Chemistry 141 Name

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Quiz 10B (20 points) November 29, 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 1.45 g/mL and is 3.83 M. Calculate the % glucose and the molality of the glucose solution.
2. (4 points) What is the freezing point of the solution from question #1 (Kf for water = 1.86oC/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) A beaker contains 100.0 mL of pure water. A second beaker contains 100.0 mL of seawater. The two beakers are left side by side on a lab bench for one week. At the end of the week the liquid level in both beakers has decreased. However, the level has decreased more in one of the beakers than in the other. Which one and why?