

HONORS CHEMISTRY
MID-TERM REVIEW OUTLINE,
(2010 – 2011)

Topic

1. Measurement in chemistry
 - a) accuracy & precision
 - b) SI system
 - c) significant figures ✓
2. Unit analysis-problem solving ✓
3. Density ✓
4. Classification of matter
 - a) states & changes of matter-S,L,G
 - b) elements, compounds, mixtures (homogeneous and heterogeneous), solutions
(properties, definitions, separation)
 - c) atoms, molecules, ions
 - d) classes of elements; symbols
5. Separation methods for mixtures
6. Physical/chemical properties; changes; extrinsic and intrinsic properties; energy ✓
7. Solubility & solubility curves ✓
8. Atomic structure history; discovery of
parts of the atom (Dalton, Thompson, Rutherford)
9. Nucleus & nuclear chem.; balancing nuclear equations; transmutations, neutron absorption
in nuclear reactors
10. Spectroscopy; light energy-waves & particles ✓
11. H-atom & quantum theory: Bohr, Heisenberg's Uncertainty Principle, Pauli's Exclusion
Principle, de Broglie, Aufbau Principle

12. Modern atom; atomic orbitals; electron configurations, energy levels, sublevels, valence electrons; periodic table (families and periods)
 13. Atomic masses (amu units) & average atomic masses ✓
 14. Law of Definite Composition; % composition ✓
 15. Molecular masses ✓
 16. The **mole** ✓ ; Avogadro's Number ✓
 17. Avogadro's Hypothesis; molar volume; density of a gas at STP ✓ ; STP
 18. Law of Multiple Proportions
 19. Oxidation numbers; writing formulas
 20. Nomenclature (naming compounds) (including acids & bases)
 21. Molarity, ✓ molality; and solution concentration
 22. Stoichiometry of a chemical reaction ✓
- ✓ **Topic includes possible calculations**

Bring to the exam: Several sharpened pencils and an eraser.

A nonprogrammable calculator

Something to read if you finish early