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

***Lesson plan of EVEN Semester (session 2024-2025)***

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

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

**Semester : Semester-IV**

**Subject : Physical Chemistry**

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| **Week/Month** | **Name of Topics** |
| **3rd Week of Jan** | **Section-A**  Thermodynamics-III Second law of thermodynamics, need for the law, different statements of the law, |
| **4th Week of Jan** | Carnot’s cycles and its efficiency, Carnot’s theorm, Thermodynamics scale of temperature. |
| **5th Week of Jan** | Concept of entropy – entropy as a state function, entropy as a function of V & T, entropy as a function of P & T. |
| **1st Week of Feb** | entropy change in physical change, entropy as a criteria of spontaneity and equilibrium. Entropy changes in ideal gases and mixing of gases  . |
| **2nd Week of Feb** | **Section-B**  Thermodynamics-IV Third law of thermodynamics: Nernst heat theorem, statement of concept of residual entropy, evaluation of absolute entropy from heat capacity data |
| **3rd Week of Feb** | Sessional-I |
| **4th Week of Feb** | Gibbs and Helmholtz functions; Gibbs function (G) and Helmholtz function (A) as thermodynamic quantities, |
| **1st Week of March** | A & Gas criteria for thermodynamic equilibrium and spontaneity, their advantage over entropy change. Variation of G and A with P, V and T. |
| **2nd Week of March** | HOLI BREAK ( 09 March – 16 March) |
| **3rd Week of March** | **Section-C**  Electrochemistry-III Electrolytic and Galvanic cells – reversible & Irreversible cells, conventional representation of electrochemical cells. EMF of cell and its measurement, Weston standard cell, activity and activity coefficients. |
| **4th Week of March** | Calculation of thermodynamic quantities of cell reaction ( G, H & K). Types of reversible electrodes – metal- metal ion gas electrode, metal –insoluble salt- anion and redox electrodes. Electrode reactions, Nernst equations, derivation of cell EMF and single electrode potential. |
| **1st Week of April** | Standard Hydrogen electrode, reference electrodes, standard electrodes potential, sign conventions, electrochemical series and its applications |
| **2nd Week of April** | **Section-D**  Electrochemistry-IV Concentration cells with and without transference, liquid junction potential, |
| **3rd Week of April** | Sessional-II |
| **4th Week of April** | application of EMF measurement i.e. valency of ions, solubility product activity 20 coefficient, potentiometric titration (acid- base and redox). |
| **5th Week of April** | Determination of pH using Hydrogen electrode, Quinhydrone electrode and glass electrode by potentiometric methods |
| **1st Week of May** | Revision |
| **06 May onwards** | Exam Starts |

**Ms. Seema**

**Assistant Professor**

**Department of Chemistry**

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

***Lesson plan of Even Semester (session 2024-2025)***

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

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

**Semester : Semester-VI**

**Subject : Organic Chemistry**

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| **Week/Month** | **Name of Topics** |
| **3rd Week of Jan** | **Section-A**  Heterocyclic Compounds-I Introduction: Molecular orbital picture and aromatic characteristics of pyrrole, furan, thiophene and pyridine |
| **4th Week of Jan** | Methods of synthesis and chemical reactions with particular emphasis on the mechanism of electrophilic substitution. |
| **5th Week of Jan** | Mechanism of nucleophilic substitution reactions in pyridine derivatives. Comparison of basicity of pyridine, piperidine and pyrrole |
| **1st Week of Feb** | **Section-B** Heterocyclic Compounds-II Introduction to condensed five and six- membered heterocycles |
| **2nd Week of Feb** | Preparation and reactions of indole, quinoline and isoquinoline with special reference to Fisher indole synthesis, |
| **3rd Week of Feb** | **Sessional-I** |
| **4th Week of Feb** | Skraup synthesis and Bischler-Napieralski synthesis. Mechanism of electrophilic substitution reactions of, quinoline and isoquinoline |
| **1st Week of March** | Organosulphur Compounds Nomenclature, structural features, Methods of formation and chemical reactions of thiols, thioethers, sulphonic acids, sulphonamides and sulphaguanidine. Synthetic detergents alkyl and aryl sulphonates |
| **2nd Week of March** | HOLI BREAK ( 09 March – 16 March) |
| **3rd Week of March** | **Section-C**  Organic Synthesis via Enolates Acidity of -hydrogens, alkylation of diethyl malonate and ethyl acetoacetate. Synthesis of ethyl acetoacetate: the Claisen condensation. Keto-enol tautomerism of ethyl acetoacetate. |
| **4th Week of March** | Synthetic Polymers Addition or chain-growth polymerization. Free radical vinyl polymerization, ionic vinyl polymerization, Ziegler-Natta polymerization and vinyl polymers. Condensat ion or step growth polymerization. |
| **1st Week of April** | Polyesters ,polyamides, phenol formaldehyde resins, urea formaldehyde resins, epoxy re sins and polyurethanes. Natural and synthetic rubbers. |
| **2nd Week of April** | **Section-D**  Synthetic Polymers Addition or chain-growth polymerization. Free radical vinyl polymerization, ionic vinyl polymerization, Ziegler-Natta polymerization and vinyl polymers. |
| **3rd Week of April** | Sessional-II |
| **4th Week of April** | Condensation or step growth polymerization. Polyesters, polyamides, phenol formaldehyde resins, urea formaldehyde resins, epoxy re sins and polyurethanes. |
| **5th Week of April** | Natural and synthetic rubbers. |
| **1st Week of May** | Revision of Syllabus |
| **06 May onwards** | Exam Starts |

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***Lesson plan of Even Semester (session 2024-2025)***

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

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

**Semester : Semester-II**

**Subject : MD Chemistry**

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| **Week/Month** | **Name of Topics** |
| **1st Week of Feb** | **Section-A Classification of Elements and Periodic Properties**  Importance of classification of elements, overview and history of periodic system, modern periodic law and periodic table, |
| **2nd Week of Feb** | periodic properties of elements, atomic and ionic size, |
| **3rd Week of Feb** | ionization energy, electron affinity and electronegativity. |
| **4th Week of Feb** | **Section-B Hydrocarbons and their Utility in Daily Life** Introduction of hydrocarbons, classification of hydrocarbons, types of hydrocarbons (aliphatic and aromatic hydrocarbons). |
| **1st Week of March** | Nomenclature, structure, physical properties of alkanes, alkenes and alkynes and their uses in everyday life. |
| **2nd Week of March** | HOLI BREAK (09 March – 16 March) |
| **3rd Week of March** | Aromatic hydrocarbons- Nomenclature, structure of benzene, resonance and aromaticity |
| **4th Week of March** | Combustion and pyrolysis, hydrocarbon as fuels (natural gas, petrol, LPG, kerosene, diesel and CNG.) |
| **1st Week of April** | **SECTION-C Polymer** Introduction to polymers, classification of polymers, natural and synthetic polymers, biodegradable |
| **2nd Week of April** | non biodegradable polymers,methods of polymerization (addition and condensation polymers), |
| **3rd Week of April** | preparation and use of polythene, nylon, PVC, teflon and bakelite. |
| **4th Week of April** | **SECTION-D Environmental Chemistry**  Causes and effects of air, water and soil pollution, greenhouse effect and global warming, smog formation, acid rain, |
| **5th Week of April** | depletion of ozone layer, pollution due to industrial waste, |
| **1st Week of May** | strategies to control environmental pollution. |
| **2nd Week of May** | pollution due to industrial waste, strategies to control environmental pollution. |
| **3rd Week of May** | SESSINAL-II |
| **4th Week of May** | Revision |
| **5th Week of May** | Revision |

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