

You should be successful on Exam IV, if you can do the following in addition to the skills from CHEM 101, Exam I, Exam II, Exam III

Slightly Soluble Salts –Unit 18, sections 1-4

1. Give the expression for the solubility-product constant for a slightly soluble salt
2. Calculate K_{sp} from solubility data (vv)
3. Calculate molar solubility
4. Calculate precipitation or the effects of a common ion on solubility

Electrochemistry –Unit 20, sections 1-4

1. Define redox, assign oxidation #'s
2. Balance Redox equations
3. Describe a voltaic cell
4. Calculate E°_{cell} (the cell potential)
5. Predict spontaneous reaction
6. Predict strength of reducing (and oxidizing) agents
7. Describe an electrolytic cell
8. Use Faraday's Law of Electrolysis to calculate amt. of products, current, time, or oxidation state
9. Predict the products of electrolytic cells (molten & aqueous) and of voltaic cells
10. Convert E° to ΔG° & K
11. Use the Nernst equation to calculate E under nonstandard concentration (vv)

Nuclear -Unit 25, sections 1-5

1. Write symbols for electron, protons, neutrons, positrons, alpha particle, gamma ray
2. Complete and balance nuclear equations
3. Predict type of decay via "belt of stability"
4. Calculate $[A]_t$, $[A]_0$, or k given 2 of 3
5. Use 1/2 life equation
6. Describe how the C-14 dating process works
7. Calculate the binding energy and mass deficiency
8. Describe fusion/fission
9. Describe the hazards of Radon gas.
10. Describe the difference between fission and hydrogen bombs.
11. Give the parts & functions of a nuclear reactor.