**AP Chemistry: *14EQ***

***Directions: Write a “proper” equation for each chemical reaction, using the guidelines established previously in this course. Also, answer any questions that follow a given reaction. Here is an additional reaction pattern you should recognize:***

**adding a metal hydride to water yields hydrogen gas and some hydroxide ion**

1. Solid sodium chlorate is exposed to high-intensity heating.

2. Solid ammonium chloride is added to a solution of potassium hydroxide.

3. Solid sodium hydride is added to water.

3Q. Draw a pictorial representation of the polarity of sodium hydride.

4. Solutions of hydroiodic acid and cesium hydroxide are mixed

5. Powdered iron is strongly heated with powdered sulfur.

5Q. State the type of dominant chemical bond in powdered iron.

6. Hydrocyanic acid reacts with potassium hydroxide solution.

7. Solutions of barium nitrate and potassium fluoride are combined.

7Q. If equal volumes of equimolar barium nitrate and potassium fluoride are combined, which reactant, if any is the limiting reactant? Explain your reasoning.

8. Solid potassium carbonate is added to 1.0 M perchloric acid.

9. Ammonia gas is bubbled into excess concentrated sulfuric acid.

9Q. What is the hybridization state of the central atom in ammonia?

10. Sulfur trioxide gas is bubbled into a solution of sodium hydroxide.

10Q. Draw the Lewis structure for sulfur trioxide, then discuss the ideal vs. the actual bond angles.

11. Magnesium ribbon is burned in air.

11Q. Draw a diagram showing the progress of the reaction

with regard to the energy content of the substances.

12. A solution of nickel(II) bromide is added to a solution of potassium hydroxide.

13. Equal volumes of 0.1 M sodium phosphate and 0.1 M hydrochloric acid are mixed.

13Q. What are the ideal bond angles on the phosphate ion?

14. Solid copper(II) sulfide is strongly heated in air.

14Q. Classify the above reaction.

15. Solutions of sodium iodide and lead(II) acetate are mixed.

15Q. Assume aqueous solutions of each reactant have equal molalities. Which soln has the higher boiling point? Explain.