**Homework #6: Chemistry 1013 Spring 2014**

**Due Friday 14 March in class**

Your name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 pt **\_\_\_/20**

6.1. pH and pOH problems (see pp 149-153 of text also) (2 pts each)

a) What is the pH of an acid solution containing 0.003 M H+?

b) What is the pOH of a solution containing 1\*10-13 M H+

c) What is the pH of the above solution?

d) The pH of blood is ~7.25. What is the concentration of H+ implied by this?

e) The pOH of liquid Drano is 0.1. What is the concentration of OH- implied by this?

**6.2. Osmotic pressure concepts A B**

Two solutions are separated by a membrane

that passes water but not salt (a semi-permeable

membrane.)

Side A contains 3 g NaCl/Liter. Side B contains no NaCl.

1. What direction is the natural osmotic pressure ? (A🡪B or B🡪A ?)
2. Given that the natural osmotic pressure of this system is ~20 psi, in what direction and what pressure would you suggest we apply to purify the water in side A ?

A blood cell with 3% NaCl inside its walls is suddenly dropped into a NaCl solution containing 1% NaCl.

1. The solution (relative to the blood cell) is: **hypotonic hypertonic**
2. What happens to the cell in the 1% solution ?

**6.3 . Following the electrons: Writing Complete Electronic configurations**

Write the complete electronic configurations for the elements below

(for elements containing d electrons, put the s orbitals in their row after the d shell,e.g….3d44s2)

1. **B**
2. **Cl**
3. **Mn**
4. **Sb**
5. **Ca**