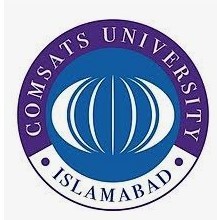
**Electric Circuit Analysis I EEE-121**

**Lab 04: Kirchhoff’s Laws &Voltage-and-Current Division Principles**



|  |  |
| --- | --- |
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**Table 1**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Element** |  | **Voltage across element (V)** | **Calculated** | **Measured** | **Simulated** |
| **R1 (Ω)** | **100** | **V1** | **0.20** | **0.2** | **0.20** |
| **R2(Ω)** | **213** | **V2** | 0.43 | **0.4** | **0.43** |
| **R3(Ω)** | **471** | **V3** | **0.95** | **0.91** | **0.95** |
| **R4(Ω)** | **698** | **V4** | **1.41** | **1.40** | **1.41** |
| **R5(Ω)** | **987** | **V5** | **1.99** | **2.00** | **1.99** |

**Table 4.1 Verification of KVL:**

The following relationship is verified:V1+V2+V3+V4+V5 = V

**Table 2**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Element** |  | **Current through element (mA)** | **Calculated** | **Measured** | **Simulated** |
| **I (through Voltage Source)** | **22.65mA** | **22.70mA** | **22.80mA** |
| **R1 (Ω)** | **987** | **I1** | **5.05mA** | **5.0mA** | **5.0mA** |
| **R2(Ω)** | **698** | **I2** | **7.15mA** | **7.1mA** | **7.10mA** |
| **R3(Ω)** | **471** | **I3** | **10.61mA** | **10.60mA** | **10.60mA** |

**Table 4.2 Verification of KCL:**

The following relationship is verified: I1+I2+I3 = I

**Post Lab**

**Questions** 1. What is path/loop? How many paths/loop are there in Fig 4.1?

**ANSWER:**

That algebraic sum of voltages around anyloob in a circuit is always zero. A loop in a circuit is any closed path along a circuit that encounter one node only once. If the loop analysis of circuit is in clockwise direction then it starts from negative sign and vice versa.

LOOPS IN A GIVEN CIRCUIT:

There are three(3) loops in a given figure.

1. Two resistors R1 and R2 are connected in series. The voltage drop across R1 is larger than R2. What can we infer about comparative values of the resistances? Is R1>R2 or R1<R2.

**ANSWER:**