

Chapter 6 – Electrons in the Atom Review

To study for this test look over your notes and practice problems from the unit.

- List green, yellow, blue, and red in order of Increasing energy
- Sketch two atoms: One with an e^- in ground state and one with an e^- in an excited state. *Hint: look at your notes*

- Rank the following in order of increasing energy: 5s, 2s, 3p, 4s

- Complete the following table:

Energy level	# of Sublevels	Sublevel names	# of orbitals	Max # of e^-
1				
2				
3				

- Explain the following principles/ rules IN YOUR OWN WORDS.

a. Heisenberg Uncertainty Principle

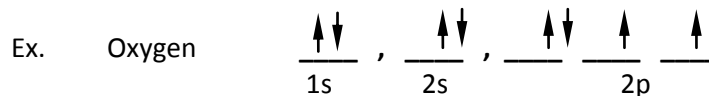
b. Aufbau Principle

b. Pauli Exclusion Principle

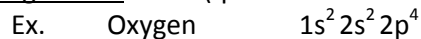
c. Hund's Rule

Electron Arrangements-There are three ways to indicate the arrangement of electrons around an atom:

- Orbital Filling Diagram (gives the most information)



- Electron Configuration (quicker to draw than orbital filling diagrams)



- Noble gas Notation



- Write orbital diagrams, electron configurations, and Noble gas notation for the following elements.

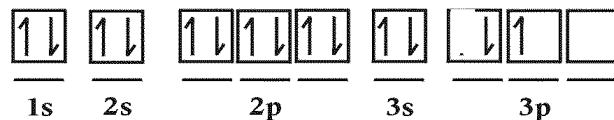
Element	Orbital Diagrams	Electron Configuration	Noble Gas Notation
Calcium	<p>The upper energy levels and f orbitals are left out for simplicity. This simplified Aufbau chart will only hold 48 electrons.</p>		

Element	Orbital Diagrams	Electron Configuration	Noble Gas Notation
Chlorine	<p>The upper energy levels and f orbitals are left out for simplicity. This simplified Aufbau chart will only hold 48 electrons.</p>		
Rubidium	<p>The upper energy levels and f orbitals are left out for simplicity. This simplified Aufbau chart will only hold 48 electrons.</p>		
Zinc	<p>The upper energy levels and f orbitals are left out for simplicity. This simplified Aufbau chart will only hold 48 electrons.</p>		
Silver	<p>The upper energy levels and f orbitals are left out for simplicity. This simplified Aufbau chart will only hold 48 electrons.</p>		

7. Identify the elements with the following configurations.

- $1s^2 2s^2 2p^6 3s^1$
- $1s^2 2s^2 2p^6 3s^2 3p^6 4s^1$
- $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^{10} 4p^6 5s^2 4d^3$
- $[\text{Ar}]4s^1$
- $[\text{Ne}]3s^2 3p^3$

8. A. Explain why the orbital diagram is incorrect.



B. Re-draw the orbital diagram above so it is correct.

C. Which element is represented by the diagram? _____