Table 1. Resistor values for stated value and measured value for R1 and R2 in Ohms.

|  |  |  |
| --- | --- | --- |
|  | R1(Ω) | R2(Ω) |
| Stated Value | 360 | 180 |
| Measured Value | 362 | 184 |

Table 2. Measured Currents and Voltages for series and parallel configuration with calculated resistances.

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Configuration | I(mA) | I1(mA) | I2(mA) | V(V) | V1(V) | V2(V) | R(Ω) | R1(Ω) | R2(Ω) |
| Series | 5.5 | 5.5 | 5.5 | 3.1 | 2.06 | 1.034 | 562 | 374 | 188 |
| Parallel | 24.7 | 8.49 | 6.7 | 3.08 | 3.08 | 3.08 | 122 | 362 | 184 |

Calculations

Parallel Resistance

R= (R­­1\*R­2) / ( R1 + R­2)

R= (362 Ω \* 184 Ω)

 (362 Ω + 184 Ω)

R= 122 Ω

Series Resistance

R= R1 + R2

R= 374 Ω + 188 Ω

R= 562 Ω

Total Resistance

R=V/I

R= (3.1 V) / (0.0055 A)

R= 562 Ω

Need to calculate Percent Error based on the above data (for series and parallel?)

%error = [(actual value - measured value)/measured value] \* 100

QUESTIONS:

1. Do your calculated values of R1 and R2 compare favorably with the stated values of the resistor? How do you account for the difference?

2. How do stated and measured values of R1 and R2 compare with one another?