

## Electron Configuration Homework

1. How many electron shells contain s-orbitals?
2. Which electron shells contain d-orbitals?
3. Name the types of orbitals present in the second electron shell.
4. How many p-orbitals are able to be filled in a shell?
5. How many d-orbitals are able to be filled in a shell?
6. What is the total number of electrons able to fit in:
  - a. The first electron shell?
  - b. The third electron shell?
7. Give a brief definition for the following terms:
  - a. Sub-shell
  - b. Electron shell
  - c. Orbital
8. What is the relationship between number of valence electrons and atomic reactivity?

## Electron Configuration Homework

9. Order the orbitals in increasing level of energy
- 2p, 1s, 2s, 3p, 3s
  - 3d, 4s, 4d, 4p, 5s,
  - 4f, 5p, 5f, 5d, 6s, 6p, 7s
10. Which of the following notations for nickel obey Aufbau's principle?
- $1s^2 2s^2 2p^6 3s^2 3p^6 3d^8 4s^2$
  - $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^8$
  - $1s^2 2s^2 3s^2 4s^2 2p^6 3p^6 3d^8$
  - $1s^2 2s^2 2p^6 3p^6 3s^2 3d^8 4s^2$
11. Which of the following is the correct notation for Calcium according to Aufbau's principle?
- $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2$
  - $1s^2 2s^2 2p^6 3p^6 3s^2 4s^2$
  - $1s^2 2s^2 3s^2 4s^2 2p^6 3p^6$
  - None of the above
12. In your own words explain Aufbau's principle. Use an example to help illustrate your explanation.