Name _____ Date _____

AP Physics Lab Activity #15 (75 pts)

Period _____ Mrs. Nadworny

Partners: Due Date _____

Terminal Voltage of Battery

NO Lab Write-Up Required
must be neatly written in pencil

Purpose

To determine the internal resistance, emf, and maximum current of a circuit.

Research Question

What is the relationship between the current through a battery and the terminal voltage of the battery?

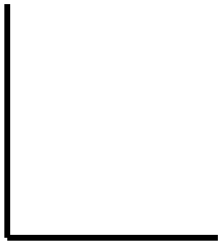
Variables (3)

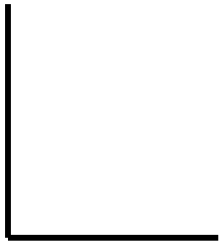
- **Independent Variable –**
- **Dependent Variable –**
- **Control Variable(s) –**

Derivation of Mathematical Model (Include derivation) (5)

Expected Graph Straightened Graph (5)

(if needed)





Significance of Slope:

Expected y-intercept:

Expected x-intercept:

Hypothesis (3)

Experimental Procedure

- **Materials**
  - o
  - o
  - o
  - o
  - o
- **Labeled Diagram** (2& 3)

- **Method** (5)

Discuss with your lab partners an appropriate method for collecting sufficient data and for keeping the control variables constant.

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Data Collection (10)

Make a clearly labeled table using a RULER and PENCIL for organizing the raw and processed data that you expect you will collect.

Data Processing (2)

Show your sample calculations of processing the data.

Graph (9)

Attach your graph to this lab BEFORE your conclusion.

Graph Analysis (14)

In space below, show your calculations for determining the experimental relationship, and comparisons to the math model. Show your calculations for determining the internal resistance, emf, and maximum current. Calculate the percent difference between the measured value of the emf and the accepted value from the graph.

Conclusion (10)

TYPE a conclusion using the general format provided on the *LAB HANDOUT*.

(4)
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