

Teaching Plan
Academic Year 2015-16

Class : **B.Sc. First Year**

Semester : **Ist Sem**

Subject : **Inorganic Chemistry**

Paper : **I**

Periods/ Week Theory : **06/ Week**

Practical :

Weeks (Total) : **90**

Week	Topics to Be Covered
1	1. Atomic Structure : Introduction ,Bohr's Atomic Model ,Quantum Numbers , Types of Quantum Numbers,Principle ,Azimuthal ,Magnetic and Spin Q.No. Shapes of Atomic Orbitals, Heisenberg Uncertainty Principle,
2	Shapes of Atomic Orbitals, Heisenberg Uncertainty Principle, Hund's Rule, Pauli Exclusion Principle, Electronic Configuration of s-block Elements and Some P-block Elements
3	2. Periodic Properties : Introduction : Atomic and Ionic Radii, Ionisation Energy , Electronegativity , Electron Affinity
4	Variations in Periodic Table : Trends of periodic properties .
5	Diagonal relationship of s-Block and P-Block Elements
6	3. S-Block Elements : Introduction : Electronic Configuration ,Alkali Metals and Alkaline Earth Metals, Comparative Study of s-block elements
7	Electronegativity, Electron Affinity ,Ionisation Potential, Hydrides , Salient Features of Hydrides, Oxides, Peroxides, Diagonal Relationship, Hydrogen Bonding and its Types
8	4. P-Block Elements: Introduction : Electronic Configuration , Electronegativity ,Electron Affinity ,Ionisation Potential, Factors affecting these entities ,Oxidation States
9	Metallic and Non Metallic Characters, Hydrides ,Oxides formation, Boranes , Carbides , Fullerene
10	Types of interhalogen compounds and structure and bandings. Chemical Reactions of interhalogen Compounds

Teaching Plan Academic Year 2015-16

Class: B.Sc. I

Semester: I

Subject: Organic Chemistry

Paper No: II

Periods/week: Theory

Test (Date):

Weeks (Total): 15

Tutorial (Date):

Week	Topic to be Covered
1	Structure and Bonding: Localized and delocalized chemical bond; charge transfer complexes, resonance.
2	Hyper conjugation, inductive effect, hydrogen bonding, conjugative effect, steric effect.
3	Mechanism of Organic Reactions: Homolytic and heterolytic bond breaking, Types of reagents electrophiles and nucleophiles.
4	Types of organic reactions. Energy considerations.
5	Reactive intermediates - carbocation, carbanions, free radicals
6	Stereochemistry of Organic Compounds: Concept of Isomerism - Types of isomerism Optical Isomerism - elements of symmetry, molecular chirality, enantiomers
7	Stereogenic Centre, optical activity, properties of enantiomers, chiral and chiral molecules with two stereogenic centres, diastereomers, threo and erythro diastereomers,
8	Meso compounds. Relative and absolute configuration, sequence rules, D and L and R and S systems of nomenclature.
9	Geometric Isomerism - Determination of configuration of geometric isomers. E and Z system of nomenclature, geometric isomerism in oximes and alicyclic compounds
10	Alkanes: Methods of formation (Koble reaction, Corey - House reaction and decarboxylation of carboxylic acids) Physical properties and Chemical reactions of alkanes Chlorination, Nitration, Sulphonation, Catalytic oxidation.
11	Alkenes: Nomenclature of alkenes, methods of formation, mechanisms of dehydration of alcohols and dehydrohalogenation of alkyl halides. The Saytzeff rule, Hofmann elimination, physical properties and relative stabilities of alkenes.
12	Chemical reactions of alkenes - mechanisms involved in hydrogenation, electrophilic and free radical additions, Markownikoff's rule, hydroboration and oxidation with KMnO_4 . Polymerization of alkenes with one example each.
13	Nomenclature of benzene derivatives. The aryl group. Aromatic nucleus and side chain structure of benzene: molecular formula and Kekule structure. Resonance Structure, MO Picture.
14	Arenes and Aromaticity: The Huckel rule, aromatic ions Aromatic electrophilic substitution: General Pattern of the mechanism of Nitration, halogenations and Sulphonation and Friedel Crafts reaction.
15	Alkyl and Aryl halides: Polyhalogen Compounds: Chloroform, Carbon tetrachloride. Methods - formation of aryl halides, nuclear and side chain reaction.

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HOD'S