**Prelab-2 Worksheet**

**Circuit Analysis – I**

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

# Task 1

**Table 1: Resistors and Color Codes:**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Color Code to Resistance Calculation** | | | **Resistance Identification from Color Code** | | |
| **Resistance #** | **Given Color Code** | **Calculated Resistance Value** | **Resistance #** | **Given Resistance Value** | **Identified Color Code** |
| R1 | Brown – Black – Red |  | R4 | 330 Ω |  |
| R2 | Red – Red – Red |  | R5 | 22 kΩ |  |
| R3 | Yellow – Violet – Black |  | R6 | 56 kΩ |  |

**Note 1:** Color codes are given excluding the tolerance color band. Also, for your identified color codes, write without the tolerance color band.

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

# Task 2

Within the following given space, show **detailed step-by-step calculations** (Applying Kirchhoff’s Laws & Ohm’s Law) to compute the voltage across & and current in the voltage divider circuit.

|  |
| --- |
|  |
|  |

**Table 2: Analytical Calculation Results**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **Resistor Values**  (From Table 1) | | **From Analytical Calculations** | | |
|  |  | (Voltage drop across ) | (Voltage drop across ) | Current **()** through the circuit |
| 6 V |  |  |  |  |  |

# Task 3

**Table 2: LTspice Simulation Results**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Resistor Values**  (From Table 1) | | **Simulation Results** | |
|  |  | (Voltage drop across ) | Current **()** through the circuit |
| 6 V |  |  |  |  |

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

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

**Prelab-2 Submission Requirements:**

* Convert/save this Prelab-2 Worksheet **as a .pdf file** with a filename as follows:

**If Prelab is done individually:** “Prelab-2\_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-2 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-2\_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-2\_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 two files submitted for your Prelab-2 assignment – (i) the Prelab Worksheet (.pdf) and (ii) the LTspice schematic file (.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 2 (each Task in the Prelab is worth 10 points). In-lab hands-on work will contribute to 70 points (Lab 2 total is 100 points).