Elec	ctror	1 Co	onfi	gura	atior	1 PF	RACT	TIC	ICE Name					#				
			Date				Per											
I. Filling in electrons: Electrons get filled into orbitals individually:									Writing Electronic Configurations									
s: † The Pauli									To determine the electron configuration:									
Exclusion									1) Find the number of electrons for the element.									
unoccupied orbital with orbital with orbital 1 electron 2 electrons									2) Fill the electrons in order of the Aufbau Principle.									
									Use Hund's Rule and the Pauli Exclusion									
									Principle for orbital diagrams.									
p:	One electron Two electrons Three electrons									Example: Nitrogen - Element #7 → 7 electrons Orbital Diagram Electronic Configuration The number of								
							FAUL .		electrons within									
									$\begin{array}{c ccccccccccccccccccccccccccccccccccc$									
Four electrons Five electrons Six electrons									Each individual orbital gets a "box". The approximation of the app									
Hund's Rule: fill orbitals singly first, then start pairing!									Electrons are filled into the boxes until the total is reached. The energy, or "n" level									
Using	g Iron v	with .			numb	er of	e											
Draw the Orbital Diagram:																		
1s	2s		2p		3s		3p)	4:	8	;	3d						
Write the Electron Configuration for Fe:																		
Draw	the or	rbita	l note	ation (diagra	ms f	or the	follo	owing	eleme	ents.							
1. Be																		
1. 00	1s	2s	2p _X	2p _y	2p _Z	3s	3p _X	Зру	3p _Z	4s	3d ₁	3d ₂	3d3	3d ₄	3d ₅			
2. Si	15	25	2n			3<	3p _X	3n.	3n_		3d ₁	3da		3d4	3d=			
	13		-PX	-гу	-PZ	55	SPX	Эру	υPZ	13	oul	542	543	544	oug			
3. Ni			2n _v	2p.,	2n-		3p _X	3p.,	3p-		3d ₁	3d2		3d ₄				
			-FX	-гу	-FZ		- FX	ЭРУ	- 62		1		3	4	5			
4. Ar			2p _v	2p.,	2p-		3p _X	3p.,	3p-		3d ₁	3d ₂	3d2	3d⊿	 3d ₅			
		-	1.4	' y	1 4		1.4	' y	1 2		1	۷	3	7	J			
5. Ti		2s	2p _X	2p _y	2p _z		3p _X	3p _y	3p _z	4s	3d ₁	3d ₂	3d ₃	3d ₄	3d ₅			

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

Electronic Configuration Shorthand

Consider the electronic for Argon and Calcium:

Ar: $1s^2 2s^2 2p^6 3s^2 3p^6 \leftarrow As$ a noble gas, Argon's orbitals are completely filled.

Ca: 1s² 2s² 2p⁶ 3s² 3p⁶ 4s²

electrons

[Ar] 4s² ← We can use the "last" noble gas as a shorthand in electronic configurations! he "core"

The "valence" electrons

Not only are shorthand configurations easier to write, but they identify the valence electrons, which are the electrons that are available for reaction!

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.
$$Na^{1+} \uparrow \downarrow \qquad \downarrow \qquad \downarrow \downarrow$$

Write the electron configuration for the following IONS.

- 16. Be²⁺
- 17. Li¹⁺
- 18. F¹-

Write the noble gas configuration for the following IONS.

- 19. Br¹-
- 20. Ba²⁺
- 21. Ag¹⁺

1. Fe $1s^22s^22p^63s^23p^64s^23d^6$

Fe

- 2. B $1s^2 2s^2 2p^1$
- \mathbf{B}
- 3. Cl $1s^22s^22p^63s^23p^5$ Cl