

Name : _____

Electron Configuration

1. What is the total number of electrons able to fit in:

a. The first electron shell? _____ b. The third electron shell? _____

2. Give a brief definition for the following terms:

a. Sub-shell _____

b. Electron shell _____

c. Orbital _____

3. What is the relationship between the number of valence electrons and atomic reactivity?

4. Order the orbitals in increasing levels of energy

a. 2p, 1s, 2s, 3p, 3s

b. 3d, 4s, 4d, 4p, 5s

c. 4f, 5p, 5f, 5d, 6s, 6p, 7s

5. Which of the following notations for nickel obeys Aufbau's principle?

a. $1s^2 2s^2 2p^6 3s^2 3p^6 3d^8 4s^2$

b. $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^8$

c. $1s^2 2s^2 3s^2 4s^2 2p^6 3p^6 3d^8$

d. $1s^2 2s^2 2p^6 3p^6 3s^2 3d^8 4s^2$

Answer. _____

6. Match each electron configuration or atomic number (Z) in Column 1 with a description in Column 2. All the elements in Column 1 are neutral.

Column 1

$1s^2 2s^2 2p^2$

$1s^2 2s^1$

$1s^2 2s^2 2p^6 3s^2 3d^{10} 4s^2$

Z = 18

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

Z = 7

Column 2

has 3 electrons

has 4 principal energy levels

atomic number = 6

has 3 unpaired electrons

is a noble gas

has 3 valence electrons

