

Worksheet 3

1. Complete the following table:

n	l	all possible m_l values	subshell	no. orbitals
2		0		
			4s	
3				3
4	3			

2. In a few words, define the aufbau principle, Hund's rule, and the Pauli exclusion principle.

3. Make an electronic energy level diagram for phosphorous.

4. Give the ground state electronic configurations for the following:

a. Carbon

b. Vanadium

c. Antimony

d. Copper

5. Give electronic configurations for the following:

a. Te^{+4} and Te^{-2}

b. S^{+2} and S^{-2}

c. Mn^{+2} and Mn^{+7}

6. Identify the specific element that corresponds to each of the following electron configurations.

a. $1s^2 2s^2 2p^6 3s^2$

b. $[\text{Ne}]3s^2 3p^1$

c. $[\text{Ar}]4s^1 3d^5$

d. $[\text{Kr}]5s^2 4d^{10} 5p^4$

7. The following electronic configurations represent excited states. Identify the element, and write its ground state condensed electron configuration.

a. $[\text{Ar}]3d^{10} 4s^1 4p^4 5s^1$

b. $[\text{Kr}]4d^6 5s^2 5p^1$