Chemistry 0 Week 12 HW
Assigned on 01/09/2022 Due date: 01/15/2022

1. A wet 43.2 g sample of copper sulfate heptahydrate ($CuSO_4 \cdot 7H_2O$) is heated until only copper sulfate ($CuSO_4$) remains. The mass of the water lost is 34.1 g.What is the mass of the copper sulfate?

2. A 13.5 g sample of calcium carbonate is heated until it decomposes completely to calcium oxide and carbon dioxide. After measurement, we learn that 7.6 g of calcium oxide is produced. What is the mass of carbon dioxide produced?

3. A reaction occurs in a beaker between zinc metal and diluted hydrochloric acid to form zinc chloride and hydrogen gas according to the following balanced equation:

   $$Zn + 2HCl \rightarrow ZnCl_2 + H_2$$

   Why is there a decrease in the mass when you measure the leftover in the beaker?
   A. The reactants decompose.
   B. Zinc metal is a limiting reactant.
   C. Hydrogen gas escapes.
   D. Zinc metal precipitates.

   Please choose the correct answer: _____.

4. What is the rate of reaction?

   A. How fast a reaction is
   B. How loud a reaction is
   C. How big a reaction is
   D. How much gas a reaction produces

   Please choose the correct answer: _____.

5. How can you set up an experiment to find out if the temperature of the reactants affects the speed of the reaction? Please explain your proposal of the experiment below.