ADV. CHEM Review Problems

Units 1-7

1. **If you measured the volume of 13.4 ml of a solution, and the actual volume was 14.5 ml, what was your percent error?**
2. **If the doctor measured your weight to be 189.9 Kg, when it is actually 195 Kg, what was his percent error?**
3. **If you calculated the density of a rock to 125.6 g/ml, when the actual density was 150.2 g/ml, what was your percent error?**
4. **If an object had a mass of 25 g and a volume of 5.69 ml, what is it’s density?**
5. **If an object had a volume of 30 ml and a mass of 78 g, what would the density be?**
6. **If an object had a density of 10.78 g/ml and a mass of 45 g, what is the volume?**

Metric Conversions

1. **100 g = \_\_\_\_ Kg 7.375 Km = \_\_\_ m**
2. **.0001 L = \_\_\_\_ ml 2,500,000 cm = \_\_m**
3. **55,070 Hm = \_\_\_ mm 5,500 cg = \_\_\_\_\_ g**
4. **1,000 g = \_\_\_\_Kg 10.7 Kl = \_\_\_\_\_ ml**
5. **60g = \_\_\_\_ dg**

1. **% Comp. Of F in LiF?**
2. **% comp. Of C in CO?**
3. **% comp. Of O in Mg(NO3)2?**

**15.) % comp. Of Na in sodium oxide?**

Balance

1. PCl5 + H2O🡪 HCl + H3PO4
2. H2S + Cl2🡪 S8 + HCl
3. Fe + H2O🡪 Fe3O4  + H2
4. Li2O + H2O🡪 LiOH
5. CaCl2  + H2O🡪 HCl +Ca(OH)2

Ion Exchange

1. **Barium Acetate + Nitrogen🡪**
2. **Thallium Telluride + Phosphate🡪**
3. **Cesium Sulfide + Hydrogen🡪**
4. **Gallium + Aluminum Sulfate 🡪**
5. **Manganese (III) Arsenide + Sulfate🡪**

**Mole Conversions**

1. **Convert 25 g of sodium to moles.**
2. **How many grams are in 3.5 moles of magnesium sulfide?**
3. **How many moles are in 8.6 g of sodium hydroxide?**

**Limiting Reactant, Molarity and Theoretical Yield**

1. **If 100.5 L of oxygen gas reacted with 110.6 L of Hydrogen gas, which would be the limiting reactant?**
2. **If 15.5 g of magnesium sulfide reacted with 15 ml of 8.9 M H2SO4, which would be the limiting reactant?**
3. **If 25 ml of a 2.5 M aluminum hydroxide solution reacted with 37.56 ml of 1.7 M ammonium nitrate, which is the limiting reactant?**
4. **If 25 ml of a 2.6 M solution of Aluminum Sulfate reacted with 15.8 g of Ammonium Nitrate to actually produce .56 g of aluminum nitrate what is the percent yield (of AlNO3)?**
5. **If 12 g of sodium reacted with 65 ml of 4.5 M potassium sulfide solution, which reactant is in excess?**
6. **If .75 g of Mg(OH)2 reacted with 5.7 L of Fluorine gas to actually produce .0025 g of magnesium fluoride, what is the percent yield?**
7. **If 2.2 L of carbon dioxide reacted with 7.5 g of strontium chloride, which reactant was limiting?**
8. If it took 35.98 ml of .5 M Mg(OH)2 to neutralize 49.45 ml of an unknown Hydroflouric acid, what is the molarity of the acid?
9. If it took 55.5 ml of an unknown Nitric acid (HNO3) to neutralize 524.5 ml of a 2.59 M Lead (III) hydroxide, what is the molarity of the acid?
10. How many grams of NaCl would you need to dissolve in one liter of water to make a 1.13 molar solution (Hint: Molar mass x .13)?