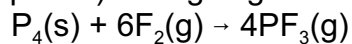


Chemistry 112
Second Hour Exam

Name: _____

Please show all work for partial credit

1.A (5 points) I am going to do the following chemical reaction:



If I have 1 g of $\text{P}_4(\text{s})$ and 2 g of $\text{F}_2(\text{g})$, which reactant is my limiting reactant?

1.B (5 points) What is my theoretical yield for this reaction?

1.C (5 points) If my % yield for the above reaction was 80%, how much PF_3 did I actually get for a product.

2. (10 points) Define or give an example for each of the following terms:

Solute

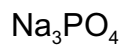
Strong Electrolyte

Non-electrolyte

Strong acid

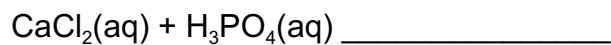
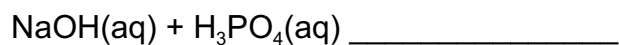
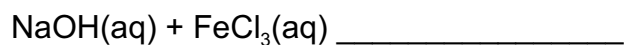
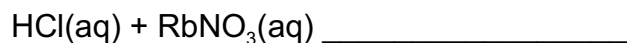
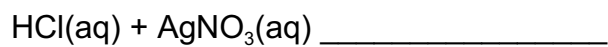
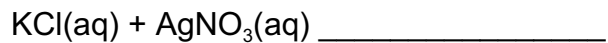
Weak base

3. (12 points) I am going to dissolve 15 g of Na_3PO_4 in 250 mls of water. What is the molarity of :



and PO_4^{3-} in this solution

4. (12 points) When I combine the following chemicals, will there be no reaction (NR) a precipitation reaction (P) or an acid/base reaction (A/B).



5A . (5 points) Write a balanced molecular equation for the reaction of sodium carbonate with hydrochloric acid.

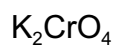
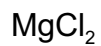
5B. (5 points) Write a balanced complete ionic equation for the reaction of lead(II) chloride with potassium sulfate.

5C. (5 points) Write a balanced net ionic equation for the reaction of lithium hydroxide with nitric acid.

6. (12 points) I have 300 ml of 12 M H_3PO_4 how much 10M NaOH do I need to mix with this acid to neutralize it so I can safely pour it down the drain?

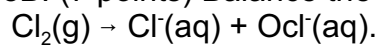
7 (10 points)

Assign oxidation numbers for all atoms in the following compounds:



8A. (7 points) Balance the following redox reaction under acidic conditions: $\text{Br}^- (\text{aq}) + \text{MnO}_4^- (\text{aq}) \rightarrow \text{Br}_2 (\text{l}) + \text{Mn}^{2+} (\text{aq})$

8B. (7 points) Balance the following redox reaction under basic conditions:



(Hint: this is a special kind of redox reaction called a disproportionation. The Cl_2 reactant is used in BOTH $\frac{1}{2}$ reactions!)