Name
Date   **Period**

Lab 27
ANALYSIS OF A HYDRATE

PRELAB OUESTIONS
1. Define hydrate.
2. Define anhydrous.
3. In an experiment, 3.00 g. of $BaCl_2$ X H_2O is heated to remove the water. The remaining anhydrous salt has a mass of 2.56 g. What was the mass of the water in the hydrate? (show all work)
4. How many moles of water are contained in the answer to question 93? (show all work)
5. What is the gram formula mass of barium chloride $BaCl_2$? (show all work)
6. How many moles of barium chloride, $BaCl_2$, are contained in the answer to question #5? (Show all work)
7. Determine the formula of the barium chloride hydrate in question 3. (show all work)

EXPERIMENT 27
ANALYSIS OF A HYDRATE

DATA TABLE

Microscale

step 1   (a) Mass of empty dry test tube   g.

step 2   (b) Mass of test tube and hydrate   g.

step 5   (c) Mass of test tube and anhydrous salt   g.

    (d) Anhydrous salt formula

    (e) Describe your observations when heating the hydrate.

Macroscale

step 1   (a) Mass of empty dry crucible and cover   g.

step 2   (b) Mass of Crucible and cover and hydrate   g.

step 4   (c) Mass of Crucible, cover and anhydrous salt   g.

    (d) Anhydrous salt formula

    (e) Describe your observations when heating the hydrate.

QUESTIONS
1. Using your experimental data determine
   (a) Mass of water lost by the hydrate.
   (b) The number of moles of water lost.
   (c) Mass of the anhydrous salt.
   (d) Number of moles of anhydrous salt

2. Using 1(b) and 1(d), obtain the ratio of moles of water per moles of anhydrous salt. Write the formula of the original **HYDRATE** by rounding off to the nearest whole number, the ratio you just calculated.

3. Calculate the percent of water in the hydrate.

4. Ask your teacher for the theoretical percent of water in your hydrate, what is your experimental percent error?