Chemistry 141 Name

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Quiz 10A (20 points) November 28, 2007

All work must be shown to receive credit. Tb=Kbm, Tf=Kfm, Psoln=PsolventXsolvent, Sgas=kHPgas,

1. (8 points) A solution of glucose (C6H12O6) in water has a density of 1.72 g/mL and is 5.83 M. Calculate the % glucose and the molality of the glucose solution.
2. (4 points) What is the boiling point of the solution from question #1 (Kb for water = 0.512oC/m)
3. (4 points) Scuba divers breathing air at increased pressure can suffer from nitrogen narcosis—a condition resembling drunkenness—when the partial pressure of nitrogen exceeds about 4 atm. What property of gas/water solutions causes this to happen? How could the diver reverse this effect?
4. (4 points) Which of the following solutions has the highest vapor pressure?
   1. 20.0 g of glucose(C6H12O6) in 100.0 g of water
   2. 20.0 g of sucrose(C12H22O11) in 100.0 g of water

Explain the reasoning for your choice.