

ISLAMIC UNIVERSITY OF TECHNOLOGY (IUT)
ORGANISATION OF ISLAMIC COOPERATION (OIC)
DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

COURSE: PHY 4242 (PHYSICS – II LAB)

EXPERIMENT NO. 2 (A)

NAME OF THE EXPERIMENT: VERIFICATION OF KVL

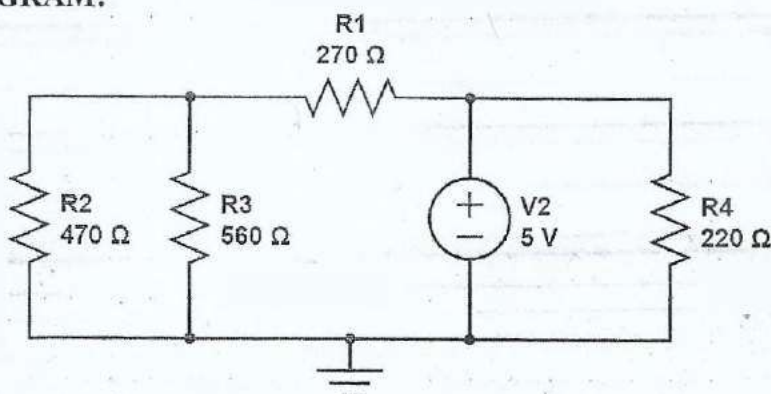
OBJECTIVE:

This experiment is intended to verify Kirchhoff's Voltage Law (KVL) with the help of series-parallel circuits.

THEORY:

Around any closed circuit the algebraic sum of voltage rises equals the algebraic sum of the voltage drops.

CIRCUIT DIAGRAM:



LABORATORY TASKS:

- i. Construct the above circuit.
- ii. Set source voltage at 5V.
- iii. Measure voltage across each resistor.
- iv. Note down data in a table as shown below.
- v. Interchange 470Ω and 560Ω.
- vi. Follow the instructions in (iii) to (iv) again.

DATA:

No of observation	Source voltage	Voltage across			
		R1	R2	R3	R4

CALCULATION:

Verify whether your data agree with KVL.

REPORT:

- (a) If any discrepancy is found then explain.
- (b) Can KVL be applied to open circuit?
- (c) Discussion.

EXPERIMENT NO. 2 (B)

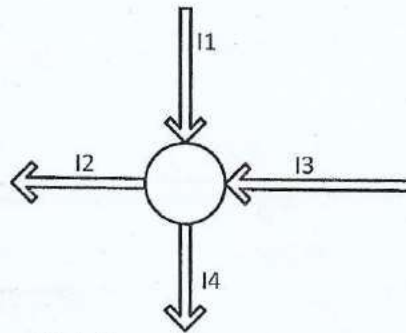
NAME OF THE EXPERIMENT: VERIFICATION OF KCL.

OBJECTIVE:

This experiment is intended to verify Kirchhoff's Current Law (KCL) with the help of series-parallel circuit.

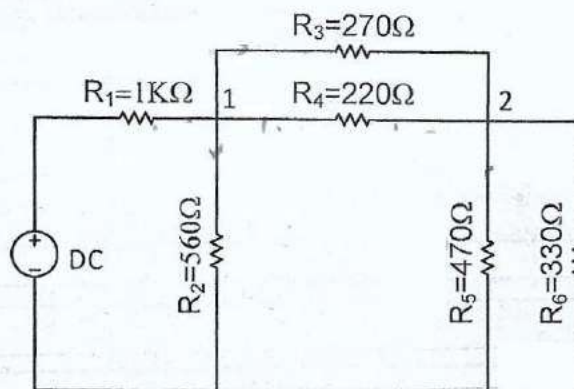
THEORY:

The algebraic sum of currents entering any node equals the sum of the currents leaving the node.



In the figure above $I_1 + I_3 = I_2 + I_4$

CIRCUIT DIAGRAM:



LABORATORY TASKS:

- Construct the circuit with supply voltage 10V.
- Measure current through each branch and note down the values.
- Interchange $1\text{K}\Omega$ and 560Ω .
- Repeat step (ii) again.

REPORT:

- Verify whether your data agree with KCL for node 1 & 2.
- What do you understand by super node?
- Discussion.