## 5.4.5: Temperature Measurement System (100 points total)

1. Thermistor Characterization (10 pts total)
   1. In the space below, provide the measured sensor resistance variation over the specified temperature range. (10 pts)
2. Wheatstone Bridge Design (45 pts total)
   1. Sketch below the circuit to convert resistance variation to voltage variation. Include desired and actual values for circuit components (e.g. resistor values). (15 pts)
   2. Provide below the measured output voltage for nominal (approximately 25°C) temperature. (5 pts)
   3. Provide below the measured range of output voltage over specified temperature range (25°C to 37°C). (10 pts)
   4. **DEMO**: Have a teaching assistant initial this sheet, indicating that they have observed your circuits’ operation. (15 pts)

**TA Initials: \_\_\_\_\_\_\_**

1. Difference Amplifier Design (45 pts total)
   1. Provide a sketch of difference amplifier circuit, including desired and actual values for circuit components. (10 pts)
   2. Verify that output voltage increases as temperature increases and decreases as temperature decreases. Provide below the measured range of output voltage over specified temperature range (25°C to 37°C) (10 pts)
   3. **DEMO**: Have a teaching assistant initial this sheet, indicating that they have observed your circuits’ operation. (15 pts)

**TA Initials: \_\_\_\_\_\_\_**

* 1. Discuss below the performance of your temperature measurement system performance and comparison with design specifications. (10 pts)