## Some More Atom Questions

- 1. Two electrons in the same sublevel but in different orbitals could have up to how many quantum numbers in common?
- 2. What is the I quantum number for the last electron in the element As?
- 3. What are the possible values for I if n=3? 0,1,2
- 4. Given in a particular atom that I=2, what are the possible values for ml?
  -2 -1 0 1 2
- 5. What do we call the sublevel that is represented by I=3? How many orbitals does it have?

F 7

6. The last electron in a carbon atom is placed in what sublevel of what energy level? What are all of the quantum numbers that this electron can have?

 $2p \quad n = 2 \qquad I = 1 \qquad m = 0 \qquad s = 1/2$ 

- 7. Is iron paramagnetic or diamagnetic? Why? Paramagnetic. Because it has unpaired valence electrons.
- 8. What element in period (row) 3 is the most magnetic? Why?

P 3 unpaired electrons

9. Helium has two electrons. What quantum numbers define each one? How many quantum numbers are the same?  $N = 1 \quad I = 0 \quad m = 0 \quad s = + \frac{1}{2} \text{ or } -\frac{1}{2}$ 

10. The last electron for Mn is placed into what sublevel? What quantum numbers could define this electron?

N = 3 I = 2 m = 2 s = 1/2

11. An electron has a value of n=5. What are its  $m_s$  possibilities?

 $+ \frac{1}{2}$  or  $- \frac{1}{2}$ 

12. An electron has the following quantum numbers: n=4, l=1,  $m_l=-1$ , and  $m_s=+1/2$ . What energy level, sublevel, and orbital does it exist in? What is its spin?

4p on the x axis Ga (spinning clockwise)

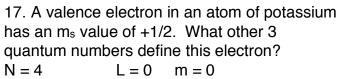
13. What is the wavelength of an electron moving at 1/100 the speed of light?

14. How fast is a car moving if it has a mass of 1500 kg and a wavelength of 7.75 x 10<sup>-39</sup> m? What is that in miles per hour?

15. What is the wavelength of an electron, which has a mass of 9.11 x 10 -19ng and travels at  $2.00 \times 108 \text{ m/s}$ ? 1.00 J = 1.00 N m and 1.00 N = 1.00 kg m/s2

16. An atom has an I value of 3. What does its n quantum number have to be?

4 or more



N = 4 L = 0 m = 0Some Atom Questions!

- 1. How many electrons can be in an orbital?
- 9. The energy of electrons in the same orbital is about the same? T of F

- 2. How many electrons are in the outer shell of a Fion?
- 10. How many pairs of electrons are in the outer shell of Po?

- 3. How many pairs of electrons are in an atom of iron?
- 11. What is the maximum number of quantum numbers any two electrons can have in common?

- 4. How many dots are in the electron dot formula of Fe? of Sb?
- 12. Two electrons in the same sublevel but in different orbitals would have how many quantum numbers in common?
- 5. How many dots are in the dot diagram of the noble gases?
- 13. How many neutrons are in U-235?

- 6. How does the electron configuration of Ar compare to that of Cl-?
- 14. How many electrons are in a Cu<sup>+2</sup> ion?

- 7. What is the first element to have energy level "overlap"?
- 15. Are positive ions larger or smaller than their atoms?

8. If l = 3, then m = ?