

### **Expt. No: 04**

### **Name of Experiment: Verification of KCL for dc circuits.**

### **Theory:**

Kirchhoff's Current law states that the algebraic sum of currents entering and leaving in a node is equal to zero. Mathematically it states that,  $\sum I_m = 0$  in a node.

It can be said in another way, the sum of the currents entering in a node must be equal to the sum of the currents leaving from that node  $\sum I_{\text{entering}} = \sum I_{\text{leaving}}$

### **Equipments:**

- |                           |                  |
|---------------------------|------------------|
| 1. Resistance. (3 pieces) | 4. Ammeter.      |
| 2. Connecting wires.      | 5. Project board |
| 3. DC Voltage source.     | 6. Multi-meter.  |

### **Circuit diagram:**

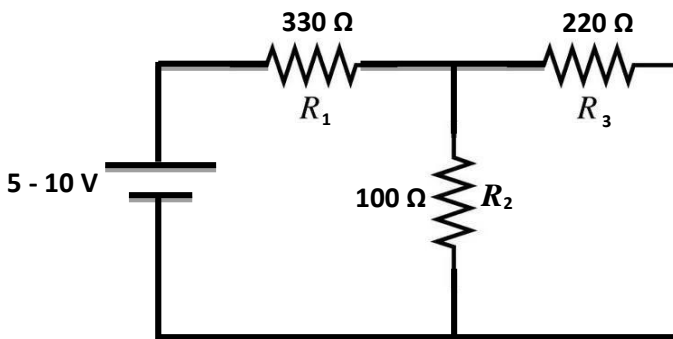


Figure: 1

### **Procedure:**

- (1) According to the circuit diagram that shown in figure: 1, connect the elements properly.
- (2) Measure the Currents  $I_1$ ,  $I_2$  and  $I_3$  through  $R_1$ ,  $R_2$  and  $R_3$  respectively.
- (3) Complete the calculation and find the percentage of error.

**Experimental Data:**

SL No.	Supply Voltage $V_s$ (v)	Current through $R_1$ , $I_1$ (v)	Current through $R_2$ , $I_2$ (v)	Current through $R_3$ , $I_3$ (v)	Apply KCL, $I_1 = I_2 + I_3$ (v)	Percentage of error = $(I - I_1) / I \times 100 \%$
1.						
2.						
3.						
4.						
5.						

**Discussion:** Write yourself.