**Colligative Properties** Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Date \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Hr\_\_\_\_\_

For questions 1-6, calculate the **freezing point and boiling point** for the following solutions at standard pressure. **For all problems, show all work and include units on all numbers.**

1. A 2.0m solution of glucose (nonelectrolyte).
2. A 2.0m solution of NaCl (electrolyte).
3. A 2.0m solution of CaCl2 (electrolyte).
4. 20.0 grams of KCl (electrolyte) in 75.0 grams of H2O
5. 45.0 grams of CO(NH2)2 (nonelectrolyte) in 500 grams of H2O
6. 5.00 kg of ethylene glycol, C2H6O2,( nonelectrolyte) in 5.00 kg of water.
7. An aqueous solution of a molecular compound freezes at -0.078°C. What is the molality of the solution?
8. If there are 500 grams of water in the solution from the previous problem, how many moles are in the solution?
9. If the mass of the molar substance in the previous problem is 3.00 grams, what is the molar mass of the substance?
10. When 10.0 grams of a molecular solute are dissolved in 40.0 g of water, the resulting freezing point is -0.55°C. What is the molar mass of the solute?
11. When 3.25 grams of a molecular substance are dissolved in 125 g H2O, the boiling point of the solution is 100.4°C. What is the molar mass of the solute?
12. When 72.0 g of dextrose is dissolved in 100.0 g H2O, the boiling point is 102.05°C. What is the molar mass of dextrose?
13. When 20.0 g of a molecular substance are dissolved in 250 g of water. The freezing point is found to be -0.52°C. What is the molar mass of the compound?