Chemistry day 2, 3

- Every shell has a particular energy
- 7 shells - k l m n o p q
- Electrons are at different energy levels
  - The more energy level, more unstable
  - The less energy, more stable
- There are electrostatic forces between the positive nucleus and electrons
  - The electrons further away from the nucleus is least attracted by the nucleus
    - Can be removed easily
- Nuclear charge:
  - No. Protons in nucleus
    - F>O>N
  - Inner shell, won't participate in bonding
  - Outermost/valence shell will participate in bonding
  - 3 layer atom - 3 shells
- Sub shell - division of shell
  - 4 types
    - S - 2 - spherical - size increases with the shell - 1 sub sub
    - P - 6 - 3-D infinity - each access can accommodate 2 - 3 sub sub
    - D - 10 - (A2) 5 - sub sub
    - F - 14 - (uni) 7 - sub sub
      - Calculated by no of elect/2 cuz each sub sub has 2 electrons
- Orbitals
  - Any region around the nucleus where the chances of finding an electron is maximum
  - Shape of orbitals is path of electron
  - Chance of electron on node is zero
  - An orbital can have maximum of 2 electrons
  - Shell - sub shell - orbitals
- Rules for electronic configuration
  - The filling of electrons, in the orbitals is called the electronic configuration
  - Electrons are filled according to #Aufbau - building up principle
    - The orbital with the lowest energy fills first
- Quantum numbers

- Used to define position if electron inside one atom
- 4 type
  - Principal - quantum number (n)
    - Which shell can hold how many max electrons
    - Represented by n
    - 2n^2^
  - Asmuthal quantum number (l)
    - Shape of subshell where s p d f electrons reside
    - l = n - 1
  - Magnetic quantum number (m)
    - Every subshell and every orbital as magnetic value
  - Spin quantum number (s)
    - Movement/direction of electrons
    - Clockwise =1/2
    - Anticlockwise = -1/2
    - Parallel spin/spin free
      - IMG of box directions
      - Up or down arrow in individual box
    - Opposite spin/spin paired
      - IMG of box directions
      - Spin of both will be opposite to the other in one box
      - Rule : not possible for two electrons to have same spin
- Electronic configuration
  - Filling of electrons in orbitals
  - Dome by following #Aufbau principle
  - Number of shell = number of blocks (spdf)
  - First 20
  - Second 21-30 transition metals
  - Third Cation Anion