Honors Chemistry: Homework Set 4-7

1. *Based on information from the Periodic Table, answer questions in each box about the given element. Then draw Bohr's atomic model for the element.*

a.) magnesium - 25

Electron arrangement:

Number of energy levels: _____

Number of valance electrons: _____

Draw Bohr's atomic model for magnesium-25.
Indicate appropriate number of particles in the nucleus, and electrons (-) in electron shells.

b.) neon – 21

Electron arrangement:

Number of energy levels: _____

Number of valance electrons: _____

Draw Bohr's atomic model for neon-21.
Indicate appropriate number of particles in the nucleus, and electrons (-) in electron shells.

c.) sulfur - 32

Electron arrangement:

Number of electron levels: _____

Number of valance electrons: _____

Draw Bohr's atomic model for sulfur - 32.
Indicate appropriate number of particles in the nucleus, and electrons (-) in electron shells.

d.) carbon – 14

Electron arrangement:

Number of electron levels: _____

Number of valance electrons: _____

Draw Bohr's atomic model for carbon-14.
Indicate appropriate number of particles in the nucleus, and electrons (-) in electron shells.

2. What is the maximum number of electrons that can go into each of the following sublevels?
   a) 1s
   b) 5d
   c) 3p
   d) 4f

3. Arrange the following sublevels in order of increasing energy.
   3d , 2p, 4s, 3p, 3s

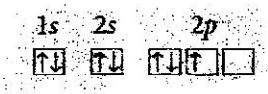
4. Provide orbital notations for each of the following:

Aluminum (Al)	
Nickel (Ni)	
Tin (Sn)	

5. Why do electrons occupy equal energy orbitals singly before beginning to pair up?

6. Orbital diagrams for the ground states of two elements are shown below. Each diagram shows something that is incorrect. Identify the error in each diagram and then draw the correct diagram.

   a) nitrogen



   b) magnesium