Hands-On Lab - Module 2 Results

Your Name: _____ Seat _____ Date _____

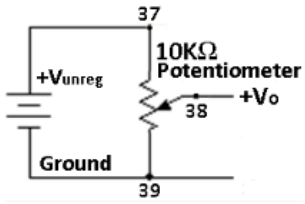
1. VOLTAGE SOURCES

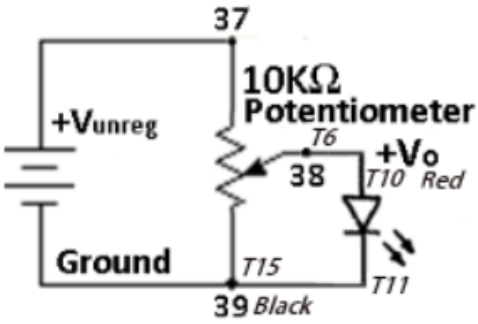
1.a) What is the *'unloaded'* unregulated source voltage, **V**? _____ **volts**

1.b) What is the *'loaded'* unregulated source voltage, **V**? _____ **volts**

2. CREATING A VARIABLE VOLTAGE SOURCE

2.a) What is the *resistance of the potentiometer* for **V_o = 5.0 volts**? _____ **KΩ**





3. MEASURING VOLTAGES ACROSS LEDS

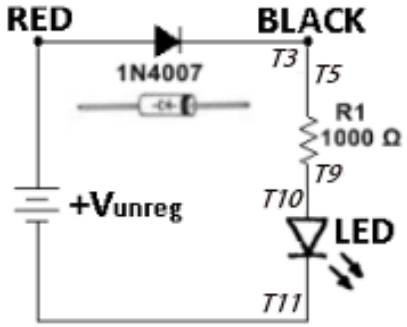
3.a) What is the variable source voltage, **V_o** across the LED? _____ **volts**

3.b) Does the LED light up? _____ **Yes** _____ **No**

3.c) What is the lowest voltage, **V_o** across the LED for it to light up? **V_o** = _____ **volts**

This is Instructor check point 2A.

4. THE FORWARD BIASED RECTIFIER DIODE



4.a) Does the LED light? _____ **Yes** _____ **No**

If the LED does NOT light, check your circuit for errors

4.b) What is the voltage measured across the LED?

V_{led} = _____ **volts**

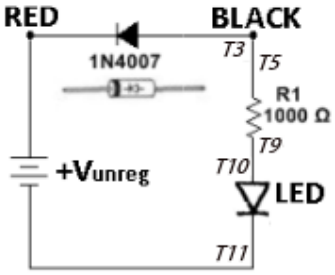
4.c) What is the voltage measured across the diode?

$V_{d\text{-}forward}$ = _____ **volts**

4.d) What is the voltage measured across the 1000 ohm resistor? **V_{R1}** = _____ **volts**

4.e) What is the *'loaded'* unregulated source voltage, **V**? **V_{loaded}** = _____ **volts**

5. THE REVERSE BIASED DIODE



5.a) Does the LED light up? _____ **Yes** _____ **No**

5.b) What is the voltage across the reverse-biased diode?

$V_{d\text{-}reverse}$ = _____ **volts**

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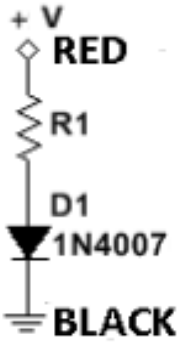
6. DIODE I-V CHARACTERISTIC CURVE

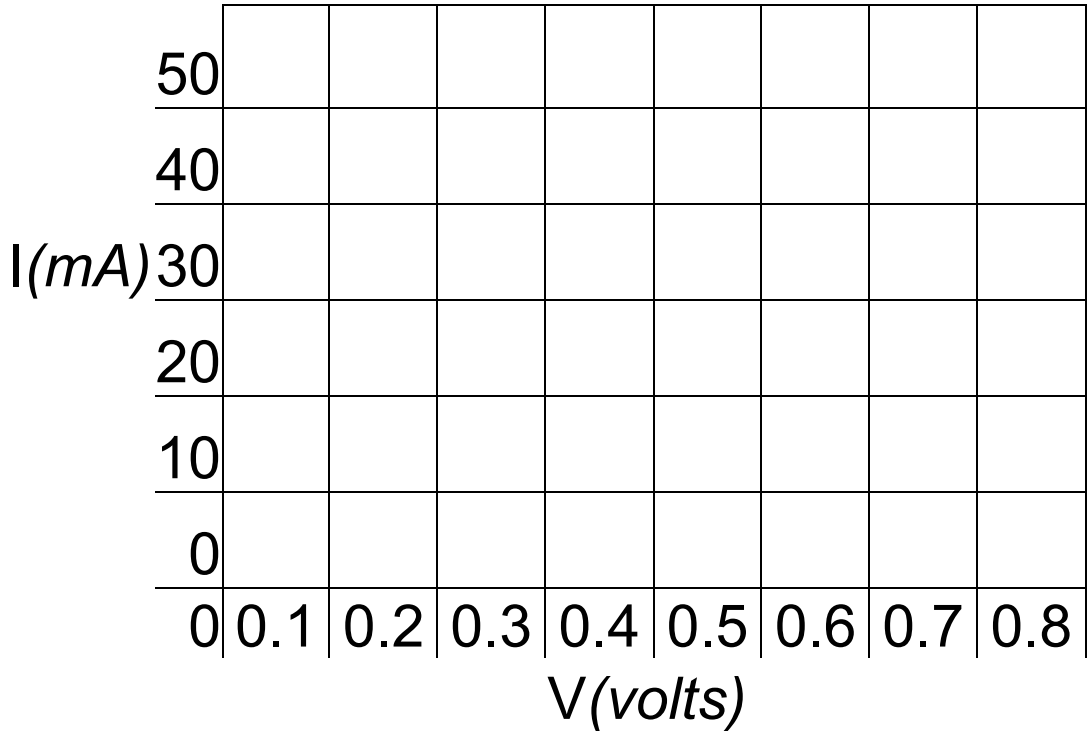
6.1) Measure the voltage drop across the diode and the resistor and use those values to fill the table below. THEN, use the value of the resistor and the voltage drop across it to calculate the current flowing in the resistor and the diode in series with it using Ohms Law: **I = V / R**.

RESISTANCE R_1	**V_d voltage across diode (measured)***	**V_{R1} voltage across R_1 (measured)**	**$I_R = I_d$ current in mA (calculated)**
100K ohms			
10K ohms			
1K ohms			
500 ohms *(2@1K)*			
333 ohms *(3@1K)*			
250 ohms *(4@1K)*			



This is Instructor check point 2B.

6.2) Sketch the I-V Characteristic Curve for the **1N4007** diode:



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