

**Department of Electronics & Communication Engineering.
Bundelkhand Institute of Engineering & Technology, Jhansi.**

Assignment Sheet 2
Electrical Engineering (TEE 101)

Instructor: Yogendra Kumar Prajapati

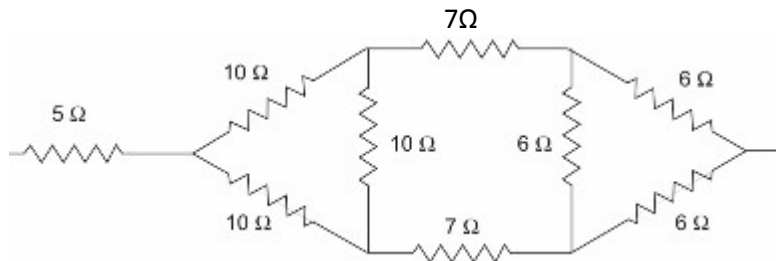
Due Date :

Note : Give the solutions of the problems of this sheet properly with circuit diagrams.

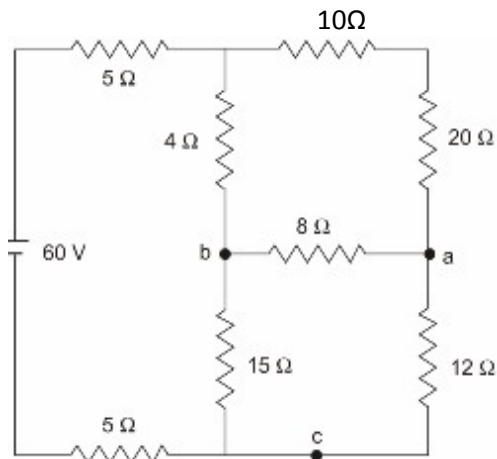
Problems : 21

1. Explain the following network theorems with their mathematical expression.
 - A . Thevenin Theorem
 - B. Norton Theorem
 - C. Super position theorem
 - D. Maximum Power Transform Theorem
 - E. Superposition Theorem
 - F. Source Transform Theorem

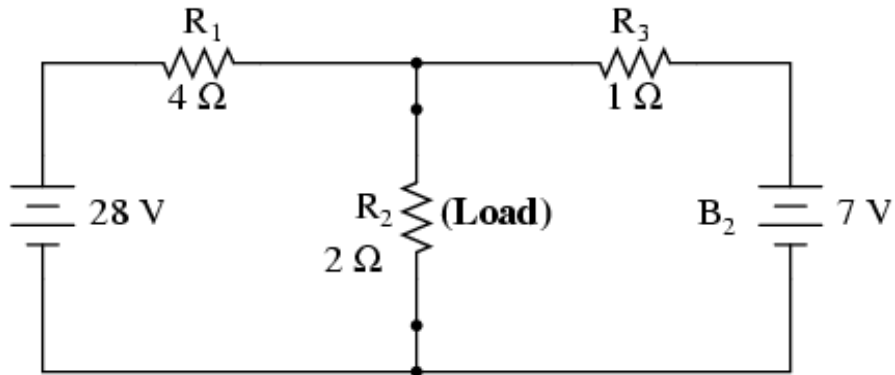
2. Find the resistance between terminals with start delta transformation. Make suitable diagrams in each step of the problem.



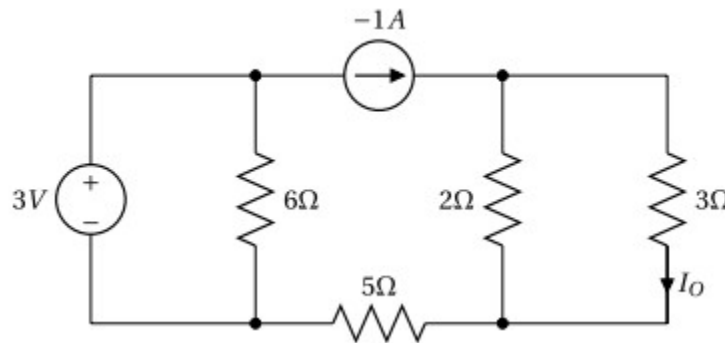
3. Find the resistance seen from the battery terminals. Also find the current from the terminals. Draw the suitable diagrams during the transformation if needed.



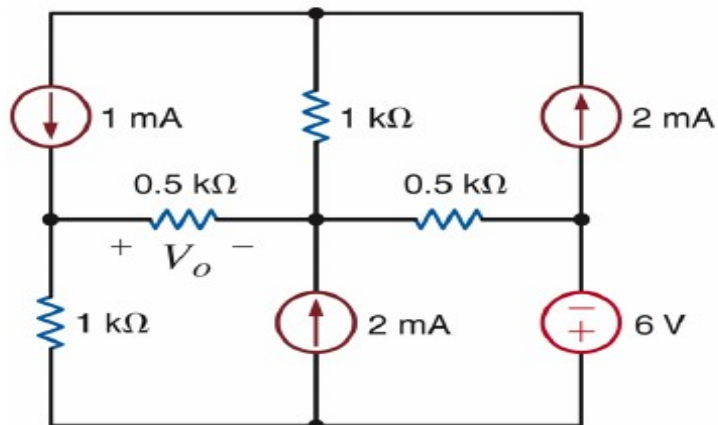
4. Find out the current across the resistance R_2 with Norton and Thevenin Theorem. Draw the equivalent circuit diagrams where it needed.



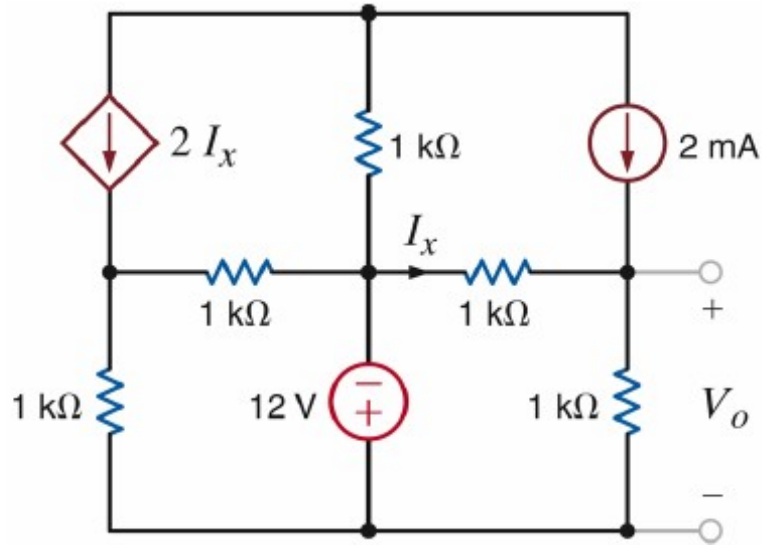
5. Solve the problem 4 with the principle of Maximum Power Transform and find out the Thevenin resistance of the circuit.
6. Find out the value of I_o in the circuit with the help of Thevenin theorem



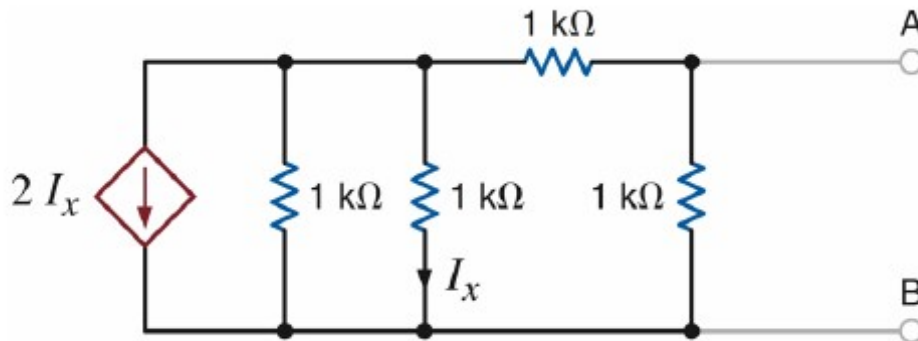
7. Use Thevenin's theorem to find V_o in the circuit shown in the below figure



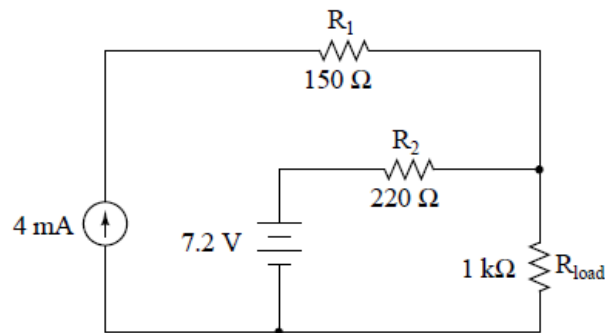
8. Solve the problem 7 with super position theorem.
9. Use Thevenin theorem to find out V_o in the below given circuit. Make the appropriate diagrams if needed.



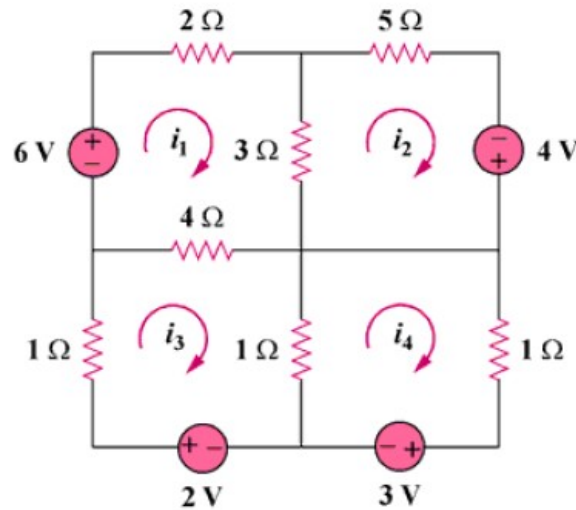
10. Find the Thevenin equivalent circuit for the below circuit.



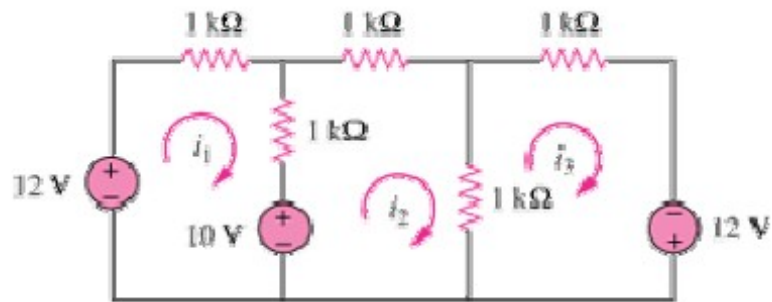
11. Explain in your own words how to apply the Superposition Theorem to calculate the amount of current through the load resistor in this circuit.



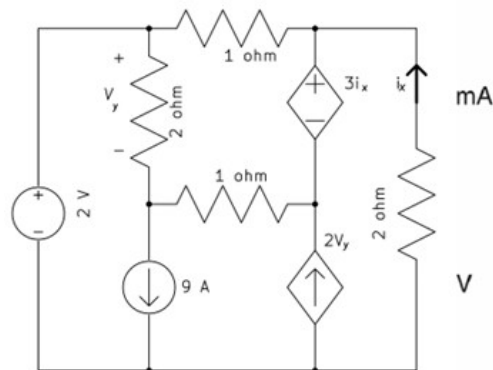
12. The Superposition Theorem works nicely to calculate voltages and currents in resistor circuits. But can it be used to calculate power dissipations as well? Why or why not? Be specific with your answer.
13. Calculate the mesh currents represented in the below figure with the help of the Kirchoff voltage laws.



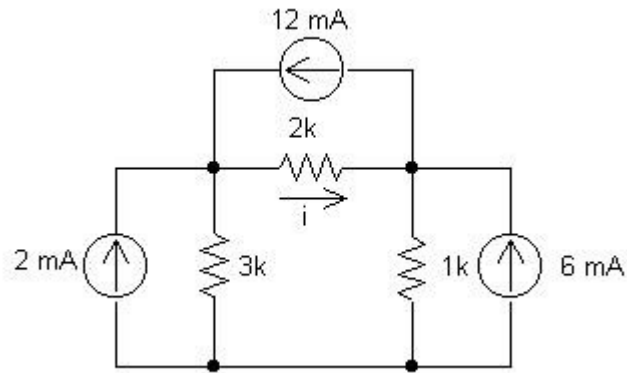
14. Calculate the mesh currents represented in the below figure with the help of the Kirchoff voltage laws.



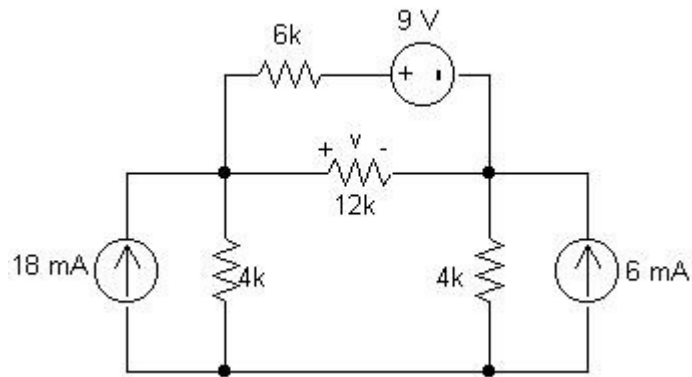
15. Solve the circuit with the nodal analysis and determine the value of I_x and V_y in the below circuit



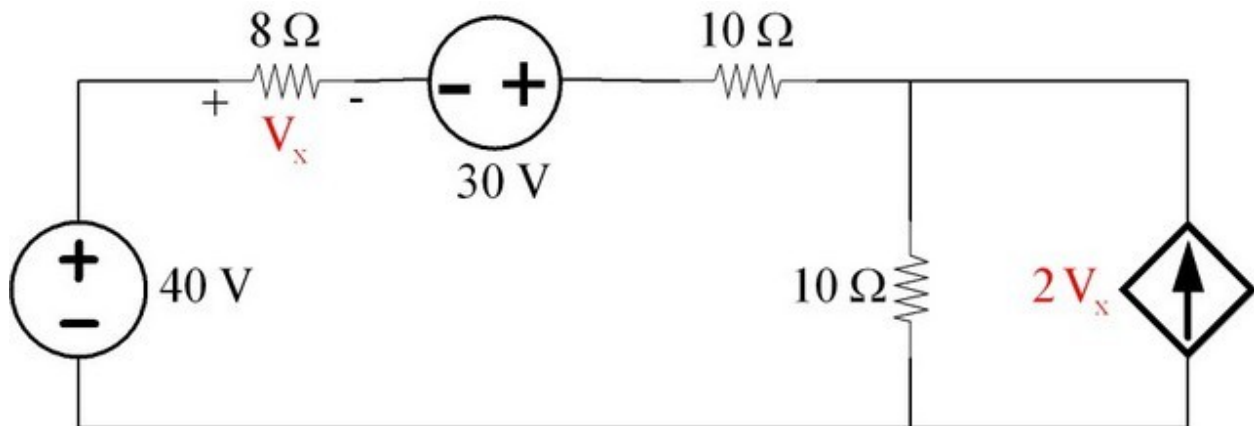
16. Find i in the below circuit with the help of nodal analysis.



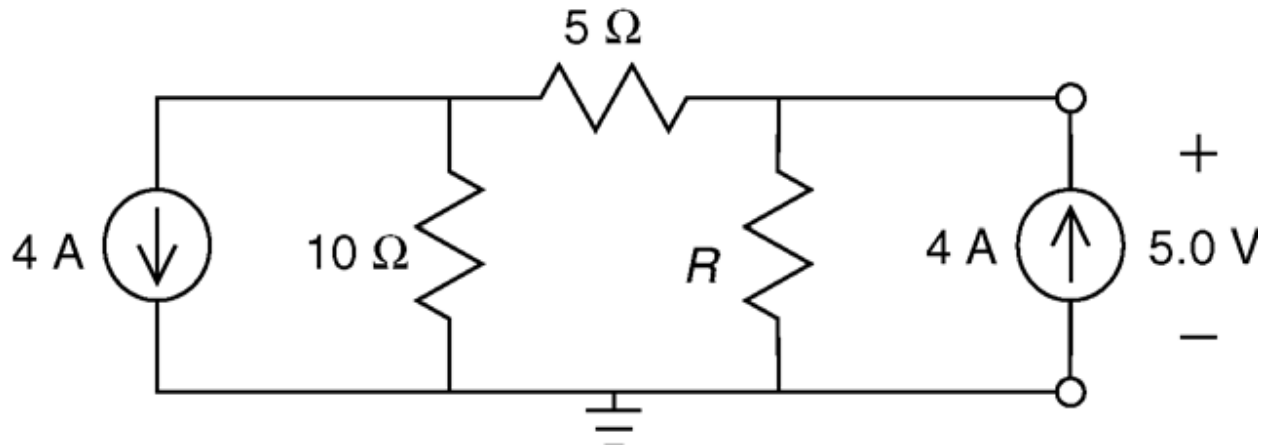
17. Find v in the below circuit with the help of nodal analysis.



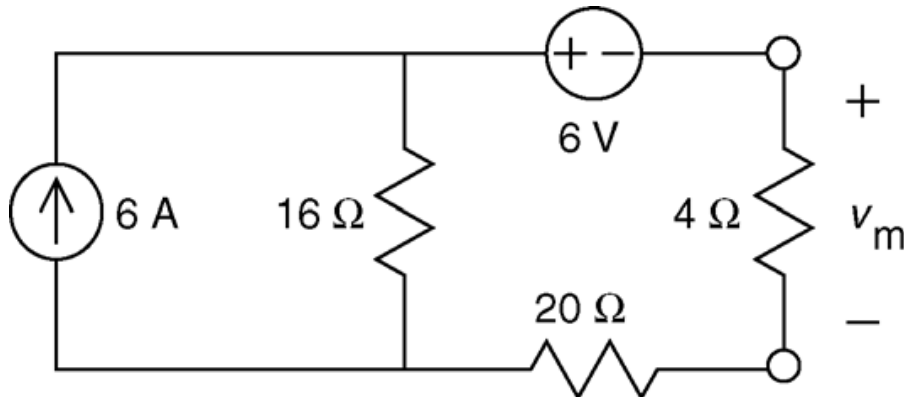
18. With the help of source transformation find out the voltage V_x in the below circuit.



19. Calculate the value of R in the below circuit with the principle of source transformation theorem.



20. Measure the voltage V_M in the figure with the help of source transformation.



21. Find out the equivalent resistance of the figure.

