# Experiment # 6

Verification of Kirchhoff Current Law (KCL) using PSPICE

**Objectives:**

To verify Kirchhoff’s Current Law (KCL) using electrical simulation tool PSPICE

# Kirchhoff's current law (KCL):

At any node (junction) in an electrical circuit, the sum of currents flowing into that node is equal to the sum of currents flowing out of that node or the algebraic sum of currents in a network of conductors meeting at a point is zero.

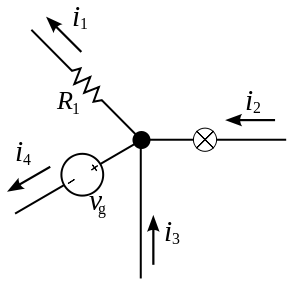


Figure 11 KCL

i.e.

# Experiment:

To verify Kirchhoff's current law (KCL) using PSpice.

# Procedure:

1. Open schematic program of PSpice
2. Click on the “Get New Part” button on the toolbar
3. Type ‘r’ in the search bar and place three the resistors on the white sheet
4. Type ‘vdc’ in the search bar and place it on the white sheet
5. Type ‘gnd-earth’ and place on the white sheet
6. Now arrange these components on the white sheet according to the circuit diagram as following:

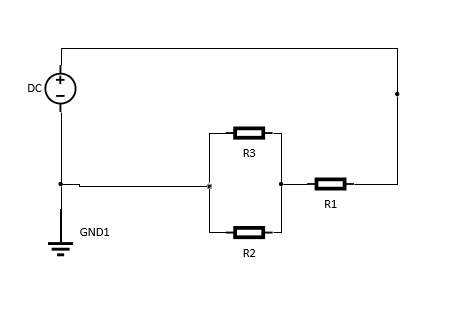


Figure 12 KCL circuit

1. Click on the simulation button in the toolbar and also make sure that the voltage and current biase buttons are pressed so that you can take readings of the circuit

# Observation (Case 1: Same resistors):

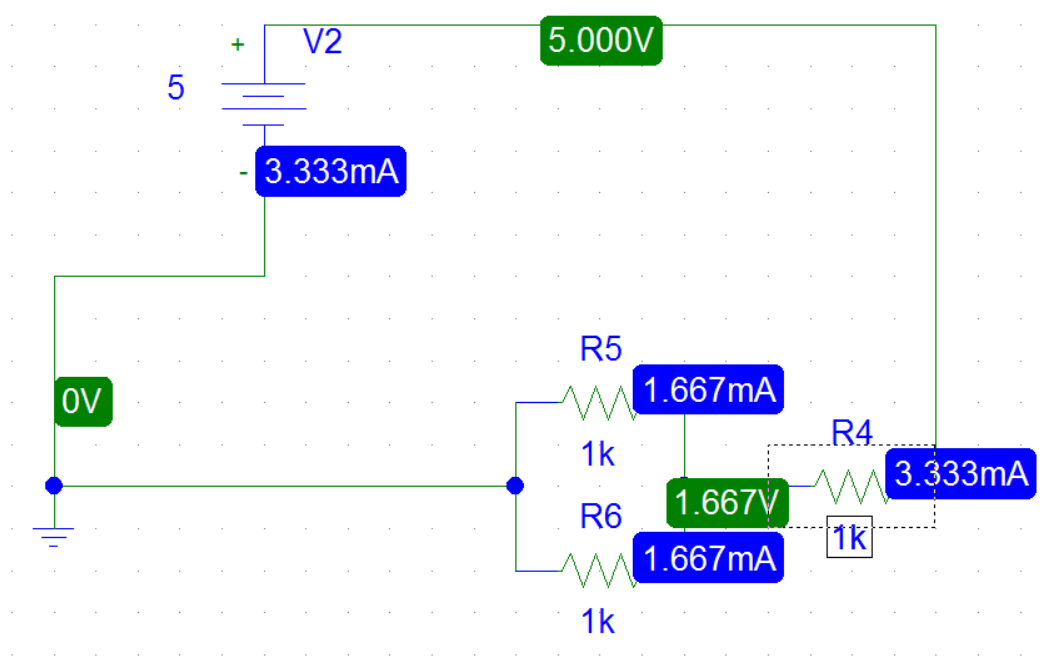


Figure 13 KCL on PSpice (Same Resistors)

|  |  |  |
| --- | --- | --- |
| **S.no.** | **Resistors** | **Currents** |
| 4. | 1k |  |
| 5. | 1k |  |
| 6. | 1k |  |

# Observation (Case 2: Different resistors):

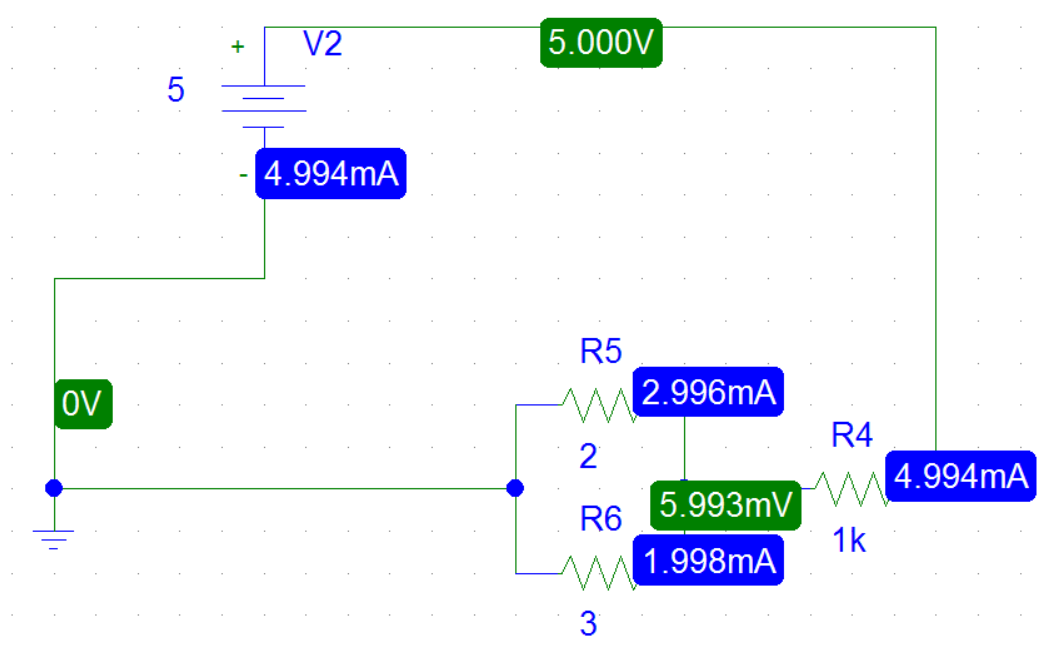


Figure 14 KCL PSpice (Different Resistors)

|  |  |  |
| --- | --- | --- |
| **S.no.** | **Resistors** | **Currents** |
| 4. | 1k |  |
| 5. | 2k |  |
| 6. | 3k |  |