Unit 2: Ch 5.2-5.3 – Isoelectronic Configurations & Ch 25 – Nuclear Chem

ELECTRON CONFIGURATIONS OF *IONS*:

- **What is an *ION*? →**
- **How are *IONS* formed? →**
- **What are the two types of *IONS*? →**
- **How are cations and anions formed? →**

- **What *TYPES* of atoms generally form cations and anions?**
  - **CATIONS** formed by _____ found in the _____ blocks.
  - **ANIONS** formed by _____ found in the _____ block **ABOVE** the _____.

ISOELECTRONIC CONFIGURATIONS:

- **DEFINITION –**
  - Therefore, they have the _____ electron _____.
  - Ex:
    - ***Isoelectronic*** with _____ → _____.
  - In doing this, atoms achieve a _____ - _____ and results in _____.

- **ISOELECTRONIC PRACTICE**:
  - Name ***IONS*** that are ***isoelectronic*** with NEON (Ne):
    -
  - Name ***IONS*** that are ***isoelectronic*** with ARGON (Ar):
    -

NUCLEAR CHEMISTRY & HALF LIFE:

- **Radioactivity:**
  - Discovered by _____ in 1896.
  - Term coined by _____ with discovery of Polonium & Radium in 1898.
  - All elements including and beyond _____ are radioactive.

- **<u>Nuclear Reactions</u>: DEFINITION –**
    - Undergoes _____ for _____.
- ***<u>ALPHA</u>* <u>Particle & Decay</u>: DEFINITION** –
    - **Symbol**: **Charge:** **Mass (#):**
    -
- ***<u>BETA</u>* <u>Particle & Decay</u>: DEFINITION** –
    - **Symbol**: **Charge:** **Mass (#):**
    -
- ***<u>GAMMA</u>* <u>Decay</u>: DEFINITION** –
    - **Symbol**:
    - Not a _____, but intense ***energy*** _____ with _____ and _____.
    -
        - Only very high energy _____ ***emitted***.
- **<u>PENETRATING POWER</u>:**
    - **ALPHA** → _____ → Stopped by _____
    - **BETA** → _____ → Stopped by _____
    - **GAMMA** → _____ → Stopped by _____
- **<u>HALF-LIFE</u>: DEFINITION –**
    - **<u>FORMULA</u>** –
    - Ex #1: How much of 100g of Au-198 is left after 8.10 days? *(Half-life = 2.70 days)*
    - Ex #2: What is the half-life of Tc-99 if 500g decays to 62.5g in 639,000 years?