**Unit 10: Solutions**

**Pre-AP Chemistry Free Response Review #2**

**Directions:** The suggested time is about 15 minutes for answering the constructed response section of the chemistry test.  The parts within a question may not have equal weight. For calculations, show all your work in the spaces provided after each part. Pay particular attention to the proper use of units.  Be sure your final answer is rounded to the correct number of significant figures.  Make sure your work is legible. Illegible work will receive a grade of zero.

 **Question 1 [10 POINTS]**

Two samples of solid magnesium were added to aqueous hydrochloric acid, HCl, in two separate containers., leading to the following reaction.

Mg(s) + 2 HCl(aq) 🡪 MgCl2(aq) + H2(g)

In both trials, 0.35 moles of Mg(s) and 500. mL of 1.2 M HCl(aq) were used: HCl was the limiting reagent. A particulate representation of the reaction occurring in the two separate containers is shown below (for simplicity, water molecules are not included).



 **Container A Container B**

1. In which container will the reaction proceed faster, and why? **[2 POINTS]**
2. Using the starting quantities provided above, determine how many moles of HCl reacted. **[2 POINTS]**
3. What is the mass of excess reactant leftover after the reaction is complete? **[2 POINTS]**
4. How many moles of MgCl2(aq) are produced in the reaction? **[1 POINT]**
5. What is the molarity of MgCl2(aq) after the reaction is complete? **[1 POINT]**
6. When the reaction is complete, will the solution conduct electricity? Justify your answer. **[1 POINT]**
7. If exactly 3.00 moles of MgCl2 dissolves in water, how many moles of total ions will form? **[1 POINT]**