

FINAL EXAM CONCEPTS

Colligative properties

- 1) Determine molar mass of a compound using F.P. depression, boiling pt. elevation or osmotic pressure
- 2) Determine new f.p., b.p. or vapor pressure w/ addition of solute (electrolyte vs. non-electrolyte)

Kinetics

- 1) Use Arrhenius equation to find k_1, k_2, T_1, T_2 or E_a .
- 2) Using integrated rate laws to find, time (t), $[A]_t$ or rate constant, or $t_{1/2}$ life.

Equilibrium

- 1) Use K_p or K_c to find eq. pressures or $[]$.
- 2) Determine K , is reaction reactant or product favored?

Acid-Base

- 1) Determine pH of a weak acid, weak base or salt.
- 2) Determine pH of a buffer. (before & after addition of a strong acid or base)

Solubility

- 1) Determine K_{sp} given molar solubility, or molar solubility given K_{sp} .
- 2) Determine if a ppt will form (compare Q to K_{sp})

Thermo

- 1) Determine ΔG° or ΔG for a reaction.
- 2) Determine K from ΔG° .
- 3) Determine if a

reaction is ΔG° ΔG° ΔG°
non-spont.

4) If rxn. is non-spont
determine temp @
which it becomes spont.

Electrochemistry

1) Draw and label
key components for
voltaic cell.

2) Determine E°_{cell}
for a redox reaction,
 ΔG° and if rxn. is
spont.

3) Determine E°_{cell}
for a redox reaction.

using Nernst equation

4) Determine K using E° cell.

5) Deposition: given current (A) and time determine amount of metal plated.

6) Balancing redox reactions in acidic or basic solutions

nuclear chem

- 1) Write equations for nuclear rxns.
- 2) Use first-order integrated rate law for radioisotopes such as C-14 dating