

WORKSHEETS ARE DUE AT THE BEGINNING OF CLASS ON THE DATE GIVEN ON THE WORKSHEET. LATE WORKSHEETS WILL NOT BE ACCEPTED.

NAME \_\_\_\_\_ Panther ID \_\_\_\_\_

For problems involving calculations you must show your work for credit.

1) Which of the following aqueous solutions will have the highest value for boiling point (at  $p = 1.000$  atm)?

- a) 5.00 g of calcium nitrate ( $\text{Ca}(\text{NO}_3)_2$ , MW = 164.10 g/mol) dissolved in 500.0 g water
- b) 5.00 g glucose ( $\text{C}_6\text{H}_{12}\text{O}_6$ , MW = 180.16 g/mol) dissolved in 500.0g water
- c) 5.00 g of potassium bromide (KBr, MW = 119.00 g/mol) dissolved in 500.0 g water
- d) 5.00 g of sodium chloride (NaCl, MW = 58.44 g/mol) dissolved in 500.0 g water
- e) All of the above solutions will have the same boiling point

2) The density of a 0.900 % by mass aqueous solution of sodium chloride (NaCl, MW = 58.44 g/mol) is  $D = 1.0046$  g/mL at  $T = 25.0$  °C. What is the osmotic pressure of the above solution (in atm), relative to pure water, at this temperature?

3) Which of the following is a state function?

- a) q (heat)
  - b) w (work)
  - c) U (internal energy)
  - d) both a and b
  - e) both a and b and c
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4) Using the data contained in Appendix 2 of the textbook, find the value for  $\Delta H^\circ_{\text{rxn}}$  for the following process, carried out at  $T = 25.0\text{ }^\circ\text{C}$ . Note that this process represents the oxidation of glucose, and  $\Delta H^\circ_{\text{rxn}}$  represents the heat generated when glucose is metabolized in the human body.

