

**Chem 155 Homework #8** Due at the start of class on Mon. Mar. 2

Reading: Chapter 5, Chapter 6 sections 6.1-6.2

**Chapter 5 Problems:**

**5.1 – identifying radial and angular nodes from quantum numbers**

**5.8 – computing radial nodes**

**5.15 – Aufbau and electron configurations**

**5.24 – what happens to periodic table if spin was 3-fold degenerate**

**5.29 – Photoelectron spectroscopy and Zeff**

**5.31 – compare ionic radius**

**5.36 – gaseous ionization energies**

**5.46 – wave function of H atom**

**Chapter 6 Problems:**

**6.1 – nodes in H<sub>2</sub><sup>+</sup> sigma orbital**

**6.2 – nodes in H<sub>2</sub><sup>+</sup> pi orbital**

**6.3 – sketching sigma and pi orbitals**

**Additional Problems:**

1) Use the radial probability distribution to calculate the most probable distance of finding an electron from the nucleus of a hydrogen atom. Compare with the Bohr model of the atom.

2) Find an image of a *single molecule* taken with a *Scanning Tunneling Microscope* that was published in a scientific journal. Print it out the figure and cite the reference.