

Name \_\_\_\_\_

Community College of Rhode Island

Chemistry Department

Basic Skills for Chemistry

CHEM-1020-150

Hour Exam No. 3

Covering KWL Chapter 6  
Wednesday, April 29, 2009

15 Questions, 50 Minutes, 100 Points

Closed book examination, No notes allowed

**A periodic table is attached to the back of this exam**

**Formulas:  $F = (9/5)C + 32$**

**$C = (5/9)(F - 32)$**

**Answer the questions in the spaces provided.**

**To receive full credit for your work:**

- a) Show all your mathematical setups clearly.**
- b) Express your answers with the proper units and the correct number of significant figures.**
- c) When appropriate express numerical values in proper scientific notation.**

1. Plot a graph from the information in the data table using the graph paper provided. Write your name on the *back* of the graph and staple it to the back of this exam. Determine by extrapolation what temperature the system would reach after you dissolve 18.50 g of sulfuric acid in 100.0 mL of water. Clearly show on your graph how you determine the extrapolated temperature value. (15 points)

**Table of Temperatures Achieved by Dissolving Sulfuric Acid in Water**

Mass of sulfuric acid dissolved in 100.0 mL of water	Final Solution Temperature
0.000 g	22.5 °C
1.000 g	28.9 °C
4.000 g	48.1 °C
8.000 g	73.7 °C
10.000g	86.5 °C

2. Write the correct chemical formula of each compound. (14 points)

Lithium oxide

Strontium Sulfite

Ferrous chloride

Tin(IV) sulfide

Silver iodide

Ammonium sulfate

Copper(I) perchlorate

3. Give the correct name of each chemical formula. (14 points)

AlN

NaClO

CuF<sub>2</sub>

K<sub>3</sub>PO<sub>4</sub>

Cs<sub>2</sub>CO<sub>3</sub>

Ca(NO<sub>2</sub>)<sub>2</sub>

ZnSO<sub>4</sub>

4. Define the term polyatomic oxyanion. (4 points)

5. A certain analog thermometer has its smallest divisions spaced 1 °C apart. How is the thermometer properly read? (4 points)

6. A certain analog thermometer has its smallest divisions spaced 0.1 °C apart. How is the thermometer properly read? (4 points)

7. A certain analog thermometer has its smallest divisions spaced 5 °C apart. How is the thermometer properly read? (4 points)

8. Convert 99 °F to Celsius. (5 points)

9. Convert 99.04 °C to Fahrenheit. (5 points)

10. Name each element corresponding to each atomic number. Proper spelling counts. (7 points)

92            93            90            95            94            98            96

11. The fluorine atom has a listed atomic mass of 18.998403 amu. A proton's mass is 1.00727647 amu; that of the neutron is 1.0086647 amu. Why does the fluorine atom weigh less than the sum of its parts (nine protons and 10 neutrons)? (8 points)

12. Which element in Group 13 (or Group IIIA) of the periodic table do you expect to be the most nonmetallic? Which should be the most metallic? (4 points)
13. What is meant by a *period* in the Periodic Table? (4 points)
14. What is meant by a *family* in the Periodic Table? (4 points)
15. Suppose that no element number 31 had been discovered. What information would you use to predict the possible chemical and physical properties of the element? (4 points)