

Lesson Plan (2022-23)

Name of Assistant/ Associate Professor: Mr. Hardeep

B.Sc Ist Sem.

Subject: Chemistry INORGANIC CHEMISTRY--I (ATOMIC STRUCTURE AND BONDING) - CCL- 104

Lesson Plan: From August 2022 to December 2022

Paper- INORGANIC CHEMISTRY--I (ATOMIC STRUCTURE AND BONDING)	
	Topic Covered
1 (25 Aug to 27 Aug.)	Review of: Bohr's theory and its limitations, dual behaviour of matter and radiation, de Broglie's relation, Heisenberg Uncertainty principle.
2 (01 Sept to 03 Sept.)	Hydrogen atom spectra. Need of a new approach to Atomic structure. What is Quantum mechanics?
3 (08 Sept to 10 Sept.)	Time independent Schrodinger equation and meaning of various terms in it. Significance of ψ and ψ^2 , Schrödinger equation for hydrogen atom.
4 (15 Sept to 17 Sept.)	Radial and angular parts of the hydrogenic wave functions (atomic orbitals) and their variations for 1s, 2s, 2p, 3s, 3p and 3d orbitals (Only graphical representation).
5 (22 Sept to 24 Sept.)	Radial and angular nodes and their significance. Radial distribution functions and the concept of the most probable distance with special reference to 1s and 2s atomic orbitals.
6 (29 Sept to 01 Oct.)	s. Significance of quantum numbers, orbital angular momentum and quantum numbers m_l and m_s . Shapes of s, p and d atomic orbitals, nodal planes.
7 (06 Oct to 08 Oct.)	Discovery of spin, spin quantum number (s) and magnetic spin quantum number (m_s). Rules for filling electrons in various orbitals, Electronic configurations of the atoms. Stability of half-filled and completely filled orbitals, concept of exchange energy.
8 (13 Oct to 15 Oct.)	Relative energies of atomic orbitals, Anomalous electronic configurations. Ionic Bonding: General characteristics of ionic bonding. Energy considerations in ionic bonding,
9 (20 Oct to 21 Oct.)	lattice energy and solvation energy and their importance in the context of stability and solubility of ionic compounds. Statement of Born-Landé equation for calculation of lattice energy, Born-Haber cycle and its applications, polarizing power and polarizability
22 Oct to 26 Oct.	Diwali Vacations
10 (27 Oct. to 29 Oct.)	. Fajan's rules, ionic character in covalent compounds, bond moment, dipole moment and percentage ionic character. Covalent bonding: VB Approach: Shapes of some inorganic molecules and ions on the basis of VSEPR and hybridization with suitable examples of linear,
11 (03 Nov. to 05 Nov.)	trigonal planar, square planar, tetrahedral, trigonal bipyramidal and octahedral arrangements. Concept of resonance and resonating structures in various inorganic and organic compounds

12 (10 Nov. to 12 Nov.)	. MO Approach: Rules for the LCAO method, bonding and antibonding MOs and their characteristics for s-s, s-p and p-p combinations of atomic orbitals.
13 (17 Nov. to 19 Nov.)	MO Approach: Rules for the LCAO method, bonding and antibonding MOs and their characteristics for s-s, s-p and p-p combinations of atomic orbitals
14 (24 Nov. to 26 Nov.)	Revision and Class Tests
15 (01 Dec. to 03 Dec.)	Doubt Classes.

Note: - This Lesson plan is tentative.

Head of Department

Signature of Teacher