1. A photon has an energy of 1.25 x 10-18 J. Find it's wavelength (in nm) and frequency.

2. Find the work function of a metal whose photoelectric cutoff frequency is 7.25 x 1014 Hz. What would be the kinetic energy of an electron ejected if the metal is hit with a photon of twice the frequency?

3. Find the wavelength of an electron travelling at 6.50 x 106 m/s?

4. Find the uncertainty in velocity of an electron confined to a 2.00 nm wide potential well.

5. What is the energy of a photon absorbed when the electron in a hydrogen atom jumps from its ground state to level 4?

6. What do we mean by the term "hydrogen-like" orbitals? How are the energy states of a multi-electron atom different from the hydrogen atom?

7. What effect does changing the n quantum number have on the electron distribution around the nucleus? The l quantum number? The ml quantum number? The ms quantum number?

8. What is a boundary surface diagram of an atom?

9. Write the possible quantum numbers for the highest energy electron in the ground state of the iron atom.

10. What is the shielding effect? How does it influence the energy states of electrons?

11. Write the electron configurations for Na, Rh, Bi, Nd, and Sn.

12. Discuss the expected magnetism in oxygen, fluorine, and neon atoms. Explain why fluorine in its common state is diamagnetic. Note that oxygen should be like fluorine in this regard, but it's weird and will be explained in chapter 10.