

Name : _____

Name : _____

TA : _____

Section : _____

A. DMM Lab Continued

1. Circuits with Potentiometers [20 pts]

Expected voltage across potentiometer when set to $\sim 10k\Omega$: _____

	pot value 1 (10k)	pot value 2	pot value 3
Measured V_{AB}	_____	_____	_____
Measured V_{BC}	_____	_____	_____
Measure I	_____	_____	_____

What happens as the resistance of the pot is increased? _____

2. Current-Voltage (I-V) characteristics [20 pts]

Resistor

Plot an I_T vs. V_T graph below

Battery

Plot an I_T vs. V_T graph below

Experiment Report Oscilloscope

Name : _____

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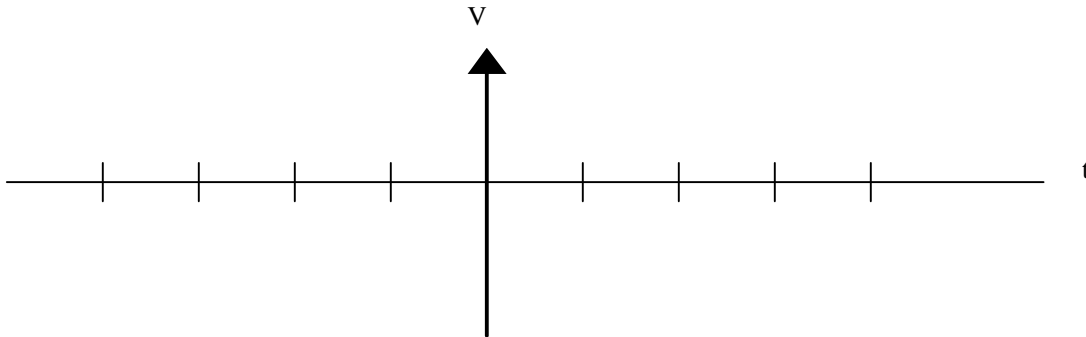
Section : _____

This write-up follows along with the Hands On section of the lab. It requires you to draw some of the signals you'll observe on the oscilloscope, and to correctly understand the concepts of amplitude and frequency. You should complete this report as you do the lab exercises.

III. Hands On (40 Points)

a. Graphing a signal on the oscilloscope

1. Draw the signal on the oscilloscope obtained after step 3. Please specify the amplitude, frequency and period. On the voltage (y) and time (x) axes, you should label units appropriately. (12 points)

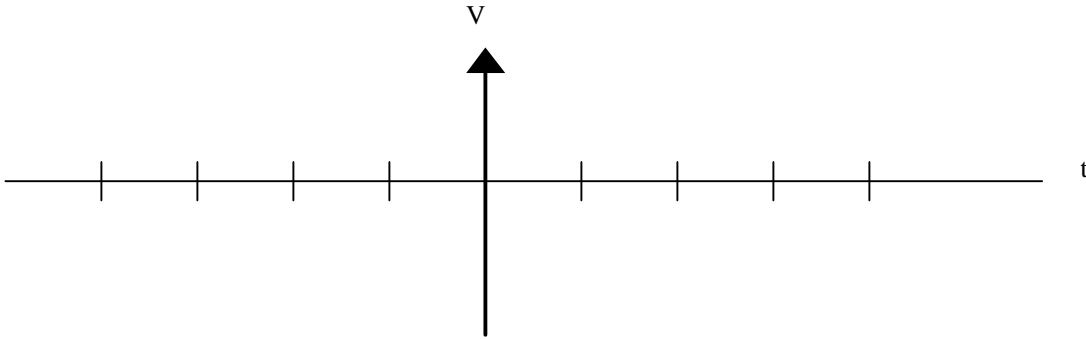


Amplitude: _____

Frequency: _____

Period: _____

2. Draw the signal on the oscilloscope obtained after step 5. Please specify the amplitude, frequency and period. On the voltage (y) and time (x) axes, you should label units appropriately. (12 points)

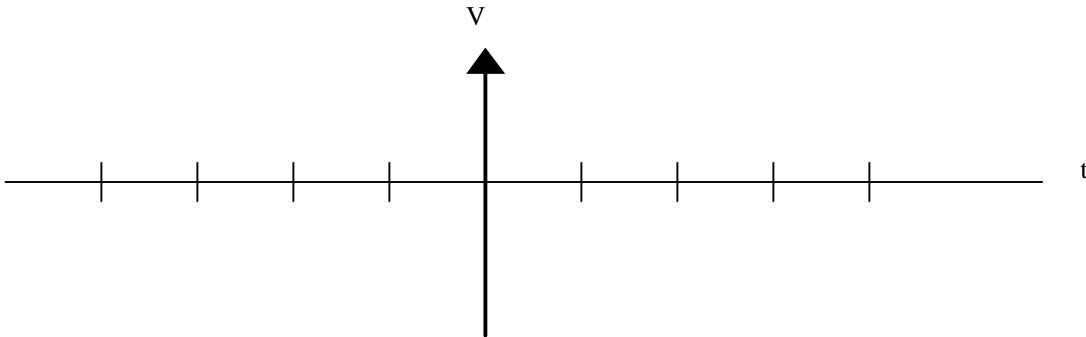


Amplitude: _____

Frequency: _____

Period: _____

3. Draw the signal on the oscilloscope obtained after step 7. Please specify the amplitude, frequency and period. On the voltage (y) and time (x) axes, you should label units appropriately. (12 points)



Amplitude: _____

Frequency: _____

Period: _____

4. After step 8, how many peaks (max points) are there in the oscilloscope's field of view? How many minimum points? (4 points)

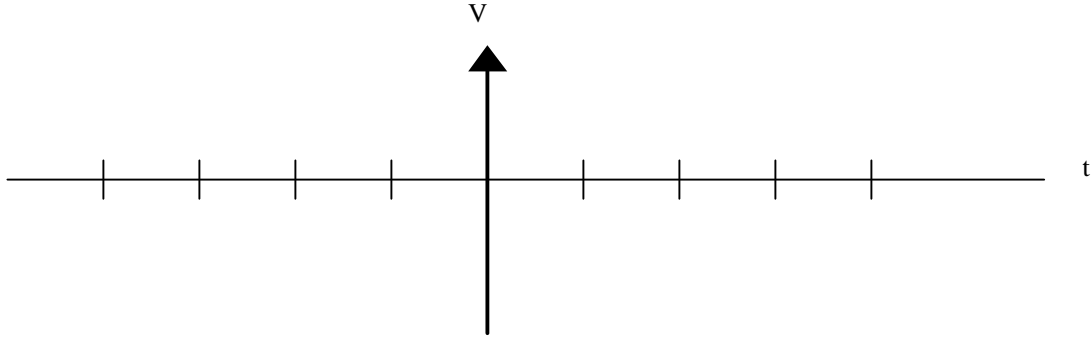
b. Triggering (40 points)

1. Please answer the question addressed in step 5: What happens when the trigger level is beyond that of the signal? Why? (9 points)

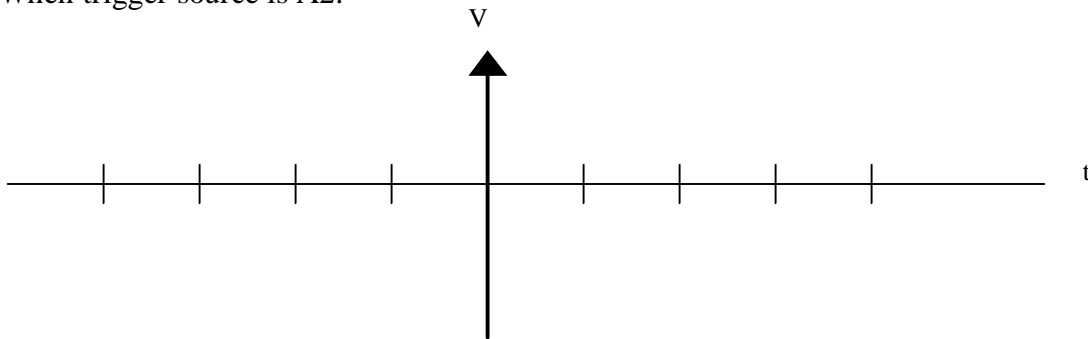
2. Please answer the question addressed in step 6: What happens now when the trigger level is beyond that of the signal? Why? (9 points)

3. On step 8, explain what is happening when the trigger source is changed from A1 to A2. To the best of your ability, draw the curves you see. (9 points)

When trigger source is A1:



When trigger source is A2:



4. For the previous question, measure the amplitudes of the input (A1) and the output (A2) sinusoids. What is the phase shift between the two signals? (9 points)

Amplitude of input (A1): _____

Amplitude of output (A2): _____

Phase Shift: _____

5. Based on step 11, does the RC circuit pass low-frequency signals or high-frequency signals? Explain how you can tell. (4 points)

c. More Fun Stuff (20 points)

1. Disconnect the ground from your oscilloscope probe, remove the probe clip if there is one and touch the tip of the probe to your finger (be careful – the probe tip is sharp like a tack). With your finger touching the probe tip, hit the **Autoscale** button. What kind of waveform do you see? What's the frequency of this waveform? Where is it coming from? Are you generating electricity? Hint: in Europe, the frequency of the signal you see would be 5/6 of what you see here in North America. (Answer as many of these questions as you can.) (10 points)

2. Draw the voltage signal created from sound by the speaker, microphone, or buzzer. Please state which one you are doing. (10 points)