

Biophysical Chemistry

Week 6 Problems

To be handed in by Thursday 2nd May, 2013, 17:00

(either at my office 01/05 under the door or at the secretary's office 3rd floor)

1. Given that the enthalpy of evaporation of water at 100 °C is 2250 Jg⁻¹, calculate, assuming ideal behaviour:

(a) the vapour pressure at 100 °C

and

(b) the boiling point, under an external pressure of 1.013×10^5 Pa of a solution of 50 g of glucose in 1 kg of water.

2. The following osmotic pressures were measured for solutions of a sample of polyisobutylene in benzene at 25 °C:

Concentration (g/100 cm ³)	0.5	1.0	1.5	2.0
Osmotic pressure (cm)	0.93	1.92	2.94	4.00

Calculate the average relative molecular mass, given that the solution density is 0.88 g/cm³ in each case.