Atomic Structure Overview

Unit 2: Atomic Structure

1. **Electromagnetic Radiation and Photoelectric Effect**
    - Nature of electromagnetic radiation
    - Photoelectric effect
2. **Spectrum of the Hydrogen Atom**
    - Explanation of hydrogen atom spectrum
3. **Bohr Model of Hydrogen Atom**
    - Postulates of Bohr model
    - Derivation of energy relations for electron orbits
    - Radii of different orbits
    - Limitations of Bohr model
4. **Dual Nature of Matter**
    - De Broglie's relationship
5. **Heisenberg Uncertainty Principle**
6. **Quantum Mechanics**
    - Elementary ideas of quantum mechanics
    - Quantum mechanical model of the atom and its features
7. **Atomic Orbitals as One-Electron Wave Functions**
    - Variation of Ψ and Ψ^2 with r for 1s and 2s orbitals
8. **Quantum Numbers**
    - Principal quantum number
    - Angular momentum quantum number
    - Magnetic quantum number
    - Significance of quantum numbers
9. **Shapes of Atomic Orbitals**
    - s, p, and d orbitals
10. **Electron Spin and Spin Quantum Number**

11. **Filling Electrons in Orbitals**
    - Aufbau principle
    - Pauli's exclusion principle
    - Hund's rule
12. **Electronic Configuration of Elements**
    - Extra stability of half-filled and completely filled orbitals