**Prelab-3 Worksheet**

**Circuit Analysis – I**

|  |  |
| --- | --- |
| Student Name(s): |  |
| Student ID(s): |  |

# Task 1a

**Table 1: Resistance Calculation:**

|  |  |  |
| --- | --- | --- |
| **Resistor #** | **Color Code** | **Calculated Resistance Value** |
| R1 | Green–Blue–Brown |  |
| R2 | Red–Red–Brown |  |
| R3 | Orange–Orange–Brown |  |
| R4 | Yellow–Violet–Brown |  |

**Note 1:** Color codes are given excluding the tolerance color band.

**Note 2:** The resistance, voltage and current values in all tables must be written with units.

# Task 1b

**Table 2: Analytical Calculations – Circuit Analysis Results:**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **Series Circuit** | | **Parallel Circuit** | | |
|  |  |  |  |  |
| 9 V |  |  |  |  |  |

In the next page, show ’**detailed step-by-step**’ calculations corresponding to Table 2.

**Note:** To calculate the source current in the Parallel Circuit, first find the equivalent resistance (R1 || R2).

Within the space given below show ‘**detailed step-by-step**’ calculations for the **Series Circuit** to find the voltage drop across R2 () and the current through the circuit ().

|  |
| --- |
|  |

Within the space given below show ‘**detailed step-by-step**’ calculations for the **Parallel Circuit** to find source current (), current through R3 (), and current through R4 ().

|  |
| --- |
|  |

# Task 2

**Table 3: LTspice Simulation Results:**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **Series Circuit** | | **Parallel Circuit** | | |
|  |  |  |  |  |
| 9 V |  |  |  |  |  |

**Screenshot # 1** (Place your Screenshot # 1 below)

**Screenshot # 2** (Place your Screenshot # 2 below)

**Prelab-3 Submission Requirements:**

* Convert/save this Prelab-3 Worksheet **as a .pdf file** with a filename as follows:

**If Prelab is done individually:** “Prelab-3\_FirstName\_LastName.pdf”.

**If Prelab is done in a group:** If you have been explicitly instructed by your lab instructor to perform the Prelab exercises in a group, then save this Prelab-3 Worksheet **as a .pdf file** with a filename following the convention below:

Let’s consider that two students are doing the prelab in a group. Then the filename should be: “Prelab-3\_FirstName of Student 1\_FirstName of Student 2.pdf”. For example, if name of the two students are Tom Cruz and Morgan Freeman, respectively, then the Prelab-2 Worksheet file should have the following name: “Prelab-3\_Tom\_Morgan.pdf”. Similar file naming convention should be followed to properly name your LTspice schematic file. Improperly named files may be subject to point deductions.

* **Prelab Submission Checklist:** There should be three files submitted for your Prelab-3 assignment. The Prelab-3 Worksheet (.pdf) and two LTspice schematic files (.asc).
* Check with your lab instructor about specific instructions on how to submit your Prelab files for assessment and grading.

**Prelab Score:** This prelab contributes to 30 points toward Lab 3 (each Task in the Prelab is worth 10 points). In-lab hands-on work will contribute to 70 points (Lab 3 total is 100 points).