Chem 12

Reading and Homework set 7

Read Ch 11, section 11.4, and Ch 10, sects 10.1, 10.2 (focus on key concepts; don't get bogged down in details), 10.3

Not for credit —

A. Ch 11, problems 47a,c, 55, 59

B. Ch 10, problems 16, 17, 38, 39

To be turned in for credit

20 points; due Wed, March 30 at the beginning of class.

1. Ch 11, problem 47c, but instead, (i) determine the cell potential with the following concentrations: $[Au^{3+}] = 8.4 \times 10^{-7} \text{ M}, [Tl^+] = 3.1 \times 10^{-2} \text{ M}.$ (ii) What concentration of thallium ion is present if $[Au^{3+}] = 1.00 \times 10^{-4} \text{ M}$ and the measured cell potential is 1.97 V?

2. Ch 11, problem 55, but instead, (i) calculate the cell potential in *milivolts* when the concentration of Ni²⁺ in the right solution is 2.87×10^{-2} M. Which electrode would be the anode and which would be the cathode? (ii) Repeat part i with [Ni²⁺] = 2.43 M. (iii) If the measured cell potential is 287 mV, what is [Ni²⁺] in the right cell?

3. Ch 11, problem 56

4. Ch 11, problem 57. For 57d, use the form of the Nernst equation with natural logs, not base-10 logs.

5. Ch 10, problem 20, but calculate S per "mole of arrangements" (i.e. just use R, not k, and express the answer in units of J mol⁻¹ K⁻¹. (This would be S for a mole of 4-particle sets.)

6. Ch 10, problem 40. Use the S° values in Appendix 4