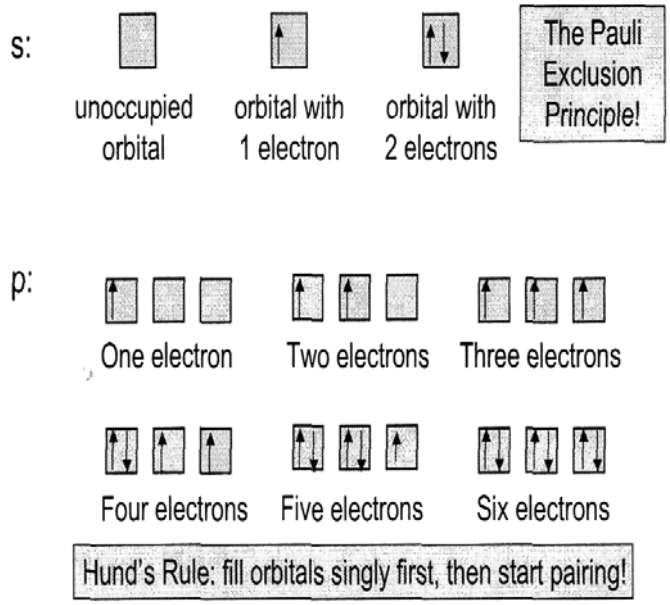
Electron Configuration PRACTICE

Name_____ #___

Date_____Per._____

I. Filling in electrons: Electrons get filled into orbitals individually:

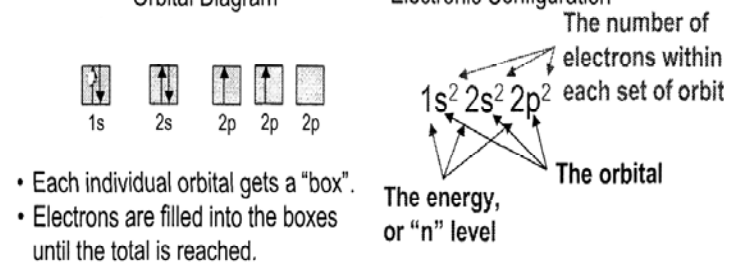


Writing Electronic Configurations

To determine the electron configuration:

1) Find the number of electrons for the element.
2) Fill the electrons in order of the Aufbau Principle.
3) Use Hund's Rule and the Pauli Exclusion Principle for orbital diagrams.

Example: Nitrogen - Element #7 → 7 electrons



- Each individual orbital gets a "box".
- Electrons are filled into the boxes until the total is reached.

Using Iron with _____ number of e^-

Draw the Orbital Diagram:

1s	2s	2p	3s	3p	4s	3d
___	___ ___	___ ___ ___	___ ___	___ ___ ___	___ ___	___ ___ ___ ___ ___

Write the Electron Configuration for Fe:

_____

Draw the orbital notation diagrams for the following elements.

	1s	2s	$2p_x$	$2p_y$	$2p_z$	3s	$3p_x$	$3p_y$	$3p_z$	4s	$3d_1$	$3d_2$	$3d_3$	$3d_4$	$3d_5$
1. Be	___	___	___	___	___	___	___	___	___	___	___	___	___	___	___
2. Si	___	___	___	___	___	___	___	___	___	___	___	___	___	___	___
3. Ni	___	___	___	___	___	___	___	___	___	___	___	___	___	___	___
4. Ar	___	___	___	___	___	___	___	___	___	___	___	___	___	___	___
5. Ti	___	___	___	___	___	___	___	___	___	___	___	___	___	___	___

Write the electron configuration for the following elements.

6. Si $1s^2\ 2s^2\ 2p^6 3s^2 3p^2$.

7. Cr

8. Mg

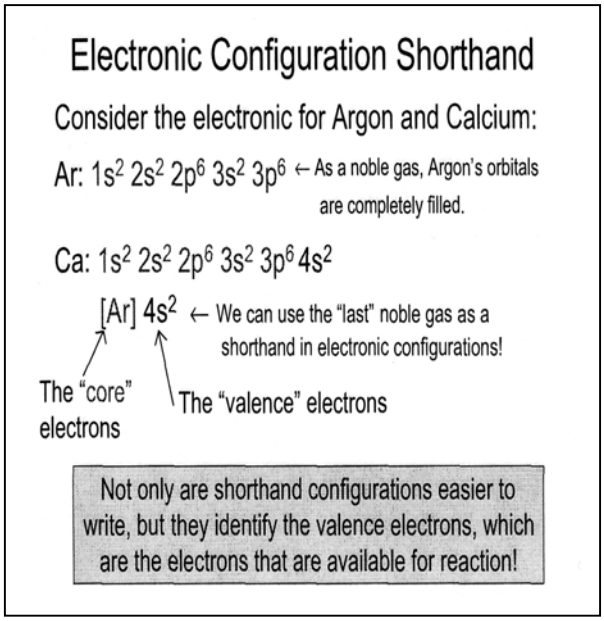
Write the noble gas configuration for the following elements.

9. Ca $1s^2\ 2s^2\ 2p^6 3s^2 3p^2.\ 4s^2$
[Ar] $4s^2$

10. Cl

11. Ag

12. Sn



Draw the orbital diagrams for the following IONS. This will be the same orbital diagrams as a neutral atom except you've added or subtracted some arrows to represent the electrons that were added or subtracted. See Na for an example.

13. Na^{1+} ↑↓ ↑↓ ↑↓ ↑↓ ↑↓ ___ ___ ___ ___ ___ ___ ___ ___ ___ ___

1s 2s $2p_x$ $2p_y$ $2p_z$ 3s $3p_x$ $3p_y$ $3p_z$ 4s $3d_1$ $3d_2$ $3d_3$ $3d_4$ $3d_5$

14. Ca^{2+} ___ ___ ___ ___ ___ ___ ___ ___ ___ ___ ___ ___ ___ ___ ___ ___

1s 2s $2p_x$ $2p_y$ $2p_z$ 3s $3p_x$ $3p_y$ $3p_z$ 4s $3d_1$ $3d_2$ $3d_3$ $3d_4$ $3d_5$

15. O^{2-} ___ ___ ___ ___ ___ ___ ___ ___ ___ ___ ___ ___ ___ ___ ___

1s 2s $2p_x$ $2p_y$ $2p_z$ 3s $3p_x$ $3p_y$ $3p_z$ 4s $3d_1$ $3d_2$ $3d_3$ $3d_4$ $3d_5$

Write the electron configuration for the following IONS.

16. Be^{2+}

17. Li^{1+}

18. F^{1-}

Write the noble gas configuration for the following IONS.

19. Br^{1-}

20. Ba^{2+}

21. Ag^{1+}

Draw Electron Dots
(Valence Electrons = S + P)

1. Fe $1s^2 2s^2 2p^6 3s^2 3p^6 \mathbf{4s^2} 3d^6$

Fe

2. B $1s^2 \mathbf{2s^2 2p^1}$ **B**

3. Cl $1s^2 2s^2 2p^6 \mathbf{3s^2 3p^5}$ **Cl**