

# Orbitals Day 2 11/12

## Quantum #s

1) Main Level (n) 1-7

2) Sublevel s, p, d, f

3) Orbital (x, y, z)

4)  $\frac{\uparrow\downarrow}{p_x}$  - spin in orbital

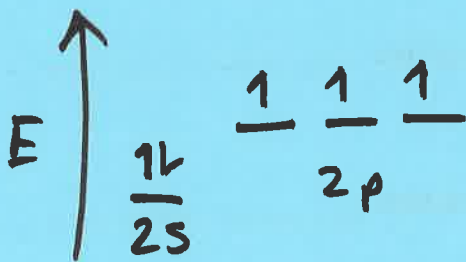
$\overline{\quad} \quad \overline{\quad} \quad \overline{\quad}$   
 $p_x \quad p_y \quad p_z$

$\frac{\uparrow\downarrow}{\quad}$

## Rules:

Aufbau Principle:  $e^-$  fill lowest energy orbital first

Hund's Rule -  $e^-$  spread out in equal energy orbitals



ex) N:  $\frac{\uparrow\downarrow}{1s}$     $\frac{\uparrow\downarrow}{2s}$     $\frac{\uparrow}{2p_x}$     $\frac{\uparrow}{2p_y}$     $\frac{\uparrow}{2p_z}$

## Exceptions

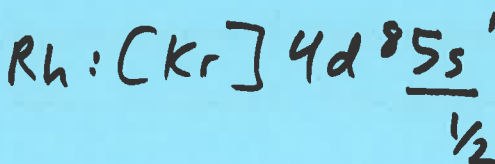
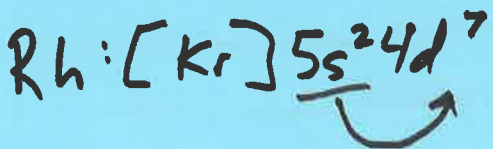
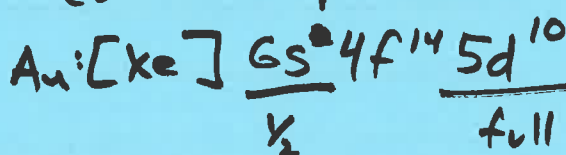
- a half filled sublevel is very stable

- a full d sublevel is very stable

expected:



correct



Ions - Same  $e^-$  config as noble gases

