

How was Experiment 1 Graded?

With answers of Pre-lab Assignment 1

Chem 151 Fall 2009

III.A. Lab Safety and Check-in (8 points possible)

Two points were deducted for each wrong answer in this page.

- *There are 10 Erlenmeyer flasks in the lab drawer but no volumetric flasks. The volumetric flasks are kept on the side shelves and being shared between students of different lab sections.*
- *At the end of the lab period, students should turn off the hood light and close the sashes. However, it is the responsibility of the TAs, not the students, to turn off the master switch of the fume hoods.*

III.C. Properties of the Representative Elements (18 points possible)

- 4 pts. were awarded for correct electronegativities of the elements and correct classification of the metals, non-metals, and semimetals. One point was deducted for each mistake.
- 6 pts. were awarded for reporting the correct electronic configurations and number of valence electrons. One point was deducted for each mistake not to exceed 6 total pts.
- 4 pts. were awarded for ranking the relative conductivity of elements correctly. One point was deducted for each mistake not to exceed 4 total pts.
- 2 pts. were awarded for stating carbon and 99.9% purity silicon are exceptions; as they are non-metal, or semimetal but conducts electricity.
- 2 pts. were awarded for circling Se as the element that has chemical properties closest to sulfur.

III.D. Ionic Versus Covalent Bonding (34 points possible)

- 16 pts. were awarded for the correct calculation of mole /molarity in Lines 6 → 13; 2 pts were deducted for each wrong answer; no double jeopardy.
- 8 pts. were possible for filling in the Table on page 17 correctly. One point were deducted for each wrong answer. *The major species in a solution of strong electrolytes (that is, the soluble ionic compounds) should be the appropriated cations and anions; while the major species in a solution of non-electrolytes or weak electrolytes (such as sucrose and acetic acid) should be the solute molecules.*
- 10 pts. were awarded for answering Questions 14 → 18 correctly. Two pts. were deducted for each mistake.
 - *The ionic solids should not conduct electricity because the ions in the solid lattices are not mobile.*
 - *The essential criterion for a substance to conduct electricity is it must have mobile charged particle.*
 - *The solution made in Step 13 should have greater conductivity than the solution made in Step 14 because the concentration of ions in the solution of Step 13 is 100 times greater then in Step 14.*
 - *A 0.01 M K_2SO_4 solution would be more conductive than a 0.01 M KNO_3 solution because one K_2SO_4 dissociates to form three ions, but one KNO_3 molecules forms only 2 ions.*

Complete Report and notebook pages (20 points possible)

- 10 pts. were possible for the Prelab Assignment submitted on time. *Please refer to next page of correct answers in prelab assignment.*
- 10 pts. were awarded for a set of complete and organized notebook pages. The notebook pages should be organized, self-explanatory, and contain all the information listed in the NOTEBOOK GUIDELINES. 2 points were deducted for each piece of missing information. Refer to the Course Architecture and an example posted online for how to record observations and data on notebook pages.

EXPERIMENT 1
PERIODIC PROPERTIES

4. Fill in the blanks below:

- a) Lab report should be submitted into the red locker (fill in the color of the locker) in the 3rd floor of Lab Sciences Building before the end of a lab period.
- b) Tutorial assignments should be submitted into the green locker (fill in the color of the locker) in the 3rd floor of Lab Sciences Building.
- c) Re-grade requests should be submitted into the blue locker (fill in the color of the locker) in the 3rd floor of Lab Sciences Building no later than 5 pm (fill in the time) of Monday following the week in which the document is returned.
- d) If you submit the lab report of this experiment at 9 pm today, the penalty point is 10 pts.
- e) If you submit the lab report of this experiment at 9 pm tomorrow, the penalty point is 10 pts.
- f) If you submit the lab report of this experiment at 9 pm next Monday, the penalty point is 60 .

5. Circle all safety violations listed below:

- a. Ann breaks an empty beaker. She cleans the broken glass pieces with a brush and a dust pan. Then, she disposes of the broken glass pieces into the trash can.
- b. Ben is not wearing safety goggles when he stands at the back row listening to the TA's pre-lab presentation
- c. Cox puts his book-bag containing a sandwich inside a Ziploc bag under the bench in lab.
- d. Dan's cell phone rings; he takes the phone outside the lab and answers the call.
- e. Eva is chewing gums when she works on her lab report in lab.

6. When you use the LED circuit board in this experiment, you should NOT: (Circle all correct responses)

- a) twist the two probes of the circuit board
- b) bend the two probes of the circuit board
- c) place the two probes of the circuit board in solutions
- d) let the two probes of the circuit board touches toxic materials such as sulfur
- e) touch the two probes of the circuit board

7. What does LED stands for? Enter your answer in the box below.

Light Emitting Diode