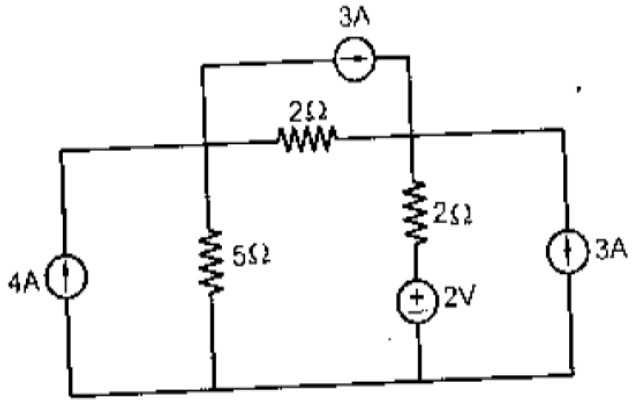
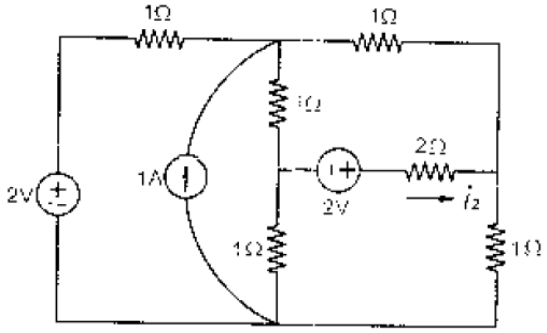
**SARDAR VALLABHBHAI PATEL INSTITUTE OF TECHNOLOGY, VASAD**
**Electrical Engineering Department**
**Question Bank BEE**

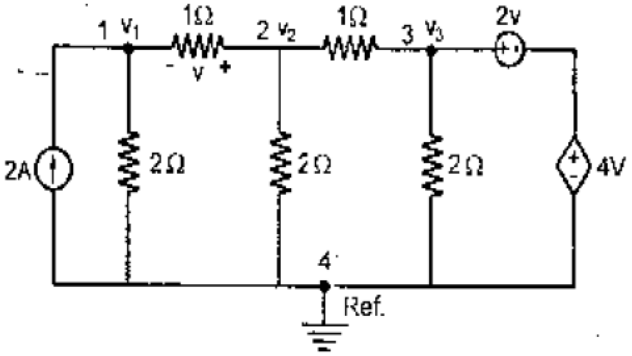
1. Define following terms :( 1) Linear and Nonlinear networks, (2) Lumped and Distributed networks, (3) Passive and Active networks and (4) Dependent source.
2. Find currents through the resistors in the network of Fig. below using mesh analysis.



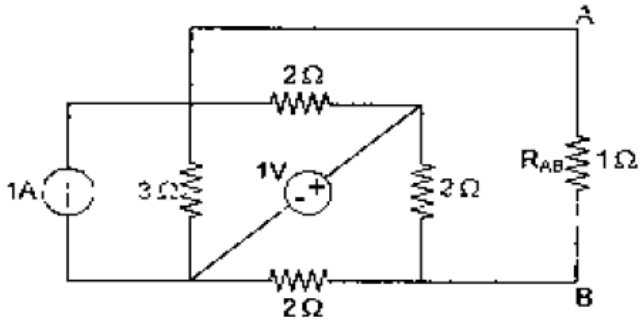

3. Determine the current through 2Ω resistor of Fig. below.



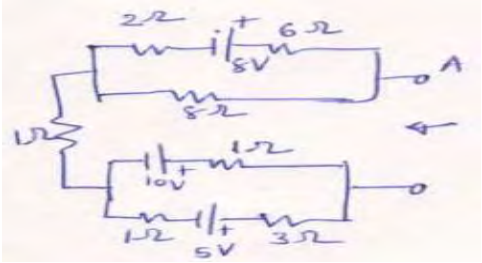

4. In the network of Fig. below, determine the node voltages V1, V2 and V3 using node analysis.




5. Determine the current in 1 Ω resistor of the network of Fig. below using Thevenin's theorem.

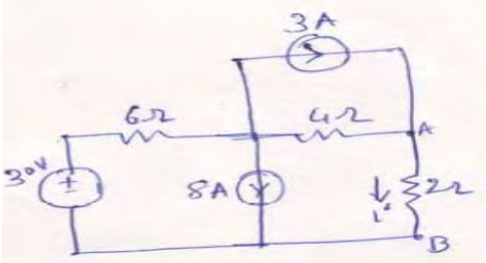



6. State and explain Norton's theorem.
7. State and prove Thevenins Theorem, find Rth and Vth. for the network shown in Fig. below.

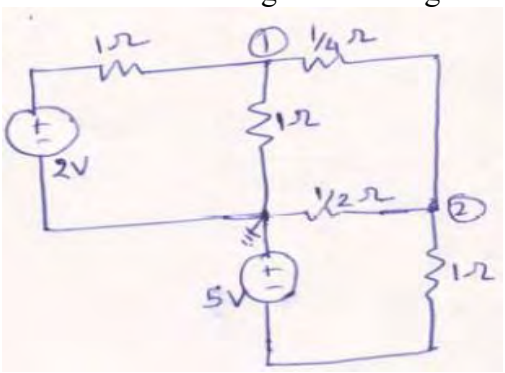



8. Explain the formulation of graph, tree and Incidence Matrix using suitable example. Hence discuss the procedure of forming reduced Incidence Matrix and its advantages.

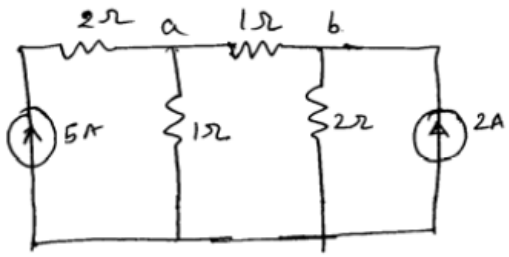
9. Explain following in Brief: Ideal and Practical Energy source.
10. State and explain Superposition Theorem. Hence using this find $V_{ab}$ in fig below.




11. Find the current through the 2V source in fig below using Node voltage analysis.

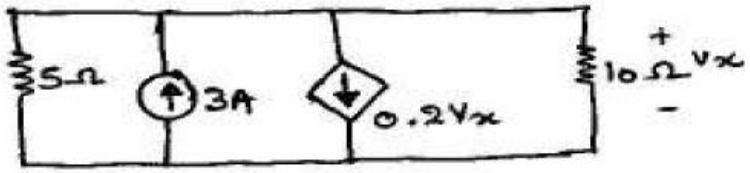



12. Explain following in Brief: Ideal and Practical Energy source Using the Node Voltage analysis, Find the current in all resistors in fig. below.

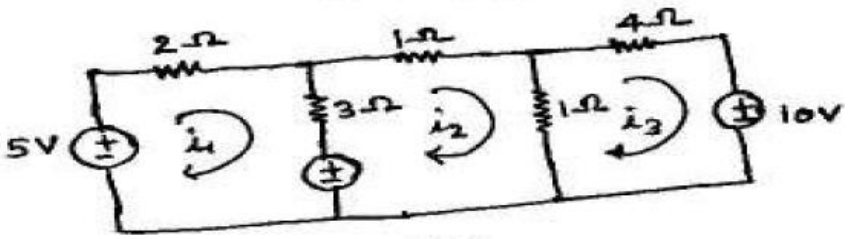



13. Find the current in the 4 ohm resistor in fig. below using Thevenin's Theorem and Super position theorem.

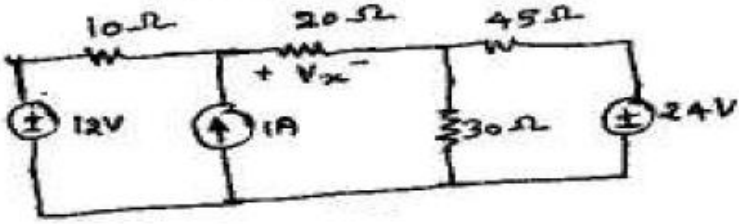

14. Find Vx using node analysis for the network in Fig. below.



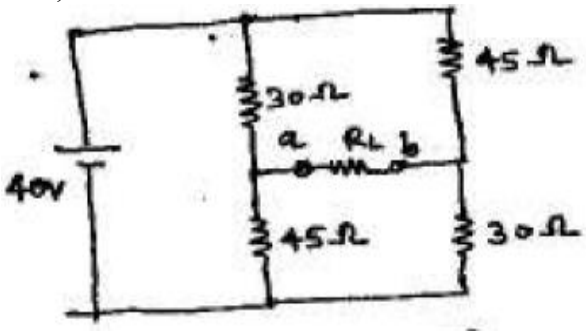

15. State KVL and find loop currents i1, i2 and i3 using loop analysis for the network in Fig below.



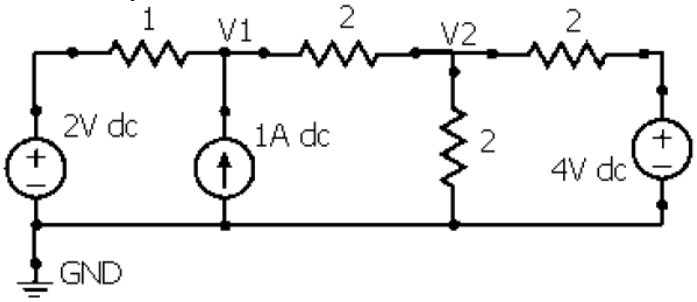

16. Using Superposition theorm find voltae Vx for the network shown in Fig. below.



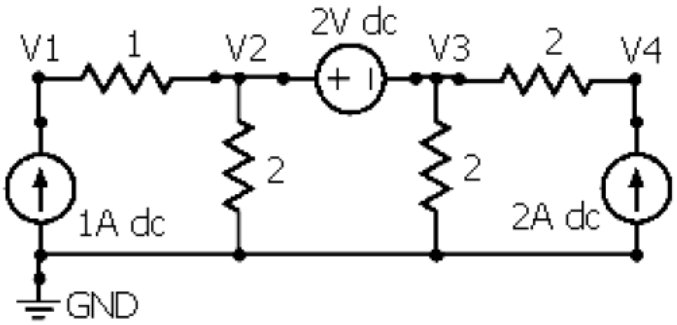

17. State the Thevenin theorm, find $R_{th}$ and $V_{th}$. for the network shown in Fig. below.



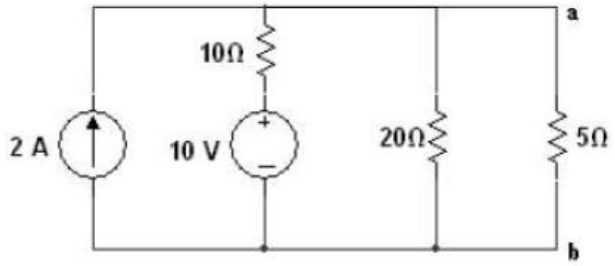
18. Derive a tree of the graph of the network in Fig. below. Determine the node voltages $V_1$ and $V_2$, using the mesh analysis. The vales of resistors are in ohms.




19. Determine the node voltages $V_1$ and $V_2$ in the network shown in Fig above, by applying the superposition theorem.
20. Solve for the nodal voltages $V_1$, $V_2$, $V_3$ and $V_4$ as shown in the network in Fig. 2, using the nodal analysis.




21. In above fig. if 2V source is replaced by an open circuit then find Thevenin's and Norton's equivalent circuits across $V_2$ and $V_3$.
22. Explain about voltage sources and current sources. Include ideal, practical, independent and dependent sources in your explanation.
23. Obtain Thevenin's equivalent circuit for the network shown fig. below and find the power dissipated in RL=5 ohm resistor.




24. Find the voltage across 1kΩ resistor in the circuit shown in Fig. below, using superposition theorem.