KATHMANDU UNIVERSITY
School of Engineering
Department of Electrical and Electronics Engineering
First Internal

Level: UNG/CE_spring
Year: I
Time: 1 Hrs.

Date: 22nd Jan 2025

Course: ENGG 112
Semester: II
F.M.: 10

Attempt any four questions. [4 Q. x 4 marks = 16 marks)

1. For the circuit shown in figure 1, find the equivalent resistance. All resistors are 10 Ω.

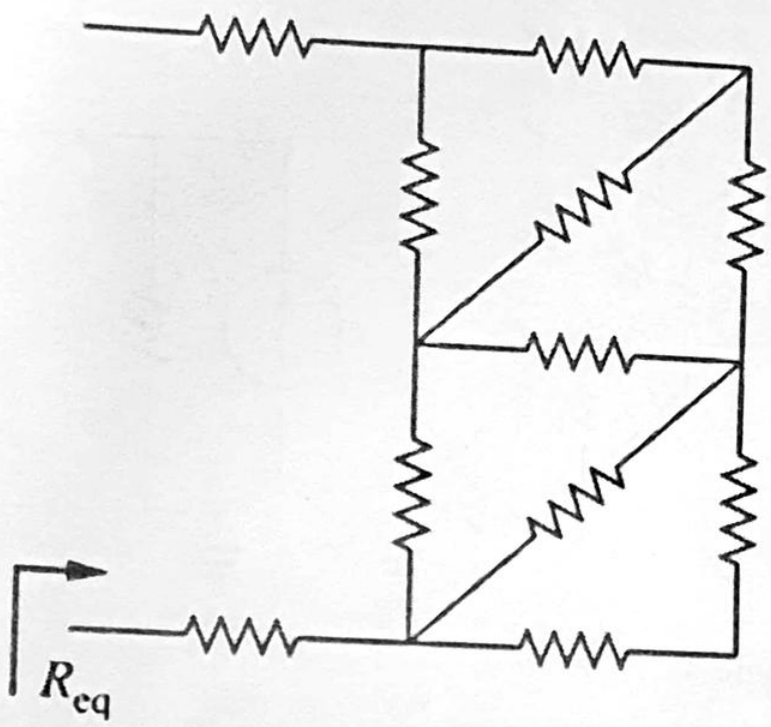

Figure 1

2. Determine v_0 in the circuit of Figure-2 using the **Superposition Theorem**.

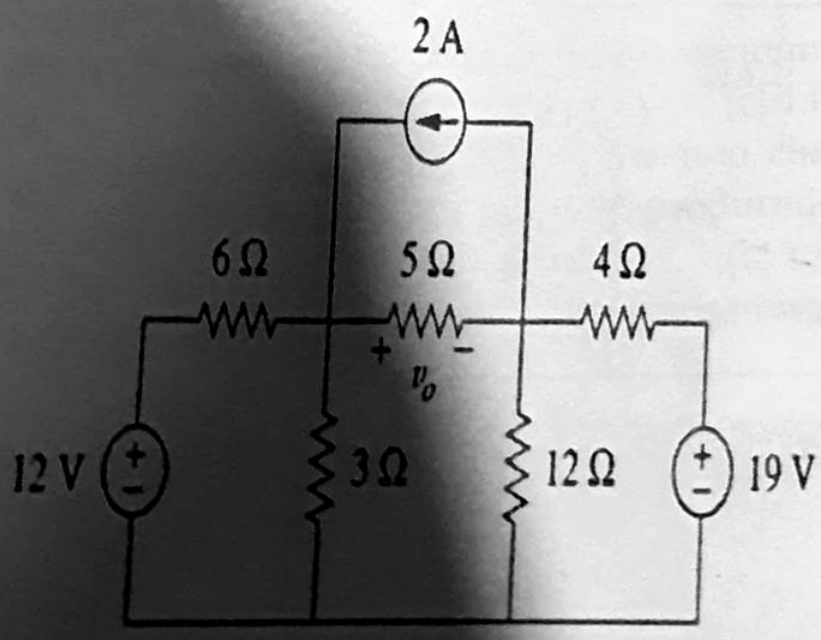

Figure-2

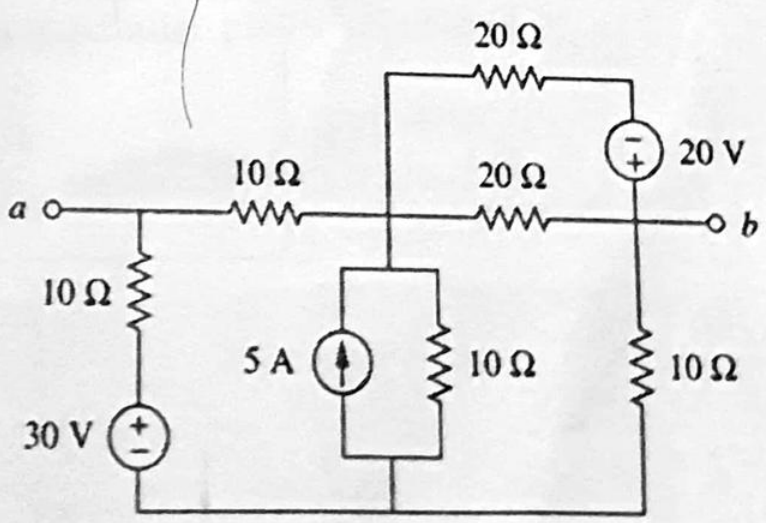

Figure 3

3. **For the circuit in Figure 3**, find the **Norton equivalent** between terminals a and b.

4. For the Figure 4:
   a. Determine I.
   b. Calculate I_4.
   c. Find I_6.
   d. Find I_{10}.
   e. Determine the total resistance across the 12V battery.

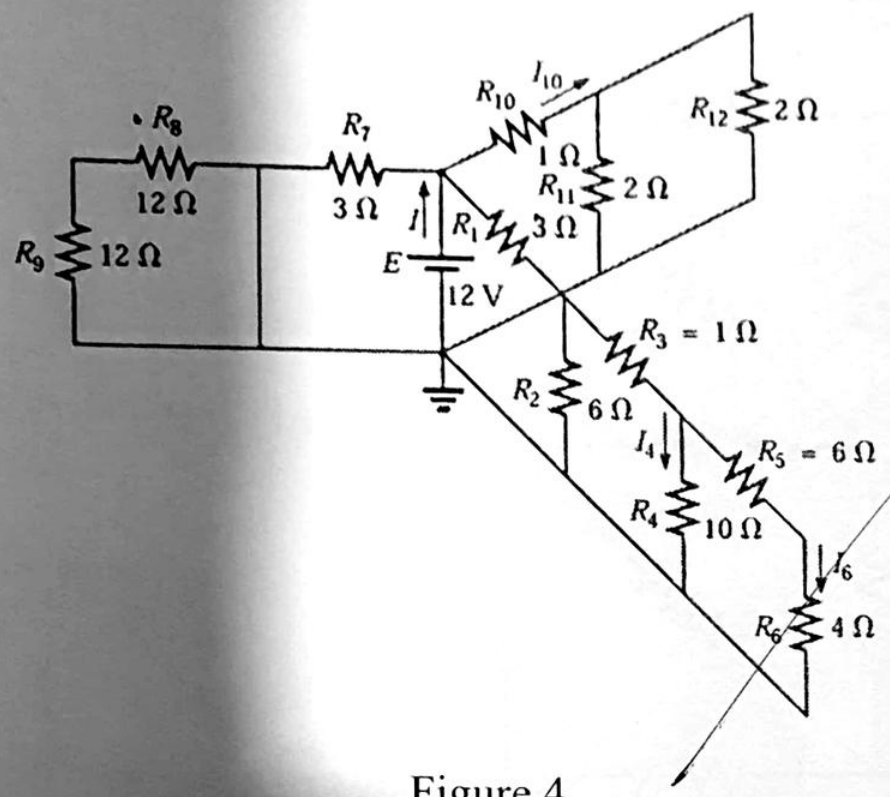

Figure 4

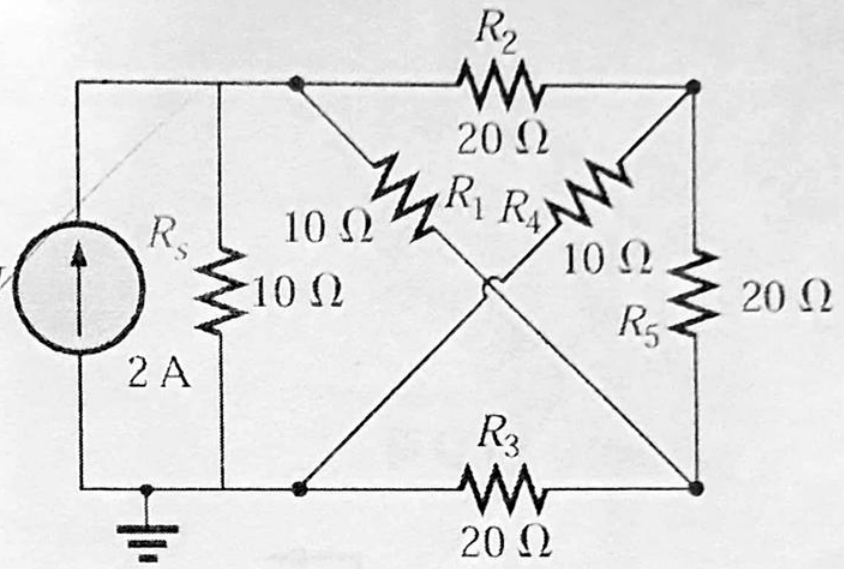

Figure 5

5. Determine the current through the source resistor R_s of network of figure 5 using either **mesh or nodal analysis**. Discuss why you chose one method over the other.
6. Obtain the **Thevenin Equivalent** Circuits at terminals a-b of the circuit in Figure 6.

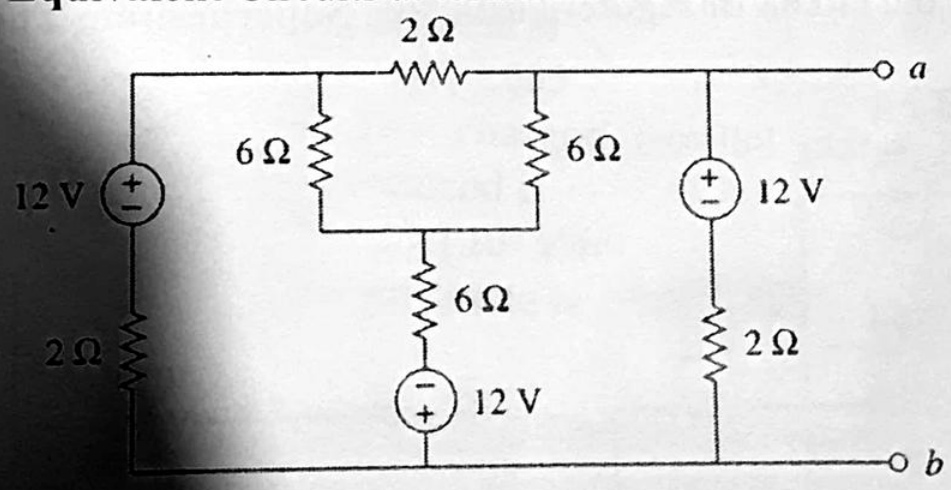

Figure 6