Name:
Date:

Worksheet – Electron Configurations

1. Draw an orbital diagram for each of the following elements:
   A. Al [Ne] 3s 3p
   B. Bromine [Ar] 4s 4p
   C. Chromium [Ar] 4s 3d
   D. Nickel [Ar] 4s 3d

2. Write the electron configuration for each of the following elements:
   A. O $1s^2 2s^2 2p^4$
   B. Hg $[Xe]6s^2 4f^{14} 5d^{10}$
   C. C $1s^2 2s^2 2p^2$
   D. Ti $[Ar]4s^2 3d^2$
   E. Sr $[Kr]5s^2$

3. Draw the electron dot diagram for each of the following elements:
   A. Cd
   B. Cu
   C. Ra
   D. Rn
   E. N

4. The fourth principle energy level has: [redacted] 4s 4p 4d 4f
   1 + 3 + 5 + 7
   a. four orbitals
   b. sixteen orbitals
   c. thirty-two orbitals
   d. nine orbitals

5. If the electron configuration of an element is $1s^2 2s^2 2p^6 3s^2 3p^5$, the element is:
   a. iron.
   b. bromine.
   c. chlorine.
   d. phosphorus.

6. Which of the following is true concerning the noble gases?
   a. Their outermost s and p sublevels are filled.
   b. They belong to Group 0.
   c. They are sometimes referred to as the inert gases.
   d. All of these.

7. What is the number of electrons in the outermost occupied energy level of an element in Group 5A?
   a. 5
   b. 3
   c. 8
   d. 18

8. Among the groups of elements listed below, which have the same number of electrons in their outermost energy levels?
   a. Li, B, C, F
   b. Na, Mg, Al, S
   c. K, Ca, Rb, Sr
   d. N, P, As, Sb

9. The alkali metals do not include:
   a. Li
   b. Ca
   c. Na
   d. Rb

10. The representative elements are usually called:
    a. inner transition metals
    b. transition metals
    c. Group B elements
    d. Group A elements

11. The vertical columns of the periodic table are called:
    a. groups.
    b. rows.
    c. periods.
    d. sublevels.

12. The element iodine is a:
    a. period 5 alkali metal.
    b. period 4 halogen.
    c. period 5 halogen.
    d. period 5 transition metal.

13. The subatomic particle that plays the greatest role in determining the physical and chemical properties of an element is the:
    a. proton
    b. neutron
    c. electron
    d. photon