

ANNUAL ACADEMIC PLAN 2023-24

CHEMISTRY

I YEAR

Month & No. of working days/No. of periods	Chapter and Topics to be covered /Assignments /Unit Tests /Examinations / EAMCET classes to be conducted	No. of periods allotted for each topic	
<p align="center">June 24</p>	<p>Syllabus dictation and discussion of IPE question paper – weightage of marks to each chapter</p>	<p align="center">01</p>	
	<p>1. ATOMIC STRUCTURE</p>		
	<p>1.1 Sub- atomic particles</p>		
	<p>1.2 Atomic models- Rutherford’s nuclear model of atom</p>		
	<p>1.3 Developments to the Bohr’s model of atom</p>		
	<p>1.4 Bohr’s model for hydrogen atom.</p>		
	<p>1.5 Towards quantum mechanical model of the atom.</p>		<p align="center">15</p>
	<p>1.6 Quantum mechanical model of an atom. Important features of quantum mechanical model of atom-orbitals and quantum numbers-shapes of atomic orbitals-energies of orbitals-filling of orbitals in atoms. Aufbau principle, Pauli’s exclusion principle and Hund’s rule of maximum multiplicity- Electronic configurations of atoms-Stability of half filled and completely filled orbitals.</p>		
	<p>2. CLASSIFICATION OF ELEMENTS AND PERIODICITY IN PROPERTIES</p>		
	<p>2.1 Need to classify elements</p>		<p align="center">06</p>
<p>2.2 Genesis of periodic classification</p>			
<p>2.3 Modern periodic law and present form of the periodic table</p>			
<p align="center">ASSIGNMENT-I</p>	<p align="center">01</p>		
<p align="center">EAMCET</p>	<p align="center">01</p>		

<p>July 23</p>	<p>2.4 Nomenclature of elements with atomic number greater than 100</p> <p>2.5 Electronic configuration of elements and the periodic table</p> <p>2.6 Electronic configuration and types of elements s,p,d and f</p> <p>2.7 Trends in physical properties-periodic trends in chemical properties-Periodic trends and chemical reactivity</p> <p>3. CHEMICAL BONDING AND MOLECULAR STRUCTURE</p> <p>3.1 Kossel – Lewis approach to chemical bonding</p> <p>3.2 Ionic or electrovalent bond</p> <p>3.3 Bond Parameters</p> <p>3.4 The Valence Shell Electron Pair Repulsion (VSEPR) theory.</p> <p>3.5 Valence bond theory</p> <p style="text-align: center;">ASSIGNMENT-II</p> <p style="text-align: center;">UNIT TEST-I</p> <p style="text-align: center;">EAMCET</p>	<p>04</p> <p>06</p> <p>10</p> <p>01</p> <p>01</p> <p>01</p>
<p>August 25</p>	<p>3.6 Hybridisation</p> <p>3.7 Coordinate bond</p> <p>3.8 Molecular orbital theory –bonding in some homonuclear diatomic molecules</p> <p>3.9 Hydrogen bonding</p> <p>PRACTICALS: I. Acquittance with Laboratory</p> <p><u>Equipment:</u></p> <p>1. Bunsen burner, Spirit Lamp Basic Laboratory equipment (Burette, pipette, conical flask, volumetric flask, measuring, cylinder, wash bottle etc.,)</p> <p>4. STATES OF MATTER: GASES AND LIQUIDS</p> <p>4.1 Intermolecular forces</p> <p>4.2 Thermal energy</p> <p>4.3 Intermolecular forces Vs Thermal interactions.</p> <p>4.4 The gaseous state</p> <p>4.5 The gas laws</p> <p>4.6 Ideal gas equation</p> <p>4.7 Graham's law of diffusion – Dalton's law of partial pressures</p> <p>4.8 Kinetic molecular theory of gases</p>	<p>08</p> <p>14</p>

	<p>4.9 Kinetic gas equation of an ideal gas (no derivation)- Deduction of gas laws from kinetic gas equation</p> <p>4.10 Distribution of molecular speeds – rms, average and most probable speeds-kinetic energy of gas molecules</p> <p>4.11 Behaviour of real gases – deviation from ideal gas behaviour – compressibility factor Vs pressure diagrams of real gases</p> <p>4.12 Liquefaction of gases</p> <p>4.13 Liquid state – properties of liquids in terms of inter molecular interactions – vapour pressure, viscosity and surface tension (Qualitative idea only, no mathematical derivation)</p> <p style="text-align: center;">ASSIGNMENT-III UNIT TEST-II EAMCET</p>	<p>01 01 01</p>
<p>September 22</p>	<p>5. STOICHIOMETRY</p> <p>5.1 Some basic concepts</p> <p>5.2 Laws of chemical combinations, Gay Lussac's law of Gaseous volumes, Dalton's atomic theory, Avogadro law</p> <p>5.3 Atomic and molecular masses- mole concept and molar mass concept of equivalent weight</p> <p>5.4 Percentage composition of compounds and calculations of empirical and molecular formulae of compounds</p> <p>5.5 Stoichiometry and stoichiometric calculations</p> <p>5.6 Methods of expressing concentrations of solutions</p> <p>PRACTICALS : II. Basic Laboratory Techniques</p> <p>5.7 Redox reactions</p> <p>5.8 Oxidation number concept</p> <p>5.9 Types of redox reactions</p> <p>5.10 Balancing of redox reactions – oxidation number method-half reaction (ion-electron) method</p> <p>5.11 Redox reactions in titrimetry</p>	<p>05</p> <p>05</p>

	<p>Group 2 Elements:</p> <p>9.6 Alkaline earth elements; Electronic configuration; ionization enthalpy; hydration enthalpy; physical properties; chemical properties; uses</p> <p>9.7 General characteristics of compounds of the Alkaline earth metals. oxides, hydroxides, halides, salts of oxyacids (carbonates, sulphates and nitrates)</p> <p>9.8 Anomalous behaviour of beryllium; its diagonal relationship with aluminum</p> <p>9.9 Some important compounds of calcium</p> <p>9.10 Biological importance of calcium and magnesium</p> <p>10. p-BLOCK ELEMENTS GROUP 13 (BORON FAMILY)</p> <p>10.1 General introduction – Electronic configuration, atomic radii, ionization enthalpy, electro negativity; physical & chemical properties</p> <p>10.2 Important trends and anomalous properties of boron</p> <p>10.3 Some important compounds of boron – borax, ortho boric acid, diborane</p> <p>10.4 Uses of boron, aluminium and their compounds</p> <p style="text-align: center;">HALF YEARLY EXAMINATIONS FROM 20-11-2023 TO 25-11-2023 EAMCET</p>	<p>03</p> <p>05</p> <p>06</p> <p>01</p>
December 23	<p>11. p-BLOCK ELEMENTS - GROUP 14 (CARBON FAMILY)</p> <p>11.1 General introduction - Electronic configuration, atomic radii, ionization enthalpy, electro negativity; physical & chemical properties</p> <p>11.2 Important trends and anomalous properties of carbon</p> <p>11.3 Allotropes of carbon</p> <p>11.4 Uses of carbon</p> <p>11.5 Some important compounds of carbon and silicon – carbonmonoxide, carbon dioxide, silica, silicones, silicates and zeolites</p>	<p>05</p>

<p>12. ENVIRONMENTAL CHEMISTRY</p> <p>12.1 Definition of terms: Air, Water and Soil Pollutions</p> <p>12.2 Environmental pollution</p> <p>12.3 Atmospheric pollution</p> <p>12.4 Acid rain: Particulate pollutants</p> <p>12.5 Stratospheric pollution</p> <p>Practicals: VII. Qualitative Analysis</p> <p>1. Reactions of the following anions with atleast one confirmatory test for each anion. Carbonate(CO_3^{2-}) Sulphide(S^{2-}), Sulphite(SO_3^{2-}), Sulphate(SO_4^{2-}), Nitrite(NO_2^-), Nitrate(NO_3^-) Chloride(Cl^-) Bromide(Br^-), Iodide(I^-), Phosphate (PO_4^{3-}), Acetate (CH_3COO^-)</p> <p>12.6 Water pollution</p> <p>12.7 Soil Pollution: Pesticides, industrial wastes.</p> <p>12.8 Strategies to control environmental pollution</p> <p>12.9 Green chemistry</p>	<p>04</p> <p>02</p>
<p>13. ORGANIC CHEMISTRY-SOME BASIC PRINCIPLES AND TECHNIQUES AND HYDROCARBONS</p> <p>13.1 General introduction</p> <p>13.2 Tetravalency of Carbon: shapes of organic compounds</p> <p>13.3 Structural representations of organic compounds</p> <p>13.4 Classification of organic compounds</p> <p>13.5 Nomenclature of organic compounds</p> <p>13.6 Isomerism</p> <p>13.7 Fundamental concepts in organic reaction mechanisms</p> <p>13.8 Methods of purification of organic compounds</p> <p>13.9 Qualitative elemental analysis of organic compounds</p> <p>13.10 Quantitative elemental analysis of organic compounds</p> <p>HYDROCARBONS</p> <p>13.11 Classification of hydrocarbons</p>	<p>09</p> <p>01</p>
<p style="text-align: center;">ASSIGNMENT-VI EAMCET UNIT TEST-IV</p>	<p>01 01 01</p>

<p>January 2024 23</p>	<p>13.12 Alkanes – Nomenclature, isomerism (structural and conformations of ethane only) preparation of alkanes -properties of alkanes</p> <p>13.13 Alkenes- Nomenclature, structure of ethane, isomerism (structural and geometrical)-methods of preparation of alkenes-properties of alkenes</p> <p>13.14 Alkynes – Nomenclature and isomerism, structure of acetylene methods of preparation of acetylene-physical properties and chemical reactions of alkynes</p> <p>13.15 Aromatic Hydrocarbons: Nomenclature and isomerism structure of benzene, resonance and aromaticity-preparation of benzene physical and chemical properties of benzene-directive influence of functional groups in mono substituted benzene. Carcinogenicity and toxicity</p> <p>Practicals: VII. 2. Reactions of the following cations with atleast one confirmatory test for each cation Lead(Pb²⁺), Copper (Cu²⁺), Aluminium(Al³⁺), Ferric(Fe³⁺),Manganese (Mn²⁺), Nickle (Ni²⁺), Zinc(Zn²⁺),Cobalt(Co²⁺),Calcium(Ca²⁺),Strontium(Sr²⁺), Barium(Ba²⁺), Magnesium(Mg²⁺) and Ammonium (NH₄⁺)</p> <p>SANKRANTHI HOLIDAYS FROM 13-01-2024 TO 16-01-2024 PRE-FINAL EXAMINATIONS FROM 22-01-2024 TO 29-01-2024</p>	<p>14</p>
<p>February 23</p>	<p>REVISION</p>	
<p>March 22</p>	<p>I.P.E. THEORY EXAMINATIONS First Week of March 2024 LAST WORKING DAY: 31.03.2024</p>	
	<p>SUMMER VACATION FROM 01-04-2024 TO 31-05-2024 ADVANCED SUPPLIMENTARY EXAMINATIONS (IPASE) Last week of May 2024 Re-Opening of Colleges : 01-06-2024</p>	

Prepared by: **Smt. G. SRILATHA JL.** In Chemistry
GOVT. Jr. College, KANDUKUR.