

CHM151 Quiz 4 25 Pts Fall 2011 Due Wed. Oct 5. Name: _____
*******SHOW ALL WORK in neat form TO RECEIVE CREDIT.*******

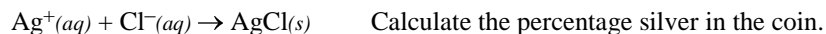
1. (Pts) What is the empirical formula for the substance with this analysis:

Elemental Analysis		
Na=54.0%	B =8.50%	O=37.5%

2. (Pts) When $\text{Pb}(\text{NO}_3)_2$ is heated in air, it decomposes to a lead oxide. If 2.00 g $\text{Pb}(\text{NO}_3)_2$ produce 1.35 g of the oxide, what is the formula of the oxide?

3. (Pts) A compound contains 30.5% nitrogen and 69.5% oxygen by mass and has a molar mass greater than $50 \text{ g}\cdot\text{mol}^{-1}$. What is its molecular formula?

4. (Pts) A 6.80 g coin was dissolved in nitric acid and 6.21 g of AgCl was precipitated by the addition of excess sodium chloride,

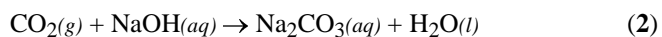
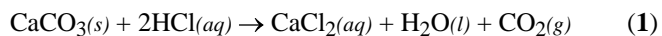


5. (Pts) A 2.000 g sample of a Ni-Tl-Zn alloy is dissolved in nitric acid and 1.750 g of thallium(I) iodide, TlI , is precipitated by the addition of hydriodic acid. Calculate the percentage of thallium in the alloy.

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6. (Pts) A reaction between Na_2O and P_4O_{10} forms Na_3PO_4 . How many grams of Na_3PO_4 will be produced from the reaction of 0.200 mol of Na_2O with excess P_4O_{10} ?

7. (Pts) Hydrochloric acid reacts with CaCO_3 according to equation (1). What mass of NaOH would be required to react according to equation (2) with the CO_2 liberated from 20 g of CaCO_3 ?



8. (Pts) What mass of $\text{Na}_2\text{SO}_4 \cdot 10\text{H}_2\text{O}$ is required to prepare 500 mL of 0.20 M Na_2SO_4 solution?

9. (Pts) To what volume in liters must 105 mL of hydrochloric acid, containing 47.5 g of HCl , be diluted to make a 1.05 M solution?

10. (Pts) In the reaction $3\text{Ca}(\text{OH})_2(s) + 2\text{H}_3\text{PO}_4(aq) \rightarrow \text{Ca}_3(\text{PO}_4)_2(s) + 6\text{H}_2\text{O}(l)$ how many grams of $\text{Ca}(\text{OH})_2$ are required to neutralize 10 L of 0.60 M H_3PO_4 solution?

11. (Pts) What volume of 0.060 M H_2SO_4 will neutralize 50.00 mL of 0.24 M NaOH ?

12. (Pts) What volume of 0.131 M BaCl_2 is required to react completely with 42.0 mL of 0.453 M Na_2SO_4 ?

