

## MOLECULAR FORMULAS (M.F.) & HYDRATES PRACTICE

Name: \_\_\_\_\_

### MOLECULAR FORMULAS (M.F.):

1. The empirical formula (E.F.) of a compound is  $\text{NO}_2$ . The molar mass of the M.F. is 92.0 g/mol. What is the molecular formula (M.F.)?
  
2. Empirical formula  $\text{C}_3\text{H}_7$  with a M.F. molar mass of 86.0 g/mol. What is the molecular formula (M.F.)?
  
3. There are two (2) oxides of phosphorus. Both oxides can exist depending on the temperature and pressure. Calculate the Empirical Formula (E.F.) AND Molecular Formula (M.F.) of each compound from the data provided:
  - a. P = 56.4% composition ; O = 43.7% composition ; M.F. molar mass = 220. g/mol
  
  - b. P = 43.7% composition; O = 56.4% composition; M.F. molar mass = 284 g/mol

### HYDRATES:

4. A calcium chloride hydrate has a mass of 4.72 grams. After heating for several minutes the mass of the anhydrous (dehydrated) is found to be 3.56 grams. Determine the chemical formula of this hydrate.
5. What is the formula for a hydrate that is 433.5 grams of  $\text{Mo}_2\text{S}_5$  and 66.5 grams of  $\text{H}_2\text{O}$ ?
6. A 8.61 gram sample of hydrated beryllium oxide is heated inside a crucible. After heating, the amount of water evaporated was determined to be 3.60 grams. What is the chemical formula of this hydrate?