**Topic 4: Chemical Rxns and Heat!**

Joke: I told a chemistry joke…but there was NO REACTION!

**Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**A. Concept Terms: (10)** (Rxn=Reaction)

**Part 1: Chemical Reactions Part 2: Kinetics**

**Part 3: Nuclear Chemistry**

1. Radioactivity

2. Alpha Particle

3. Beta Particle

4. Gamma Ray

5. Half-Life

6. Fission

7. Fusion

1. Reactant 1. Collision Theory

2. Product 2. Activation Energy

3. Precipitate 3. Catalyst

4. Synthesis Rxn 4. Heat of Reaction (ΔH)

5. Decomposition Rxn 5. Endothermic Rxn

6. Single Replacement Rxn 6. Exothermic Rxn

7. Double Replacement Rxn 7. Specific Heat Capacity

8. Net Ionic Equation

9. Combustion Rxn

**B. Notes and I will statements: (30)**

**Part 1:**

1. Compile a list of indicators for a chemical reaction. (review from unit 1…there are 5!)
2. What is each **side of a chemical equation called** and write out the **steps to balance** the equation.
3. Give an **example of each type of chemical reaction** and **explain** what makes it classified as such. The reactions are…synthesis, decomposition, single replacement, double replacement, and combustion.
4. How is the **activity series of metals** used to predict if a single replacement reaction will occur?
5. How are the **solubility rules** used to predict the formation of a precipitate in a double replacement reaction?
6. What are the rules for writing net ionic equations?

**Part 2:**

1. Explain how **collision theory** works.
2. Compare exothermic and endothermic reactions based on **potential energy change diagrams**.
3. Be able to explain how the **rate of reaction** is changed by different stresses, (temperature, catalyst, etc.)
4. Be able to calculate the **heat of formation** of a reaction. (ΔH)
5. Calculate the heat released or absorbed using a substances’ **specific heat capacity**. ( the equation is q = m x Cp x ΔT)

**Part 3:**

1. Explain the process of how an atom undergoes **radioactive decay**.
2. Compare the th**ree types of radioactive decay** (alpha, beta and gamma**)** and write nuclear equations using them.
3. Compare and contrast **fission and fusion**.
4. Calculate the **half-life** of a substance

**C. Interactive Notebook: Points (10)**

Part 1:\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Part 2:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Part 3:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**D. Worksheet Completed: (20)**

Part 1:\_\_\_\_\_\_\_\_\_\_\_\_\_(pgs 1-3)

Part 2:\_\_\_\_\_\_\_\_\_\_\_\_\_(pgs 4-left side of 7)

Part 3:\_\_\_\_\_\_\_\_\_\_\_\_\_([pgs right side of 7-8)

**E. Mini Test: (30)**

Part 1:\_\_\_\_\_\_\_\_

Part 2:\_\_\_\_\_\_\_\_

Part 3:\_\_\_\_\_\_\_\_

**\*Points for Unit 4.1:\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**+**

**\*Points for Unit 4.2:\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**+**

**\*Points for Unit 4.3:\_\_\_\_\_\_\_\_\_\_\_\_\_\_(60%)**

**\*Final Unit 4 Test:\_\_\_\_\_\_\_\_\_\_\_\_\_\_(20%)**

**\*Days Absence as of today\_\_\_\_\_\_\_: Participation grade:\_\_\_\_\_\_(15%)**

**\*Lab grade:\_\_\_\_\_\_\_\_\_\_(5%)**

**Overall Grade: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Date:\_\_\_\_\_\_\_\_\_\_**