***Govt. College for Women, Sampla (Rohtak)***

***Lesson plan of Even Semester (session 2023-2024)***

**Name of the Faculty : Ms. Seema**

**Course/Class : B.SC- I**

**Semester : Semester-II**

**Subject : Inorganic Chemistry**

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| **Week/Month** | **Name of Topics** |
| **1st week of Jan** | Section-A  Hydrogen Bonding & Vander Waals Forces Hydrogen Bonding – Definition, Types, effects of hydrogen bonding on properties of substances, |
| **2nd week of Jan** | application Brief discussion of various types of Vander Waals Forces |
| **3rd week of Jan** | . Metallic Bond and Semiconductors Metallic Bond- Brie f introduction to meta llic bond, band theory of metallic bond, |
| **4th week of Jan** | SECTION-B  s-Block Eleme nts Comparative study of the elements including , diagonal relationships, salient features of hydrides |
| **1st week of Feb** | solvation and complexation tendencies including their function in biosystems. |
| **2nd week of Feb** | Chemis try of Noble Gases Chemical properties of the noble gases with emphasis on their low chemical reactivity, |
| **3rd week of Feb** | chemistry of xenon, structure and bonding of fluorides, ox ides & oxyfluorides of xenon |
| **4th week of Feb** | **SESSINAL 1** |
| **5th week of Feb** | SECTION-C  p-Block Elements Emphasis on comparative study of properties of p-block elements (including diagonal relationship and excluding methods of preparation). |
| **1st week of March** | Boron family (13th gp):- Diborane – properties and structure (as an example of electron – deficient compound and multicentre bonding), Borazene – chemical properties and structure Trihalides of Boron – Trends in fewis acid character structure of aluminium (III) chloride. |
| **2nd week of March** | Carbon Family (14th group) Catenation, p π– d π bonding (an idea), carbides, fluorocarbons, silicates structural aspects), silicons – general methods of preparations, properties and uses. |
| **3rd week of March** | SECTION-D  Nitrogen Family (15th group) Oxides – structures of oxides of N,P. oxyacids – structure and relative acid strengths of oxyacids of Nitrogen and phosphorus. Structure of white, yellow and red phosphorus |
| **4th week of March** | HOLI BREAK |
| **1st week of April** | Oxygen Family (16th group) Oxyacids of sulphur – structures and acidic strength H2O2 –structure, properties and uses |
| **2nd week of April** | Halogen Family (17th group) Basic properties of halogen, interhalogens types properties ,hydro and oxyacid’s of chlorine – structure and comparison of acid strength |
| **3rd week of April** | Sessinal II |
| **4th week of April** | REVISION |

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***Lesson plan of Even Semester (session 2023-2024)***

**Name of the Faculty : Ms Seema**

**Course/Class : B.SC- II**

**Semester : Semester-IV**

**Subject : Organic Chemistry**

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| **Week/Month** | **Name of Topics** |
| **1st week of Jan** | **SECTION-A**  Infrared (IR) absorption spectroscopy Molecular vibrations, Hooke's law, selection rules, intensity and position of IR bands, |
| **2nd week of Jan** | measurement of IR spectrum, fingerprint region, characteristic absorptions of various functional groups and interpretation of IR spectra of simple organic compounds |
| **3rd week of Jan** | Applications of IR spectroscopy in structure elucidation of simple organic compounds. |
| **4th week of Jan** | **SECTION-B**  Amines Structure and nomenclature of amines, physical properties. Separation of a mixture of primary, secondary and tertiary amines. Structural features affecting basicity of amines. |
| **1st week of Feb** | Preparation of alkyl and aryl amines (reduction of nitro compounds, nitriles, reductive amination of aldehydic and ketonic compounds. |
| **2nd week of Feb** | Gabriel phthalimide reaction, Hofmann bromamide reaction. |
| **3rd week of Feb** | electrophilic aromatic substitution in aryl amines, reactions of amines with nitrous acid |
| **4th week of Feb** | **SESSINAL 1** |
| **5th week of Feb** | **Section-C**  Diazonium Salts Mechanism of diazotization, structure of benzene diazonium chloride, Replacement of diazo group by H, OH, F, Cl, Br, I, NO2 and CN groups, reduction of diazonium salts to hyrazines, coupling reaction and its synthetic application |
| **1st week of March** | Nitro Compounds Preparation of nitro alkanes and nitro arenes and their chemical reactions. Mechanism of electrophilic substitution reactions in nitro arenes and their reductions in acidic, neutral and alkaline medium |
| **2nd week of March** | **Section-D**  Aldehydes and Ketones Nomenclature and structure of the carbonyl group. Synthesis of aldehydes and ketones with particular reference to the synthesis of aldehydes from acid chlorides, advantage of oxidation of alcohols with chromium trioxide (Sarett reagent) pyridinium chlorochromate (PCC) and pyridinium dichromate., Physical properties |
| **3rd week of March** | Comparison of reactivities of aldehydes and ketones. Mechanism of nucleophilic additions to carbonyl group with particular emphasis on benzoin, aldol, Perkin and Knoevenagel condensations. Condensation with ammonia and its derivatives |
| **4th week of March** | HOLI BREAK |
| **1st week of April** | . Wittig reaction. Mannich reaction.Oxidation of aldehydes, Baeyer–Villiger oxidation of ketones, Cannizzaro reaction. MPV, Clemmensen, Wolff-Kishner, LiAlH4 and NaBH4 reductions |
| **2nd week of April** | Sessinal II |
| **3rd week of April** | Revision of Section A and B |
| **4th week of April** | Revision of Section C and D |

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***Lesson plan of Even Semester (session 2023-2024)***

**Name of the Faculty : Ms Seema**

**Course/Class : B.SC- III**

**Semester : Semester-VI**

**Subject : Inorganic Chemistry**

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| **Week/Month** | **Name of Topics** |
| **1st week of Jan** | **Section-A**  Organometallic Chemistry Definition, nomenclature and classification of organometallic compounds. |
| **2nd week of Jan** | Preparation, properties, and bonding of alkyls of Li, Al, Hg, and Sn a |
| **3rd week of Jan** | brief account of metal-ethylenic complexes, mononuclear carbonyls and the nature of bonding in metal carbonyls |
| **4th week of Jan** | **Section-B**  Acids and Bases, HSAB Concept Arrhenius, Bronsted – Lowry, the Lux – Flood |
| **1st week of Feb** | Solvent system and Lewis concepts of acids & bases, relative strength of acids & bases |
| **2nd week of Feb** | Concept of Hard and Soft Acids & Bases. Symbiosis, electronegativity and hardness and softness |
| **3rd week of Feb** | **Sessinal-I** |
| **4th week of Feb** | **Section-C**  Bioinorganic Chemistry Essential and trace elements in biological processes, |
| **5th week of Feb** | metalloporphyrins with special reference to hemoglobin and myoglobin. |
| **1st week of March** | Biological role of alkali and alkaline earth metal ions with special reference to Ca2+. Nitrogen fixation. |
| **2nd week of March** | Biological role of alkali and alkaline earth metal ions with special reference to Ca2+. Nitrogen fixation. |
| **3rd week of March** | **Section-D**  Silicones and Phosphazenes Silicones |
| **4th week of March** | HOLI BREAK |
| **1st week of April** | phosphazenes, their preparation, properties, structure and uses |
| **2nd week of April** | Sessional II |
| **3rd week of April** | Revision of Section A and B |
| **4th week of April** | Revision of Section C and D |

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