AP Cham =] Name:_____
Chapter 1-4 KilleReview Period:_____
Version Aamoy G. and Alex B.

Do not give help or receive on this test, or else you'll end up losing your curve. :P No calculators allowed. If you are caught using one…we won't need one to calculate your grade. Muhahahahaha!

Concept MC: Answer the following questions, with a statement defining why you picked what you picked.

1) Which of these ideas/concepts is not part of Dalton's Atomic Theory of Matter?
    a. Each element is composed of extremely small particles called atoms.
    b. Atoms of an element are not created, destroyed, or changed into atoms of another element through ordinary chemical reactions.
    c. All atoms of a given element are identical, and the atoms of different elements and have different properties.
    d. Compounds are formed when elements with atoms of an element combine; a given compound has the same relative number and kind of atoms.
    e. All of the above are true.

Answer:_____

2) Which of the following is true about the cathode ray?
    a. Electrons move from anode to cathode.
    b. It doesn't require electricity.
    c. Magnetism deflects the cathode rays.
    d. The charge of the cathode ray is positive.
    e. All of the above are true.

Answer:_____

3) Select the set of statements which are true:
    I. Beta rays have a positive charge
    II. Gamma rays do not have particles and carry no charge
    III. Alpha particles are positive
    IV. **Alpha particles are bigger than beta particles.**

Answer:_____

Concept FRQ: Answer the following question with a series of statements.

1) What particles were used in Rutherford's gold foil experiment, and why?

2) What conclusion did the gold foil experiment reach, and how did Rutherford use the results to state this conclusion?

Computational MC: Answer the following questions, keeping in mind sig figs.

1) Theoretical element Aamoynium is now the heaviest of the Noble Gases. One of its ions is Ay^{18+} . Which of the following elements has the same number of electrons?
   a. Lr^{3-}
   b. Rn^{14-}
   c. **Bk^{3-}**
   d. Ab^{3+}
   e. None of the above

Answer:_____

2) Which of the following compounds would you expect to be ionic?
   a. None of the below.
   b. CCl_4
   c. **RbBr**
   d. $NaCl_2$
   e. KS_2

Answer:_____

3) Which of the following compounds do you expect to be molecular?
   a. None of the below.
   b. $NaNO_3$
   c. NaLi
   d. **CCl_4**
   e. $ZnCl_3$

Answer:_____

4) In the complete combustion of heptyne, how many moles of oxygen are consumed?
    a. 1 mole
    b. 7 moles
    c. **10 moles**
    d. 6 moles
    e. None of the above

Answer:_____

5) Naturally occurring [theoretical] Babsium, ^{202}Bb occurs naturally with 1.5*10^{2} amu, 66% of the time, ^{200}Bb with 300. amu 33% of the time, and ^{198}Bb with 120 amu 1% of the time. What is the approximate average atomic mass of Babsium?
    a. **2.0*10^{2} amu**
    b. 201.2 amu
    c. 200 grams
    d. 201. grams
    e. None of the above

Answer:_____

Computational FRQ: Answer the following questions showing all of your work.

1) Theoretical elements Aamoynium and Bagdasarium are in a compound containing 66.7% and 33.3% respectively. Their molar masses are 622.8 grams and 232.3 grams respectively.
    a. What is the empirical formula?

        Ay$_3$Bg$_4$

    b. What's the mass of the empirical formula?

        2797.6 g

c. In a separate experiment, conducted by its creators, the molar mass was found to be 13988 grams. What is the molecular formula of the compound?

$Ay_{15}Bg_{20}$

d. Based on this molecular formula, how many grams of solute would be required to make an 18M solution in 7L?

35969.14 g

e. Assuming the solution is fully dissociated, how many moles are there of each of the constituent elements?

Ay = 24.752 mol
Bg = 88.480 mol

Balancing Chemical equations: Balance the following equations and remember to reduce them to their net ionic form! This part is optional, so do it only if you are pro enough! :P

a. A solution of potassium iodide is electrolyzed.

b. Octyne goes through complete combustion.

c. Butene undergoes incomplete combustion.

d. Solid sodium chloride is added to a solution of 22M potassium hydroxide.

e. Sodium Hydroxide crystals are added to de-ionized water.

f. A solution of 3M potassium iodide is added to a solution of 2m lead(II) nitrate.