

Chem 155 Homework #8

Reading: Chapter 5, Chapter 6 sections 6.1-6.2

Due at the start of class on Mon. Feb. 27

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

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.

Chapter 6 Problems:

6.1 – nodes in H₂⁺ sigma orbital

6.2 – nodes in H₂⁺ pi orbital

6.3 – sketching sigma and pi orbitals