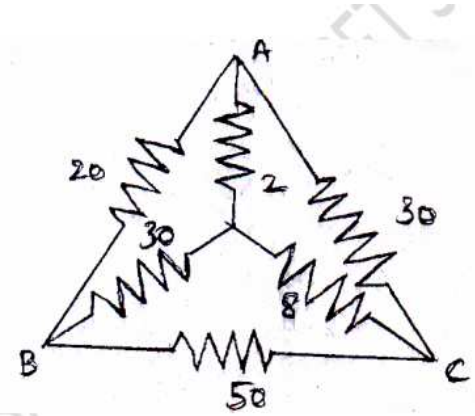
5. Find the current through branch a-b using mesh analysis shown in figure below.



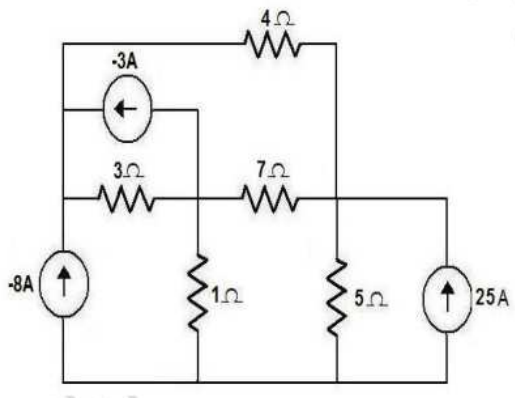
6. Find the current through 7 ohms resistor using superposition theorm.



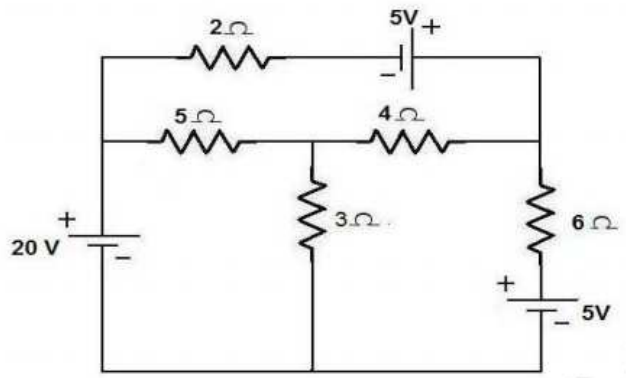
7. Find the resistance between A & B , A & C



8. Use Norton's theorem to find current through 1 ohm resistor.



9. Use Thevnin's theorem to find current through 3 ohm resistor.



10. Using the node voltage analysis, find all the node voltages and currents in 1/3 ohm and 1/5 ohm resistances of figure.