FINAL REVIEW SHEET

The problems listed are suggestions, supplemental to the practice exams, and the chapter practice problems.

CH1

Know elements listed Chapter 1 objectives
Difference between ions and molecules
Density as a conversion factor; concept of density as relates to phases of matter.
Temperature conversions to K
Significant figures
Phases of matter
Chemical vs. physical changes

CH 2

Law of conservation of mass
Coulomb's law
Like charges repel and opposite charges attract
Parts of the atom
Electronically neutral atom
Build an ionic compound from ions
Notation of the atom, Z, A, etc.nuclied symbol, isotopes
Properties of metalloids, metals, and non-metals
Brush up on nomenclature

CH 3

Mole concept: atoms moles mass & moles to molecules and atoms
Calculate atomic mass
Write balanced equation
Stoichiometry
Limiting reagent
Theoretical yield
Percent yield
Calculation of excess reagent
Empirical and molecular formulas
Order of elements in formulas: C, H then most electropositive to most electronegative alphabetically
Try 3.108 or 3.110

CH 4

Molarity as a calculation
Molarity as a conversion factor
Identify solubility
Oxidation/reduction
Calculating oxidation numbers
Strong and weak electrolytes
Identify ppt, acid base rxn
Strong acids and bases
Stoichiometry of solutions
Molecular, ionic and net ionic equations
Try .105, 4.106, 4.107, 4109, 4.111

CH 5

Specific heat
Combined specific heat problem
Heat transfer direction endo vs. exo
Enthalpy
Calorimeter problem
Hess's law
Heat of formation
Work
Try : 5.112, 5.115, 5.101,

CH 6

Wavelength to frequency conversion
Energy to frequency conversions
The Rydberg (Bohr) equation
Identify quantum numbers
Know shapes of orbitals & how orbitals relate to quantum numbers
Electron configurations of ns and np block, first row of transition elements
Try: 6.105, 6.67-6.80 are electron configuration problems:
Also, you can do general review with the chapter lecture handout for chapter 6

CH 7

Electron configurations of first 36 elements
Electron affinity, ionization energy, size, Zeffective
Periodic properties
Try: 7.115, be able to distinguish size, IE, EA (see exam and practice problems
Also, you can do general review with the chapter lecture handout for chapter 7

CH 8

Lewis structure, resonance
Polarity in diatomic molecule
Identify a molecule with a dipole and one without using electronegativity
Octet rule
Ions,
Exceptions to the octet rule
Distinguish between electron negativity and electron afinity (CH7)
Try 8.104 [works through many concepts in earlier chapters], 8107, WS 1 (Ionic bonds) WS 4 (Lewis structures)
Skip 8.8
Also, you can do general review with the chapter lecture handout for chapter 8

CH9

Lewis structure, resonance
Hybridization
Shapes, electron pair but not molecular geometry
Polarity
Identify a molecule with a dipole and one without
Problem 110 and challenging
Hybridization
Define valence bond theory
Draw picture of a molecule with valence bond orbital
Try 8.104 [works through many concepts in earlier chapters], 8107, WS 1 (Ionic bonds) WS 4 (Lewis structures)

skip molecular orbital theory;
Also, you can do general review with the chapter lecture handout for chapter 9WS 6 (VSEPR, WS 7 VSEPR 2, WS 8 Bond angles, polarity, WS 11 VBT.
After looking at the chapter, I realized that I covered 9.6 during lecture. This is the section that covers resonances and delocalization. So you should also review 368 to 372
The hybridaztion of molecules that violate the octet rule (sp^3d and sp^3d^2) are not on the exam. Page 372 has a nice summary
Try 9.113, 9.114., 9.115 (super good!!! Relates size and bond angles)

CH 10

Ideal gas law
Combined gas law
Gas Stoichiometry
Partial pressures

skip nonideal gas behavior
try 10.121, 10.123, 10.125, 10.127 (**these have been asked on past finals)**

CH 11

Identify intermolecular forces –11.2
Do sample exercises 11.1,11.2, 11.3
~~Read trends in hydrogen bonding Page 416~~
~~The flow chart on page 417 will be helpful~~
~~Skip pages 427-440~~
~~From section 11.3:~~
~~Based on surface tension, explain how a meniscus is formed in a capillary.~~
~~Differentiate between adhesion and cohesion~~

~~Discuss the factors that might affect capillary action~~
~~Define and discuss how viscosity works~~
From section 11.4:
Discuss phase changes and the energy of phase changes.
From section 11.5:
Explain dynamic equilibrium
~~Explain vapor pressure and boiling point~~
~~Define volatility~~
~~Explain what makes a liquid boil.~~
Explain evaporation and vaporization
Look at the practice problems for these sections.

CH 13:

Describe the solution process and why sometimes a salt will dissolve even though the enthalpy is +.
Discuss the difference between solubility, an unsaturated solution, and a saturated solution.
~~Discuss the factors affecting solubility~~
~~Distinguish between molality and molarity~~
~~Explain why vinegar and oil don't mix~~
Explain why some compounds will dissolve in solvents and some won't
Maybe maybe not on the exam.