**Lab # 1 DC MEASUREMENT *[Title]***

# Objective

*[Objective list]*

* To understand the basics of DC (direct current) circuits.
* To use a digital multimeter (DMM) to measure DC voltage, current and resistance.
* To verify the valid measurement condition for a digital multimeter.

# Equipment

*[Equipment list]*

* Breadboard
* DC Power supply
* Digital multimeter

# simulation

1. Circuit 1 is simulated in Multisim. *[Describe what is beingsimulated.]*

Figure 1

*[Screen shot of the circuit simulated in Multisim]*

Table 1

|  |  |
| --- | --- |
| *[Numerical data]* |  |
| I (mA) |  |
| V1 (V) |  |
| V2 (V) |  |

1. …… ***[Second circuit (if any), brief description]***

Figure 2

*[Screen shot of the circuit simulated in Multisim]*

Table 2

|  |  |
| --- | --- |
| *[Numerical data]* |  |
|  |  |
|  |  |

# Experiment

1. Measure the actual values of all resistors, and compare them with nominal values. *[A brief description for this step.]*

Table 3

|  |  |  |
| --- | --- | --- |
| *[Numerical data]* | Nominal value | Measured value |
| R1 (Ω) |  |  |
| R2 (Ω) |  |  |
| R3 (Ω) |  |  |

1. Connect the circuit in Figure 3 and measure V1, V2 and I. Compare measured results with calculated and simulated ones. *[A brief description for this step.]*

*[Circuit is displayed in* Figure 3*, data is recorded in* Table 4*, and data comparison is done in* Table 5*. Verify rules and laws if any.]*

*[Circuit for this step]*

Figure 3

Table 4

|  |  |
| --- | --- |
| *[Numerical data]* | Measured result |
| I (mA) |  |
| V1 (V) |  |
| V2 (V) |  |

Table 5

|  |  |  |  |
| --- | --- | --- | --- |
|  *[ Compare Data ]* | Calculated result | Simulated result | Measured result |
| I (mA) |  |  |  |
| V1 (V) |  |  |  |
| V2 (V) |  |  |  |

Verify Ohm’s Law:

Verify Voltage Divider Rule:

Verify KVL:

**……** *[Conclude, comment on what you have observed.]*

1. **……** *[Same as step 1 or 2]*

# ConclusionS

*[Provide all the conclusions you have arrived at from the calculated, simulated and measured results.]*