August 2014 Touro Final notes.

Note that the equations and/or definitions of molality and mole fraction are not given; you need to know them. The Kf will be given, but you need to know the equation that uses it. The equations for first and second order kinetics. (i.e. Ln for first 1/[A] for second...) are not given. The Nernst equation, and equation relating delta G to K are given.

There are 40 short questions.

An initial rate table - 3 questions.

Mehcanism

Calculation of rate constant based on conc. change over time in either first or second order.

type 2 calculation of Kp

Effect of temperature change on both Keq and rate constant, k.

Type 3 (given K and all but one conc., find the missing one)

Effect of changes in volume, temperature, quantity, on a system. (Le Chatelier)

Hydroxide from H+ and vice versa.

pH from molarity of a base

Conjugate bases and acids

Ka from pH and molarity

pH from molarity of a weak base

H+ conc. in a given buffer

molar solubility from Ksp

ΔH from a table of ΔH of formation

comparing entropies of different systems.

ΔG° from Keq.

Calculation of standard potential for a half reaction.

ΔG° from a calculated E°. (equation is given)

Comparing reducing agents

Identifying poles in a given chemical cell

Impact of sign of Eo on other variables.

Identifying reduction or oxidation half reactions from a whole reaction

Faraday's Law, constant given but not the equation, finding mass in an electrolysis

molality problems.

Freezing point calculation, Kf is given.

Boiling points of electrolytes.

Long

Problem combining Ksp and pH calculations.

Writing a half reaction.

Electrolysis problem.

ANALYSIS OF A CHEMICAL CELL!!!!!!! 21 points!!!