**PG DEPARTMENT OF CHEMISTRY**

*PG Chemistry Syllabus Distribution*

***YEAR:- 2020-2021***

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| **Semester** | **Paper** | **Dr. Khurshid**  **A. Khan** | **Prof. J. P. Mishra** | **Dr. H. K. Shaw** | **Dr. A.K. Giri** | **Mr. Ali Jaan Hussein** |
| **I** | **CC-1** | 1.Cromatography  2.Spectrophotome tric Analysis  3.Use of  Conductometric&  Potentiometric  Analysis |  | 1.Principle of  Organic  Analysis | 1.Principle of  Inorganic  analysis | 1.Data Analysis |
| **CC-2** | 1.Metal π  Complexes | 1.Streochemistry  and Bonding in  Main Group  compounds  2.Metal-Ligand  Equlibria  inSolution |  |  | 1.Reacion  Mechanism of  Transition  Metal  Complexes  2.Metal-Ligand  Bonding  3.Electronic  Spectra and  Magnetic  Properties of  Transition  Metal  Complexes |
| **CC-3** | 1.Aliphatic Nucleopilic Substitution  2.Aromatic Nucleophilic Substitution  3.Aliphatic and aromatic Electrophilic substitution |  | 1.Nature of Bonding in Oraganic Molecules and reaction mechanism  2.Rection Mechanism: Structure and Reactivity |  |  |
| **CC-4** | 1.Quantum Chemistry  A. Introduction to Exact Quantum Mechanical Results  B. Angular Momentum  C. Electronic Structure of Atoms  D. Molecular Orbital Theory  1. Thermodynamics  B. Statistics Thermodynamics | 1. Thermodynamics  A. Classical Thermidynamics |  | 1.Thermodynamics  2.Chemical Dynamics | 1. Chemical Dynamics |

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| **Semester** | **Paper** | **Dr. Khurshid**  **A. Khan** | **Prof. J. P. Mishra** | **Dr. H. K. Shaw** | **Dr. A.K. Giri** | **Mr. Ali Jaan Hussain** |
| **II** | **CC-6** | 1.Vibrational Spectroscopy  A. Infrared Spectroscopy  B. Raman Spectroscopy  2.Nuclear Magnetic Resonance Spectroscopy |  |  |  | 1.Electronic Spectroscopy  A. Atomic Spectroscopy  B. Molecular Spectroscopy  2. Electron Spin Resonance Spectroscopy  3. X-ray diffractions |
| **CC-7** | 1.Symmetry and Group Theory in Chemistry  2. Bioenergrtics and ATP Cycle  3. Transport and Storage of Dioxygen  4. Electron Transfer in Biology |  |  | 1.Metal ions in Biological Sysytems  2. Biochemisty of non-metals |  |
| **CC-8** | 1.Sterochemistry  2. Pericyclic Reactivity |  | 1.Addition to Carbon-Carbon Multiple Bonds and Carbon Hetero Multiple Bonds  2. Addition to Carbon Hetero Multiple Bonds  3. Elimination Reaction |  |  |
| **CC-9** | 1.Surface Chemistry  Adsorption | 1.Electrochemistry  2. Magneto Chemistry and Magnetic Properties of substances. | 1.Macromolecules |  |  |

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| **III** | **CC-11** | 1.Ultraviolet and Visible Spectroscopy  2.Infrared Spectroscopy  3.Nuclear Magnetic Resonance Spectroscopy  4. Mass Spectrometry |  |  |  | 1.Vibrational Spectroscopy  2.Electron Spin Resonance spectroscopy  3.Nuclear Magetic Resonance of Paramagnetic substances in solution  4.Mossbauer Spectroscopy |
| **CC-12** | 1.Corrosion | 1.Fuel | 1.Portland Cement & Plaster of Paris  2.Water Treatment  3.Advance Polymers  4.Industrial Waste Management |  |  |
| **DSE-1**  **Specl.**  **Paper** |  |  |  | 1.Alkyls and Aryls of Transition Elements  2.Compounds of Transition Metal-Carbon Multiple Bonds  3.Transition metal π Complexes | 1.Homogeneous Catalysis  2.Fluxional Oraganometallic compounds  3.Electronic structure of inorganic clusters |
| **DSE-1**  **Specl.**  **Paper** | 1.Alkaloids  2.Structureal Effects on reactivity  3.Photo Chemistry |  | 1.Terpenoids and Carotenoids  2.Steroids  3.Principles of Reactivity  4.Reagent and its uses |  |  |

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| **IV** | **CC-13** | 1.Drug  2.Enzymes and Mechanism of Enzyme Action  3.Kinds of Reactions Catalysed by Enzymes  4.Co-Enzyme Chemistry  5.Biiotechnological Applications of Enzymes |  |  |  |  |
| **CC-14** |  |  | 1.Siol | 1.Environment  2.Hydrosphere  3.Atmosphere | 1.Green chemistry: Definition and Objective  2.Green Chemistry: real Applications |
| **DSE-3**  **Specl.**  **Paper** |  | 1.Calcium in biology  2.Metallelloenzymes  3.Metal-Nucleic acid Interactions  4.Metals in Medicine |  | 1.Metal storage transport and Biomineralization | 1.Supramolecular chemistry |
| **DSE-3**  **Specl.**  **Paper** | 1.Steric and conformational properties  2.Nueleophilic and electrothilic reactivity  3.Supramolecular Chemistry |  | 1.Six-membered Heterocycles with one heteroatom  2.Structure determination and synthesis of Vit. A,B,B1,B2,B6 Vit. C and Vit. D  3.Rearrangement reactions |  |  |

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| **CC-8** | 1.Sterochemistry  2. Pericyclic Reactivity |  | 1.Addition to Carbon-Carbon Multiple Bonds and Carbon Hetero Multiple Bonds  2. Addition to Carbon Hetero Multiple Bonds  3. Elimination Reaction |  |  |
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| **III** | **CC-11** | 1.Ultraviolet and Visible Spectroscopy  2.Infrared Spectroscopy  3.Nuclear Magnetic Resonance Spectroscopy  4. Mass Spectrometry |  |  |  | 1.Vibrational Spectroscopy  2.Electron Spin Resonance spectroscopy  3.Nuclear Magetic Resonance of Paramagnetic substances in solution  4.Mossbauer Spectroscopy |
| **CC-12** | 1.Corrosion | 1.Fuel | 1.Portland Cement & Plaster of Paris  2.Water Treatment  3.Advance Polymers  4.Industrial Waste Management |  |  |
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| **DSE-3**  **Specl.**  **Paper** |  | 1.Calcium in biology  2.Metallelloenzymes  3.Metal-Nucleic acid Interactions  4.Metals in Medicine |  | 1.Metal storage transport and Biomineralization | 1.Supramolecular chemistry |
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| **I** | **CC-1** | 1.Cromatography  2.Spectrophotome tric Analysis  3.Use of  Conductometric&  Potentiometric  Analysis |  | 1.Principle of  Organic  Analysis | 1.Principle of  Inorganic  analysis | 1.Data Analysis |
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| **CC-14** |  |  | 1.Siol | 1.Environment  2.Hydrosphere  3.Atmosphere | 1.Green chemistry: Definition and Objective  2.Green Chemistry: real Applications |
| **DSE-3**  **Specl.**  **Paper** |  | 1.Calcium in biology  2.Metallelloenzymes  3.Metal-Nucleic acid Interactions  4.Metals in Medicine |  | 1.Metal storage transport and Biomineralization | 1.Supramolecular chemistry |
| **DSE-3**  **Specl.**  **Paper** | 1.Steric and conformational properties  2.Nueleophilic and electrothilic reactivity  3.Supramolecular Chemistry |  | 1.Six-membered Heterocycles with one heteroatom  2.Structure determination and synthesis of Vit. A,B,B1,B2,B6 Vit. C and Vit. D  3.Rearrangement reactions |  |  |

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***YEAR:- 2023-2024***

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| **Semester** | **Paper** | **Dr. Khurshid**  **A. Khan** | **Prof. J. P. Mishra** | **Dr. H. K. Shaw** | **Miss. Ariba Fatima** | **Ms. Mousumi Sarangi** |
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| **Semester** | **Paper** | **Dr. Khurshid**  **A. Khan** | **Prof. J. P. Mishra** | **Dr. H. K. Shaw** | **Miss. Ariba Fatima** | **Ms. Mousumi Sarangi** |
| **IV** | **CC-13** | 1.Drug  2.Enzymes and Mechanism of Enzyme Action  3.Kinds of Reactions Catalysed by Enzymes  4.Co-Enzyme Chemistry  5.Biiotechnological Applications of Enzymes |  |  |  |  |
| **CC-14** |  |  | 1.Siol | 1.Environment  2.Hydrosphere  3.Atmosphere | 1.Green chemistry: Definition and Objective  2.Green Chemistry: real Applications |
| **DSE-3**  **Specl.**  **Paper** |  | 1.Calcium in biology  2.Metallelloenzymes  3.Metal-Nucleic acid Interactions  4.Metals in Medicine |  | 1.Metal storage transport and Biomineralization | 1.Supramolecular chemistry |
| **DSE-3**  **Specl.**  **Paper** | 1.Steric and conformational properties  2.Nueleophilic and electrothilic reactivity  3.Supramolecular Chemistry |  | 1.Six-membered Heterocycles with one heteroatom  2.Structure determination and synthesis of Vit. A,B,B1,B2,B6 Vit. C and Vit. D  3.Rearrangement reactions |  |  |

HOD

PG Dept. of Chemistry