ESKİŞEHİR TECHNICAL UNIVERSITY
DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

EEM 102 INTRODUCTION TO ELECTRICAL ENGINEERING

DC CIRCUIT ANALYSIS

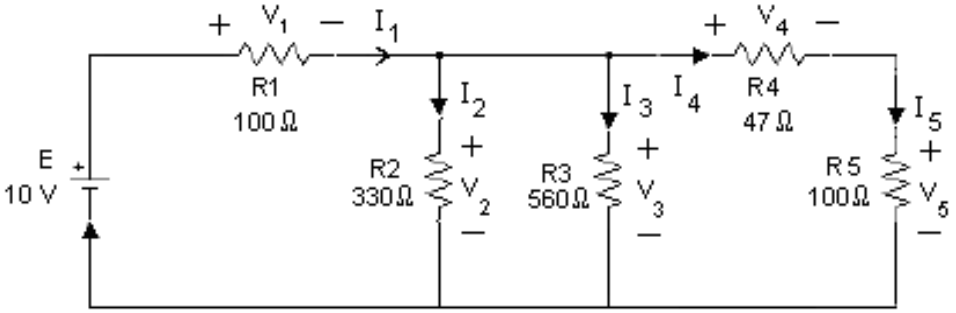
DC CIRCUIT ANALYSIS

OBJECTIVE:

To compare the results of the theoretical and practical analysis of dc circuits.

A. Circuit 1:

1. Set up the circuit below. Be sure to measure all the resistances and write their values in Table-1 before you insert them into circuit.



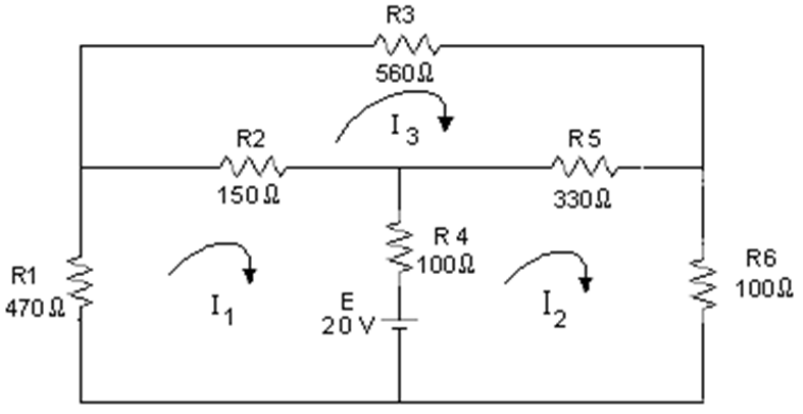
2. Measure the voltages V_1, V_2, V_3, V_4,V_5 and write them down in Table-1.

3. Measure the currents I_1, I_2, I_3, I_4, I_5 and write them down in Table-1.

4. Consider the calculated current and voltage values that you found in your preliminary work by using KCL and KVL and write them down in Table-1.

B. Circuit 2:

1. Set up the circuit below. Be sure to measure all the resistances and write their values in Table-2 before you insert them into circuit.

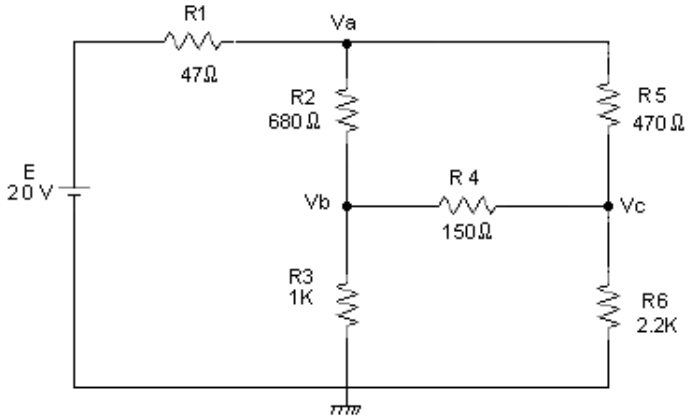


2. Measure the loop currents I_1, I_2, and I_3 by measuring the currents through R_1, R_3 and R_6. Write them down in Table-3.

3. Consider the measured current values that you found in your preliminary work by using Mesh analysis and write them down inTable-3.

C. Circuit 3:

1. Set up the circuit below. Be sure to measure all the resistances and write their values in Table-4 before you insert them into circuit.



2. Measure the node voltages V_a, V_b, and V_c and write them down in Table-5.

3. Consider the node voltage values that you found in your preliminary work by using Nodal analysis and write them down in Table-5.

Name: ……..
No :…….....
Table No:…….
Group :……..

EXPERIMENT

DC CIRCUIT ANALYSIS

REPORT

TABLE - 1 : Results of Circuit 1

Resistor	Nominal Value	Measured Value	Measured Voltage	Measured Current	Calculated Voltage	Calculated Current
R1						
R2						
R3						
R4						
R5						

1. Explain the differences between the measured and calculated values of currents and voltages.

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2. Do the measured values satisfy KCL and KVL? Explain.

TABLE - 2 : Elements of Circuit 2

Resistor	R1	R2	R3	R4	R5	R6
Measured Value						

TABLE - 3 : Loop Currents of Circuit 2

Current	**Measured Value**	**Calculated Value**
I_1		
I_2		
I_3		

TABLE - 4: Elements of Circuit 3

Resistor	**R1**	**R2**	**R3**	**R4**	**R5**	**R6**
Measured Value						

TABLE - 5 : Node voltages of Circuit 3

Node Voltage	**Measured Value**	**Calculated Value**
V_a		
V_b		
V_c		

Date:				
Table No:	Grades			
Name:	Pre-Lab	Report	Performance	Total
No:				