

1. If a 3rd sublevel contained 7 e⁻s (d⁷), how many orbitals would contain paired electrons, and how many would have single e⁻s?
2. How many energy levels are there?
3. What letter denotes the quantum number for the principal energy level?
4. What four letters are used to represent the sublevels within a principal energy level?
5. What is the maximum number of electrons that may occupy one orbital?
6. Who stated that no two electrons in the same atom could have the same set of four quantum numbers? (ie – 2 electrons in the same orbital must have opposite spins)
7. What is the most important thing to remember when writing electron-configurations?
8. How many sublevels are possible in the third energy level?
9. How many orbitals are there in an *f* sublevel?
10. What is the maximum number of electrons that can occupy a *d* sublevel?
11. Which sublevel may contain a maximum of three pairs of electrons?
12. What must be true about the spins of two electrons occupying the same orbital?
13. Write the electron configuration for each of the following elements.
 - a. lithium (Z = 3)
 - b. radium (Z = 88)
 - c. sodium (Z = 11)
 - d. mercury (Z = 80)
 - e. tin (Z = 50)
 - f. krypton (Z = 36)
14. Draw the orbital filling diagrams for the following elements.
 - a. titanium (Z = 22)
 - b. sodium (Z = 11)
 - c. aluminum (Z = 13)
 - d. phosphorus (Z = 15)
15. What is the maximum number of electrons that can be in the
 - a. second energy level?
 - b. third energy level?
 - c. fourth energy level?
16. Which quantum number signifies the size of the electron cloud (energy level, sublevel, or orbital?)
17. The shape of the electron orbital is designated by which (energy level, sublevel, specific orbital?)
18. The orbital describes the direction in space of the electron cloud. What would be the difference between an *s* or *p* orbital in 2nd level compared to 3rd level?