#### <u>Chemistry A – 2018 – Final Exam Review</u>

### <u>Measurement</u>

- Scientific Method
- Metric System
- Scientific Notation
- Precision & Accuracy
- Significant Figures

### <u>Matter</u>

- Physical Properties (extensive & intensive)
- Density Calculations (D=m/v)
- Mass is in grams or kilograms
- Volume measurements (either mL, cm3 or by displacement of water in a cylinder)
- Pure substances vs. Mixtures
- Homogeneous versus Heterogeneous
- Solution, Suspension or Colloid?
- Elements vs Compounds/molecules
- Which mixtures exhibit the Tyndall Effect?
- Which mixtures can be separated by filtration?
- Chemical Properties and signs of chemical reactions/changes

# Phase changes & Kinetic Theory

- States of Matter
- Phase Changes in Matter
- Endothermic versus Exothermic (phase changes and graph)
- Kinetic Theory what happens to matter when this energy is increased? Decreased?
- Relationships of Pressure, Volume, Temperature to gases.
- Law of Conservation of mass and matter

### **Atomic Structure**

- Components of the Atom and their placement and charges
- Atomic Symbols
- Mass number vs. atomic number
- Calculating Atomic mass and the number of neutrons
- Ions and Isotopes (cations vs anions)
- Bohr Diagrams of atoms and electron shells/energy levels (quantum n)
- Number of electrons that can fit in each energy level (2n<sup>2</sup>)
- Excited vs. ground state electrons/light emission by noble gases in neon signs
- Radioactive decay and half-lives
- Alpha, Beta and Gamma Radiation
- Infrared, UV and Visible light radiation from the sun
- Fission vs. Fusion
- How the sun does fusion
- Use of fission in nuclear power plants
- How do we capture the sun's energy and what forms of energy do we turn solar energy into?
- Law of Conservation of Energy

# **Periodic Table**

- Development of the Periodic Table of Elements (Mendeleev vs. Mosely)
- Periodic Law (Periodicity) and Trends
  - Electronegativity
  - Ionization energy
  - Atomic radius
  - Atomic number
  - Atomic mass
  - Energy levels
  - $\circ$  Number of valence electrons
- What are the main A groups?
- What are Periods? Groups?
- Electron Configurations (s, p, d, f orbitals)
- Abbreviated Electron Configurations