Guide to lecture test 2.

1. Which would have a + (or - ) DGof ? Remember that any element in standard state is 0.

The sign of delta Gf can be found from a table, or if we know that it would NOT be formed spontaneously from elements in standard state.

2. Which would (or would not) react spontaneously with a given metal of ion? Use table of reduction potentials. The ion with the GREATER reduction potential will react. The ion with the smallest reduction potential will not.

3. Which has higher entropy?

 A. Higher T, higher entropy

 B. Gas> L > S. More moles of gas > fewer moles of gas.

 C. Larger, more complex molecules have greater entropy

 D. Same gas at lower pressure (greater volume) has greater entropy.

4. Find Eo for a given reaction, using reduction potential table.

 Find the oxidizing agent or reducing agent in the given reaction.

5. Factors affecting voltage. Increasing “Q” decreases voltage.

6. Determining signs of DS, DG, D H for a given process.

 i.e. Formation of liquid water from hydrogen and oxygen at room temperature.

7. Analyzing diagram of a Galvanic Cell.

 a) + and – pole

 b) anode and cathode

 c) net ionic equation

 d) direction of electron and ion flow.

8. Geometry of a given hybrid.

9. Complex ion analysis.

10. Drawing complex, isomerism.

11. Naming complex ions and their compounds.

12. Coordination sphere isomers

13.Balancing in acidic media.

14. Writing a balanced net ionic equation given the metals and ions in the cell.

15. Evaluating complex ions for chirality.

16. Finding DSo  for the formation of a compound listed on a table of thermo data.

17.. Finding Eo from K

18. Finding DGo from Eo and/or K

19. Determining DG, DH, D S, and K for a given reaction, using the table.

20. Hybridization and sigma and pi bonds for a given molecule.

21. Determining numbers of unpaired electrons in high and low spin complexes.