Name _____ Date _____ Per. _____

W3.5 Chem Electron Configuration Worksheet

Answer on notebook paper: copy questions; if e- configurations are asked for, write the element symbol and e- configuration. Use your book and notes. _____ Possible points = 48 pts.

Relating Electron Configurations to the Periodic Table

1. Write electron configurations for atoms that have the following atomic numbers:
   a. 3
   b. 11
   c. 19
   d. What, if anything, do these electron configurations have in common?
   e. What would you expect about the relative properties of these elements?
   f. Where are these atoms located in the periodic table?
   g. What are the names and symbols of these atoms?
2. Write electron configurations for atoms that have the following atomic numbers:
   a. 9
   b. 17
   c. 35
   d. What, if anything, do these electron configurations have in common?
   e. What would you expect about the relative properties of these elements?
   f. Where are these atoms located in the periodic table?
   g. What are the names and symbols of these atoms?
3. What is the maximum number of electrons that can occupy the fourth energy level?
4. How many sublevels are there in the third energy level?
5. How many electrons can occupy any single orbital?
6. Which of the following show the correct order of filling?
   a. 1s2s2p
   b. 1s2s2p3s3p
   c. 1s2s3s
   d. 1s2s2p3s3p4s
   e. 1s2s2p3p3d4s
   f. 1s2s2p3s3p4s4p
7. Write the name of the element represented by each of the following configurations.
   a. $1s^2 2s^2 2p^5$
   b. $1s^2 2s^2 2p^6 3s^2$
   c. $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^{10} 4p^1$
   d. $1s^2 2s^2 2p^6 3s^2 3p^4$
8. Write the electron configuration for each of the following elements.
   a. Aluminum
   b. Iron
   c. Cadmium
   d. Carbon
   e. Barium
   f. Iodine
9. Predict electron configurations for atoms of the following elements.
   a. Li
   b. N
   c. Be
   d. O
   e. B
   f. F
   g. C
   h. Ne
10. What four letters are used to represent the sublevels within a principal energy level?
11. What is the maximum number of electrons that may occupy one orbital?
12. How many sublevels are possible in the third energy level?
13. How many orbitals are there in an f sublevel?
14. What is the maximum number of electrons that can occupy a d sublevel?
15. Which sublevel may contain a maximum of three pairs of electrons?
16. Write the electron configuration for each of the following elements.
   a. potassium
   b. Radium
   c. Sodium
   d. Mercury
   e. Tin
   f. Krypton