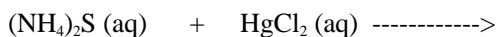


CHEMISTRY 107
SECTION 01

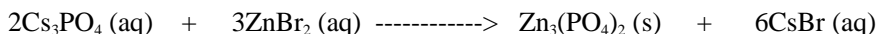
Test #2
8:00 am - 8:50 am

Name _____
Thursday, October 3, 1996

- (1.) Utilizing solubility rules, please complete and balance the following equations, using parentheses to indicate aqueous solution or precipitate, where appropriate: (3 x 5 points)



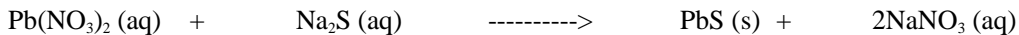
- (2.) Please write the ionic equation for the balanced metathesis reaction shown below. (10 points) In your answer, please circle the spectator ions. (5 points)



- (3.) A hydrocarbon comprises 85.63% C and 14.37% H. The molecular mass is found to be 84.2 g. (for part (d), Avogadro's number = 6.022×10^{23} things/mole)

- (a) Please determine the empirical and molecular formulae. (2 x 5 points)
(b) Please write the balanced equation for the combustion of this molecule. (10 pts)
(c) How many grams of carbon dioxide would be produced from the combustion of a mole of this hydrocarbon? (5 points)
(d) How many molecules of water would be produced from the combustion of 140 g of this hydrocarbon? (5 points)

- (4.) Please consider the metathesis reaction shown below:



- (a) Given that 135 mL of 0.120 M $\text{Pb}(\text{NO}_3)_2$ solution is mixed with 107 mL of 0.106 M Na_2S solution, which reactant is the limiting reactant? (10 points)
(b) What is the theoretical yield (in g) of PbS ? (10 points)
(c) The precipitate was collected and dried, and the actual yield determined to be 91.2%. What was the mass of this product? (10 points)
(d) How many moles of NaNO_3 are produced? (5 points)
(e) What is the concentration of NaNO_3 ? (5 points)