Electrical Circuit Lab

Student's Name: **ID:**

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1. Use the DMM to measure the resistance of the three resistors provided in the table.

	R1	R2	R3
Bands Color	Orange-White-Red-Gold	Red-Violet-Red-Gold	Green-Blue-Orange-Gold
Theoretical Value	3.9 ±5% KΩ	2.7±5% KΩ	56±5% KΩ
Measured Value by (DMM)	3.84KΩ	2.66 KΩ	55.57 KΩ

2. Read the color code of these resistors. Tabulate your results. ✕

3. Compare your measurements with the actual values. Do the actual values lie within tolerance? Show your calculations.
   (R1): %Error = $\frac{3.9-3.84}{3.9}$ * 100% = 1.54% ⇒the range: 3.9-0.05=3.85
   3.9+0.05= 3.95 , the MV isn't in the range, its NOT accepted.
   (R2): %Error = $\frac{2.7-2.66}{2.7}$ * 100% = 1.48%, ⇒the range: 2.7-0.05= 2.65
   2.7+0.05=2.75, the MV is in the range, its accepted.
   (R3): %Error =$\frac{56-55.57}{56}$ *100% = 0.77%, ⇒the range: 56-0.05=55.95
   56+0.05=56.05 , the MV isn't in the range, its NOT accepted.

4. Holding one probe between the thumb and fourth finger of each hand, measure and record the value of your body resistance between your hands. ✕

5. Setup your DC PS to 5 volts. Measure this with your DMM.
   5.001 Volt

6. Are the value on the display equal to the DMM reading? Why?
   No it is not, because the DC PS had just 2 digits, also the DMM must be less than DC PS, because it had voltage drop on the wires.

7. Place the resistors R1 = 2.7 KΩ, and R2 = 3.9 KΩ on the breadboard. Setup the PS to 8 volts and connect it to the resistors as shown below in Fig.1.4.

8. Measure the voltage across R1,R2, and the current through each resistor. Do these values match with what you expect theoretically? Explain.
   R(eq)=2.7+3.9=6.6 KΩ

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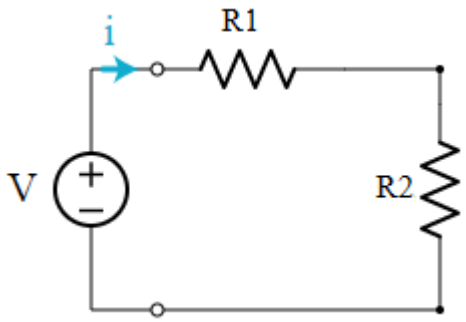
$I = \frac{v}{R(eq)} = \frac{8}{6.6K\Omega} = 1.21$ mA
V(R1) = I*R1=1.21*2.7=3.27 Volt
V(R2)=I*R2=1.21*3.9= 4.72 Volt

9. How much power is this resistor dissipating?

P1=V*I=3.27*1.21=3.96 mW

P2=V*I=4.72*1.21=5.71 mW



Simple Circuit Connection