Lesson 4_Periodic Table and Electron Configuration

1. An element has the following ground state electron configuration for its valence electrons $3s^2\ 3p_x^1\ 3p_y^1\ 3p_z^1$. The element is

   a) aluminum b) silicon c) phosphorus d) germanium e) arsenic

2. The electron configuration that represents a reactive nonmetallic element is

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

   b) $1s^2 2s^2 2p^6 3s^2 3p^1$

   c) $1s^2 2s^2 2p^6 3s^2 3p^5$

   d) $1s^2 2s^2 2p^6 3s^2 3p^6$

   e) $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2$

3. Which of the following ground state electron configurations will most likely represent an alkali metal?

   a) $1s^2\ 2s^2\ 2p^6\ 3s^2\ 3p^4$
   b) $1s^2\ 2s^2\ 2p^6\ 3s^2\ 3p^6\ 4s^1$
   c) $1s^2\ 2s^2\ 2p^6\ 3s^2\ 4s^2\ 3d^{10}$
   d) $1s^2\ 2s^2\ 2p^6\ 3s^2\ 3p^6\ 4s^2\ 3d^{10}\ 4p^2$

4. The valence shell of an atom has the electron configuration $4s^2 4p^2$. The chemical symbol for this atom is

   a) S b) Ti c) Ge d) Sn e) Cd

5. Which of the following represents the electron configuration of an **excited** atom?

   a) $1s^2\ 2s^2\ 2p^6$
   b) $1s^2\ 2s^2$
   c) $1s^2\ 2s^2\ 2p^6\ 3s^1$
   d) $1s^2\ 2s^2\ 2p^6\ 3s^2$
   e) $1s^2\ 2s^1\ 2p_x^1$

6. In which of these pairs do both have the identical electron configuration?

a) Li, Rb b) Mg^{2+}, O^{2-} c) F^{-}, Ca^{2+}
d) Ne, Ar e) Sr^{2+}, Ca^{2+}

The next three questions refer to the following electron configurations for neutral atoms:

A) $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2$
B) $1s^2 2s^2 2p^6 3s^2 3p^6 4s^1$
C) $1s^2 2s^2 2p^6 3s^2 3p^3$
D) $1s^2 2s^2 2p^6 3s^2 3p^6$
E) $1s^2 2s^2 2p^6 3s^2 3p^4$

7. Which of the choices would represent an inert gas?

a) A b) B c) C d) D e) E

8. The **pair** of elements most likely to form an **ionic** bond is

a) B and E b) C and E c) D and C d) A and D e) A and B

9. The formula of the compound most <u>unlikely</u> to form is

a) AE b) B_2E c) AB_2 d) B_3C e) AC

Problems

1. Write the electronic configuration for: a) $^{75}_{33}As$ b) $^{59}_{28}Ni$ c) $^{65}_{29}Cu$

2. Write the shorthand electron configuration for: P, Fe, Br, Mo, Sb

3. Write the valence electron configuration for: Al, Cl, Rh, Se,

Multiple Choice Answers

1	2	3	4	5	6	7	8	9
C	**C**	**B**	**C**	**E**	**B**	**D**	**A**	**C**