

Department of Electrical Engineering

Assignment

Date: 24/09/2020

Course Details

Course Title: Linear Circuit Analysis

Semester: Summer-20

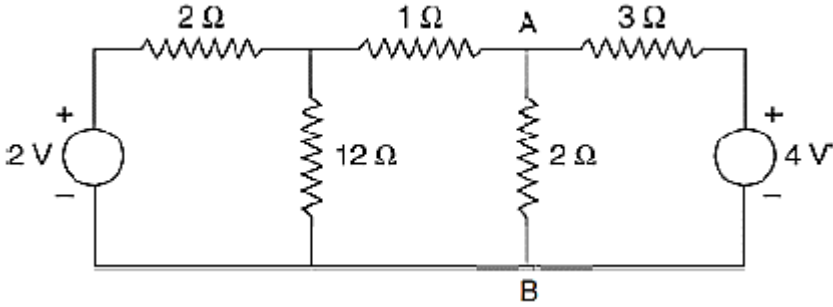
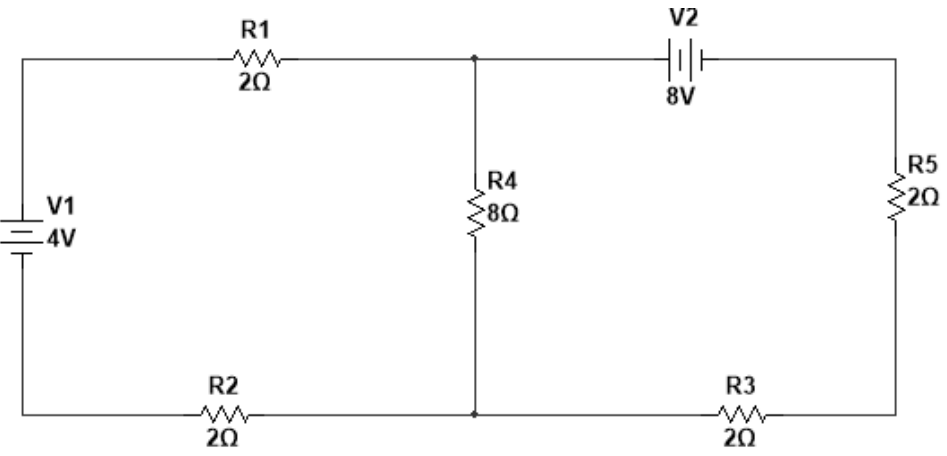
Instructor: \_\_\_\_\_

Total Marks: 50

Student Details

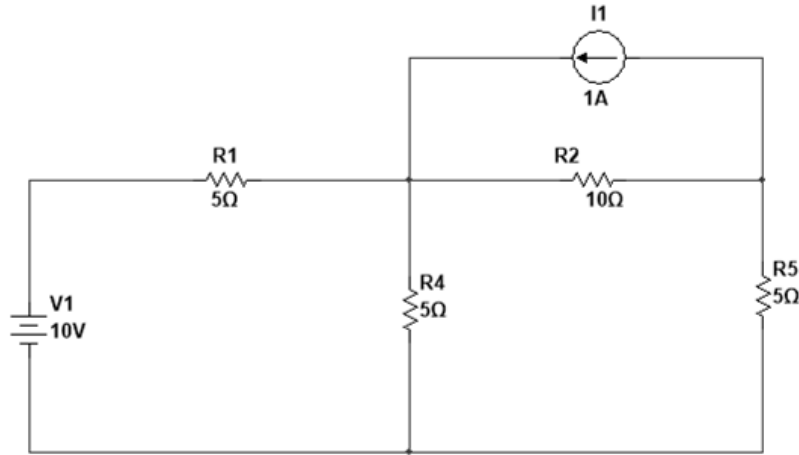
Name: \_\_\_\_\_

Student ID: \_\_\_\_\_

Q1.	<p>Using superposition principle, determine the current through <math>2\ \Omega</math> resistor connected between terminal A and B in the circuit shown below:</p>  <p>The circuit diagram for Q1 shows a 2V DC voltage source on the left. A <math>2\ \Omega</math> resistor is in series with the positive terminal. This is followed by a <math>12\ \Omega</math> resistor connected in parallel to the common ground. After this, a <math>1\ \Omega</math> resistor is in series, leading to terminal A. A <math>2\ \Omega</math> resistor is connected in parallel between terminal A and the common ground. From terminal A, a <math>3\ \Omega</math> resistor is in series, leading to a 4V DC voltage source on the right. The negative terminal of the 4V source is connected to the common ground.</p>	Marks 10
Q2.	<p>Find the current in <math>8\ \Omega</math> resistor using Thevenin's theorem:</p>  <p>The circuit diagram for Q2 features a 4V DC voltage source (V1) on the left. A <math>2\ \Omega</math> resistor (R1) is in series with the positive terminal. This is followed by a node that branches to an <math>8\ \Omega</math> resistor (R4) connected in parallel to the common ground. The circuit continues to the right through a <math>2\ \Omega</math> resistor (R3) to another node. From this node, an <math>8\ \Omega</math> resistor (R5) is connected in parallel to the common ground. Additionally, an 8V DC voltage source (V2) is connected in series between the node after R1 and the node after R3.</p>	Marks 10

**Q3. Find the current through the central 5 Ω resistor using source transformation technique:**

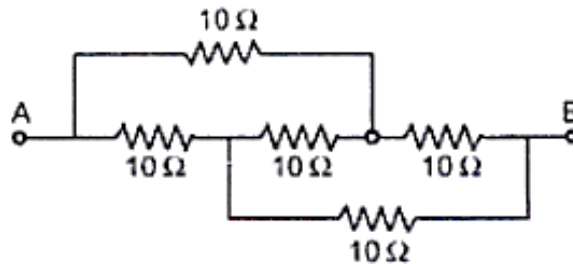
**Marks 10**



**(a) Calculate the resistance between terminal A and B for the circuit shown below:**

**Marks 10**

**Q4.**



**(b) Determine the resistance between terminal X and Y for the circuit shown in the figure below:**

**Marks 10**

