University of Kentucky Department of Physics

Lab Worksheet 1

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Due 7 Sept

Problem 1

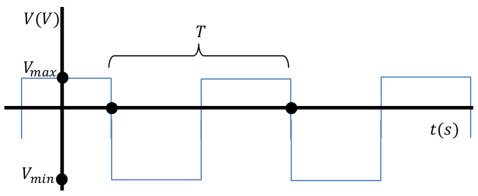
Read Lab 2.

Problem 2

(1) What does a function generator do? (2) Why are we using a function generator in part 3 of the lab? (see page 8 of lab manual).

(1) From Wikipedia: generate different types of electrical waveforms over a wide range of frequencies. Some of the most common waveforms produced by the function generator are the sine, square, triangular and sawtooth shapes.

(2) We are using a function generator to vary the voltage with time. In particular we switch off and on the voltage using a square waveform.



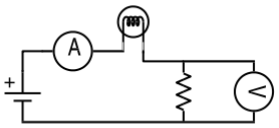
Our goal is to show that the resistance of the bulb depends on something other than the applied voltage. So we vary the current direction which makes the bulb hot and it's resistance changes with temperature.

Problem 3

During lab 1 we constructed the following circuit.

(1) What quantity is the Ammeter measuring?

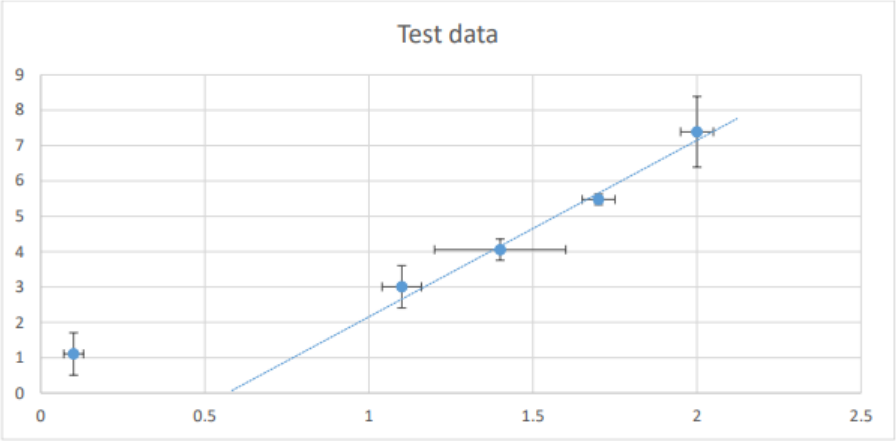
(2) Is this measurment valid for the bulb, the resistor or the voltmeter?



(1) Ammeter measures current I from power source.
(2) valid for both the bulb and resistor. No current goes through the voltmeter because an ideal voltmeter has infinite resistance.

Problem 4

Consider the following graph. Is the linear trendline appropriate for the data points that have been presented? Explain why or why not.



No, the linear trendline **is not appropriate** for the data points ∵ the trendline is not fully within the error bars (the first point is outside).