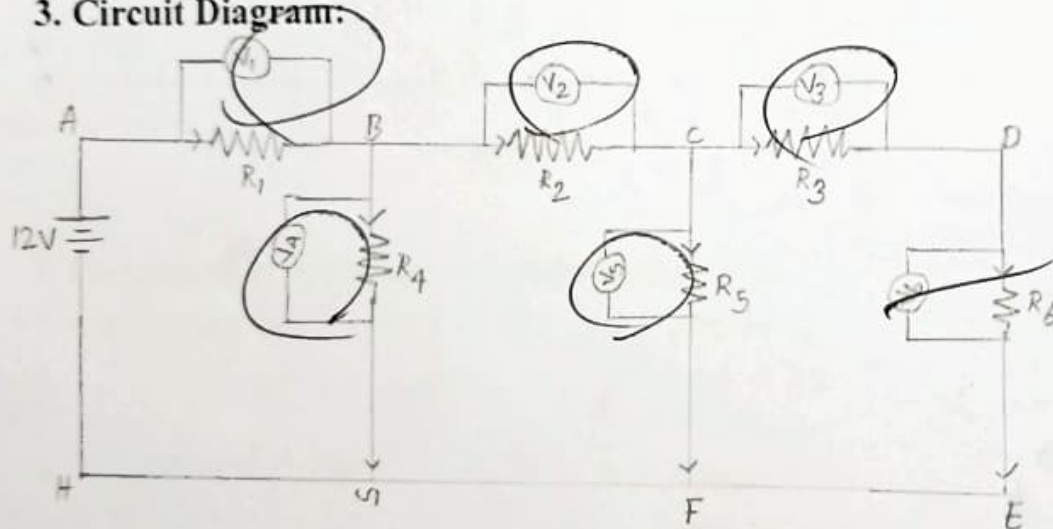


1. Aim: To Verify Kirschhoff's Voltage Law (KVL)

2. Apparatus:

S-No	Equipment name	Specification & Range	Quantity
1.	Regulated Variable DC supply	0-30V, 0-2A	1
2.	Digital multimeter	0-30V	6
3.	Resistor	of different values	6
4.	connecting wires	As per requirement	

3. Circuit Diagram.



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#### 4. Steps for experiment:

1. The circuit is connected as shown in Fig.
2. The Voltage of DC supply was set at 12V DC supply.
3. Different values of  $R_1$  to  $R_6$  were taken and readings of  $V_1$  to  $V_6$  were noted down.
4. Accordingly, only one set of reading was taken at 12V DC supply.
5. The observations were recorded in Table.

#### 5. Calculations/Theorems /Formulas used etc

- Applying KVL in loop ABGH,  $V = V_1 + V_4$
- Applying KVL in loop BCFG,  $V_4 = V_2 + V_5$
- Applying KVL in loop CDEF,  $V_5 = V_3 + V_6$
- Calculations are done for all the readings being taken

#### 6. Observations/Discussions:

Sr. No	Voltmeter $V_1$ (V)	Voltmeter $V_2$ (V)	Voltmeter $V_3$ (V)	Voltmeter $V_4$ (V)	Voltmeter $V_5$ (V)	Voltmeter $V_6$ (V)
1	7.33	2.44	0.92	4.74	1.88	0.94

#### 7. Percentage error (if any or applicable):

- % error in  $V = 12.07 - 12 = 0.07$   
 $\Rightarrow \% \text{ error} = 0.58\%$
- % error in  $V_4 = 4.77 - 4.32 = 0.42$   
 $\Rightarrow \% \text{ error} = 8.8\%$
- % error in  $V_5 = 1.88 - 1.86 = 0.02$   
 $\Rightarrow \% \text{ error} = 1\%$

Net Work

## 8. Result/Output/Writing Summary:

$$V = V_1 + V_4$$

$$12 = 7.33 + 4.74$$

$$12 \approx 12.07$$

For Loop ABGH

$$V_4 = V_2 + V_5$$

$$4.74 = 2.44 + 1.88$$

$$4.74 \approx 4.32$$

For Loop BCFA

$$V_5 = V_3 + V_6$$

$$1.88 = 0.92 + 0.94$$

$$1.88 \approx 1.86$$

For Loop CDEF

## 9. Graphs (If Any): Image /Soft copy of graph paper to be attached here

## Learning outcomes (What I have learnt):

1. Test and Verify KVL law.
2. Designing of series & parallel circuit.
3. The measurement of Resistance
4. Applying Kirchhoff's Voltage law
5. The measurement of Voltage & current.