**Lab Report**

Course Name : Electrical Circuits

Course Code : CSE209 LAB

Section No : 04

Experiment NO : 05

Experiment name : Verification of Superposition Theorem

**Submitted to**

Course instructor : Rashedul Amin Tuhin

Senior lecturer

Computer science and engineering

**Submitted by**

Name: Apurba Roy Ajay

Student’s ID : 2018-3-60-063

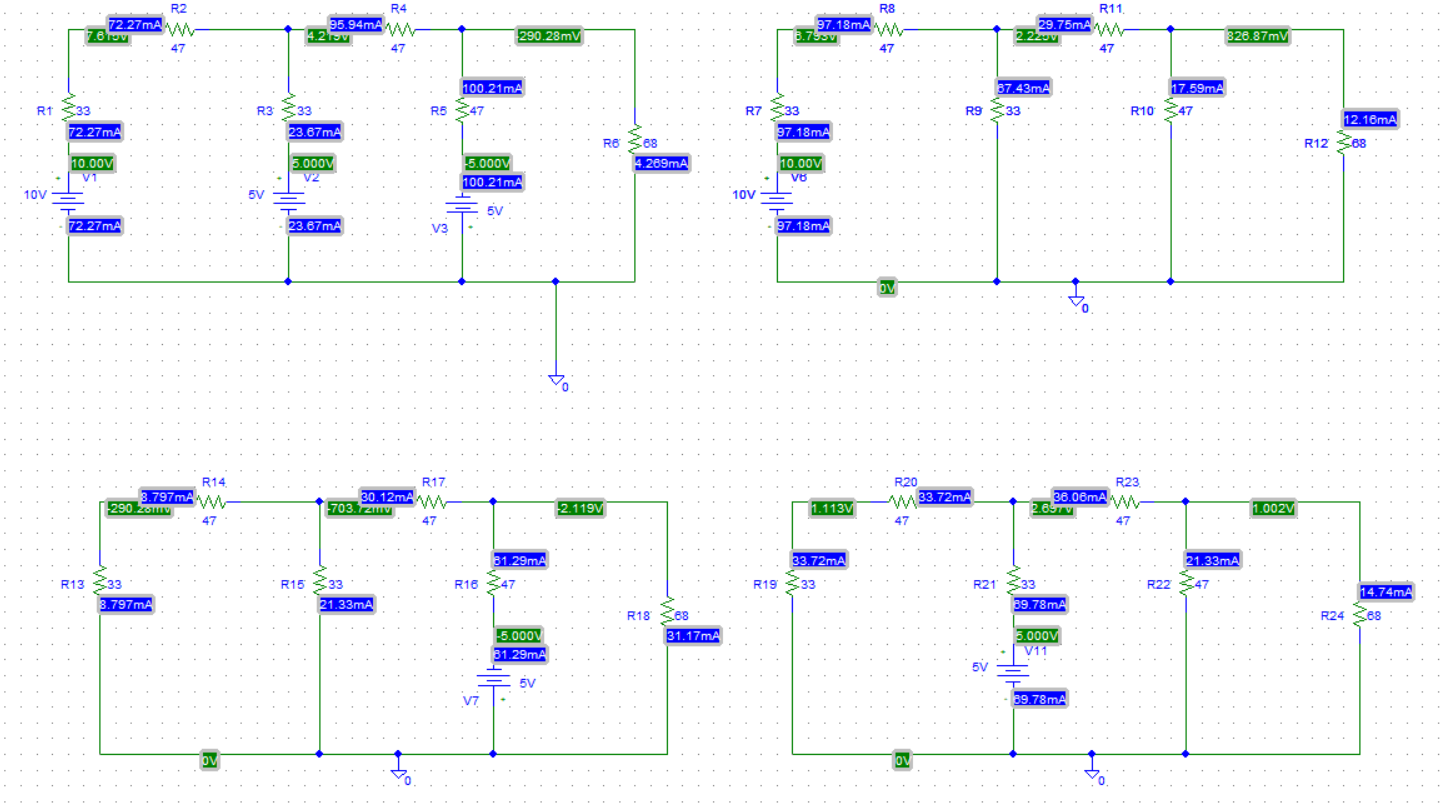
Department : Computer science and engineering

**Date of report submission : /09/2020**

**Objective:**

1. To verify the superposition theorem theoretically, experimentally, and using PSpice simulation.

Circuit Diagram:

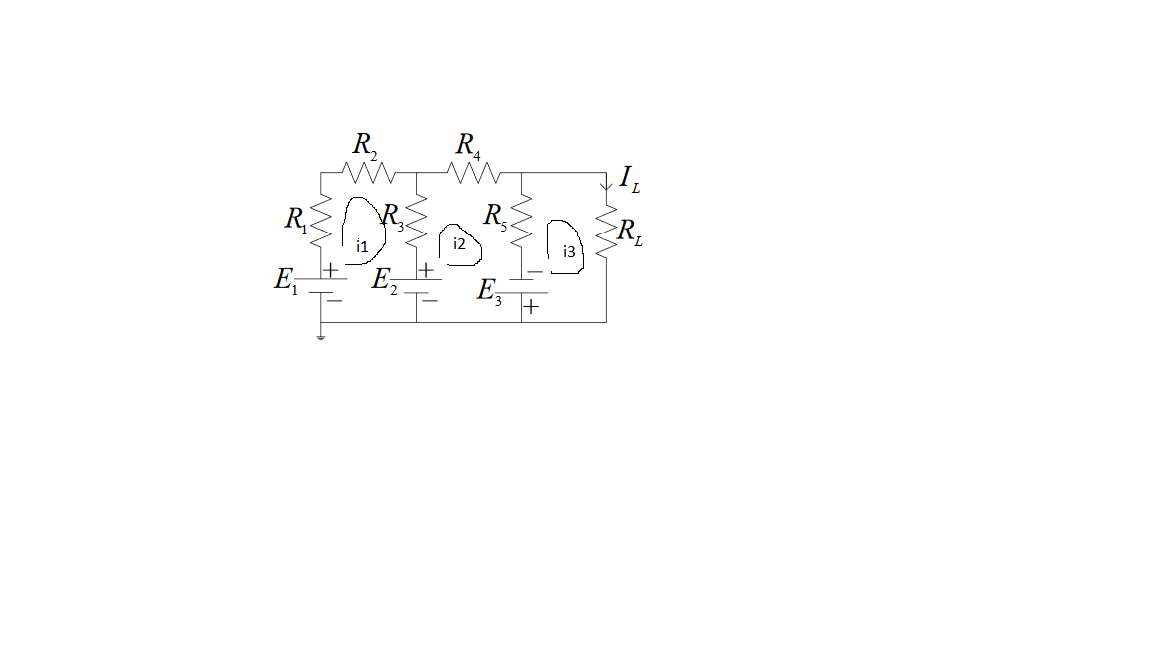


**Experimental Datasheet:**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Measured Value of *E*1 (V) | Measured Value of *E*2 (V) | Measured Value of *E*3 (V) | Measured value of *IL* with all sources active  (mA) | Measured value of *IL*1 with  only *E*1  active (mA) | Measured value of *IL*2 with  only *E*2  active (mA) | Measured value of *IL*3 with  only *E*2  active (mA) | Measured values of resistors () |
| 10 V | 5 V | 5 V |  |  |  |  | *R*1= 33 *R*2 =  *R*3 =  *R*4 =  *R*5=  *RL* =­­­ |

**Answer to the Post-Lab Question:**1.answer:

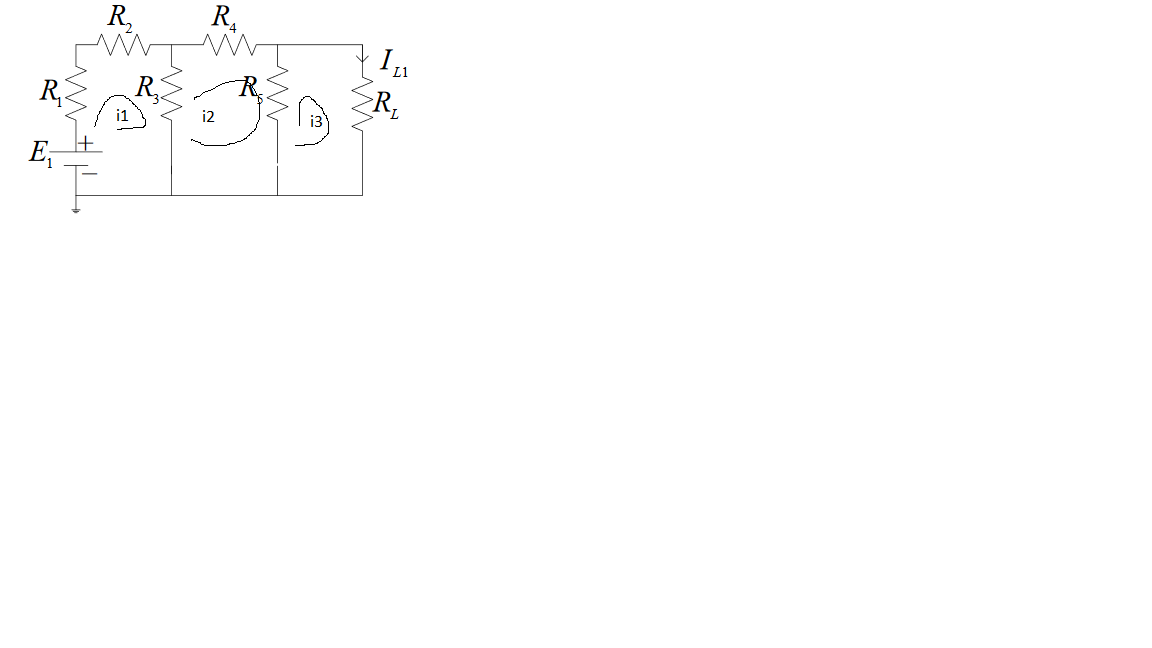
Circuit:

 Here, ,

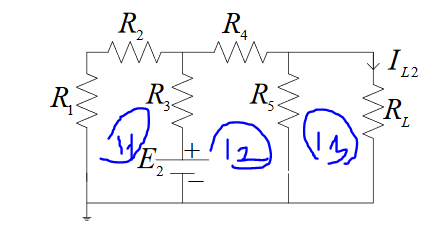
Appling KVL at mesh 1,2 &3,

Slove those equation.  
From the figure,

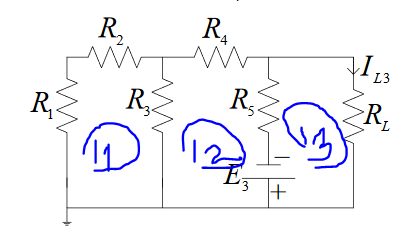
Now, Circuit with source active.

 Appling KCL at mesh 1,2 &3,  
 Slove those equation.  
From the figure,

Now, Circuit with source active.



Appling KCL at mesh 1,2 &3,  
 From the figure,

When, Circuit with E3 source active.

Appling KCL at mesh 1,2 &3,  
 Slove those equation.  
From the figure,

The superposition theorem is,  
   
 12.16+14.73-31.17  
 -4.27  
 So, the superposition theorem holds (Showed)

**Conclusion :**

We connect this circuit using Pspice software.I think if we could do this same experiment in the lab, the measure value would change a little bit and most importantly we could learn how to connect the circuit for real life.