

ANNUAL ACADEMIC PLAN 2023-24

CHEMISTRY: Subject Code: 242 SECOND YEAR

Month/ No. of working days/ No. of periods	Topics to be covered	Periods Allotted for each topic
JUNE 2023 24	Syllabus dictation and discussion of I.P.E. Question paper along with scheme of valuation – Weightage of marks for each chapter	(08)
	Chapter1 – <u>SOLID STATE</u>	01
	1.1 General characteristics of solids.	01
	1.2 Amorphous and crystalline solids.	01
	1.3 Classification of crystalline solids	02
	1.4 Probing the structure of solids: X-ray crystallography	01
	1.5 Crystal lattices and unit cells	01
	1.6 Number of atoms in a Unit cell	01
	1.7 Close packed structures	01
	1.8 Packing efficiency	01
	1.9 Calculations involving unit cell dimensions	01
	1.10 Imperfections in solids	01
	1.11 Electrical properties	
	1.12 Magnetic properties	
	Chapter2 – <u>SOLUTIONS</u>	(08)
	2.1 Types of solutions	02
	2.2 Expressing concentration of solutions	01
	2.3 Solubility	02
	2.4 Vapour pressure of liquid solutions	01
	2.5 Ideal and non-ideal solutions	01
	2.6 Colligative properties and determination of molar mass	02
	2.7 Abnormal molar masses - van't Hoff factor	
	ASSIGNMENT-I	
	PRACTICALS:A.	
	Surface Chemistry	
	(a) Preparation of lyophilic and lyophobic sol	
	(b) Study of the role of emulsifying agents in stabilizing the emulsions of	

	different oils	
JUNE 2023 24	Chapter3 – ELECTRO CHEMISTRY AND CHEMICAL KINETICS ELECTRO CHEMISTRY	(12)
	3.1 Electrochemical cells	
	3.2 Galvanic cells	
	3.3 Nernst equation	01
	3.4 Conductance of electrolytic solutions applications of Kohlrausch's law	01
	3.5 Electrolytic cells and electrolysis: Faraday's laws of electrolysis	01
	3.6 Batteries: primary and secondary batteries	01
	3.7 Fuel cells	01
	3.8 Corrosion of metals – Hydrogen economy	01
	CHEMICAL KINETICS	
	3.9 Rate of a chemical reaction	
	3.10 Factors influencing rate of a reaction	01
	3.11 Integrated rate equations	
	3.12 Pseudo first order reaction	02
	3.13 Temperature dependence of the rate of a reaction	01
	3.14 Collision theory of chemical reaction rates	01
	Chapter4 – SURFACE CHEMISTRY	(05)
	4.1 Adsorption and absorption	01
	4.2 Catalysis	01
ASSIGNMENT- 4 (Weekly One)		
EAPCET – 4 (Classes)		
PRACTICALS: B.Chemical Kinetics and C.Thermo chemistry		05

JULY 2023 24	4.3 Colloids 4.4 Classification of colloids 4.5 Emulsions 4.6 Colloids Around us – application of colloids Chapter5 – GENERAL PRINCIPLES OF METALLURGY 5.1 Occurrence of metals 5.2 Concentration of ores 5.3 Extraction of crude metal from concentrated ore 5.4 Thermo dynamic principles of metallurgy 5.5 Electro chemical principles of metallurgy 5.6 Oxidation and reduction 5.7 Refining of crude metal 5.8 Uses of aluminium, copper, zinc and iron	01 01 01 (08) 01 02 01 01 01 01
JULY 2023 24	Chapter 6 - p-BLOCK ELEMENTS GROUP-15 ELEMENTS 6.1 Introduction - Occurrence 6.2 DinitrogenCompounds of nitrogen- preparation and properties of 6.3 Ammonia 6.4 Oxides of nitrogen Preparation and properties 6.5 Nitric acid 6.6 Phosphorous – allotropic forms 6.7 Phosphine – preparation and properties 6.8 Phosphorous halides 6.9 Oxoacids of phosphorous ASSIGNMENTS – 4 (Weekly One) UNIT TEST-I From 26-07-2023 to 28-07-2023 EAPCET Classes - 4 PRACTICALS: D. Electro chemistry E. Chromatography F. Preparation of Inorganic Compounds GROUP-16 - ELEMENTS 6.10 Introduction - Occurance 6.11 Dioxygen - preparation, properties and uses 6.12 Simple oxides	(12) 03 04 01 04

AUG 2023 25	6.13 Ozone - preparation, properties, structure, uses 6.14 Sulphur – allotropic forms 6.15 Sulphur dioxide - preparation, properties, uses 6.16 Oxo acids of sulphur 6.17 Sulphuric acid-industrial process of manufacture, properties and uses GROUP – 17 ELEMENTS 6.18 Occurrence - Introduction 6.19 Chlorine - preparation, properties and uses 6.20 Hydrogen chloride: preparation, properties, uses 6.21 Oxoacids of halogens 6.22 Interhalogen compounds UNIT TEST-II From 24-08-2023 to 26-08-2023	04 03
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SEP 2023 22	GROUP-18 ELEMENTS 6.23 Introduction - Occurrence, electronic configuration, ionization enthalpy, atomic radii, electron gain enthalpy, physical and chemical properties Chapter 7 – d AND f BLOCK ELEMENTS & COORDINATION COMPOUNDS 7.1 Position in the periodic table 7.2 Electronic configuration of the d-block elements 7.3 General properties of the transition elements 7.4 Some important compounds of transition elements ASSIGNMENTS – 4 (Weekly One) EAPCET Classes - 4 PRACTICALS: G. Preparation of Organic Compounds H. Tests for the functional groups present in inorganic compounds QUARTERLY EXAMS 16-09-2023 TO 23-09-2023	02 (09) 03 01 02
OCT 2023 18	7.5 Inner transition elements (f-block) 7.6 Actinoids 7.7 Some applications of d and f block elements Coordination Compounds 7.8 Werner's theory of coordination compounds 7.9 Definitions of some terms used in coordination compounds 7.10 Nomenclature of coordination compounds 7.11 Isomerism in coordination compounds 7.12 Bonding in coordination compounds 7.13 Bonding in metal carbonyls 7.14 Stability of coordination compounds 7.15 Importance and applications of	02 04

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	coordination compounds	(06)
	Chapter 8 - POLYMERS 8.1 Classification of Polymers 8.2 Types of polymerization reactions PRACTICALS: I. Characteristic tests of carbohydrates, fats and proteins	01 02
	UNIT TEST-III From 16-10-2023 to 18-10-2023	
	DUSSEHRA HOLIDAYS : FROM 19-10-2023 TO 25-10-2023	
NOV 2023 25	8.3 Molecular mass of polymers 8.4 Bio degradable polymers - PHBV, Nylon2 - nylon6 8.5 Polymers of commercial importance- Chapter9 - BIOMOLECULES 9.1 Carbohydrates: Classification of carbohydrates Amino acids and 9.2 Proteins 9.3 Enzymes:Enzymes, mechanism of enzyme action 9.4 Vitamins 9.5. Nucleic acids 9.6. Hormones Chapter10 – CHEMISTRY IN EVERYDAY LIFE 10.1 Drugs and their classification: 10.2 Drug – Target interaction 10.3 Therapeutic action of different classes of drugs 10.4 Chemicals in food 10.5 Cleansing agents-soaps and synthetic detergents ASSIGNMENTS – 4 EAPCET – 4 (Classes) PRACTICALS: J. Determination of concentration/ molarity of KMnO ₄ solution by titrating it against a standard solution of: (i) Oxalic acid, (ii) Ferrous ammonium sulphate	01 02 (05) 01 01 01 01 01 01 (05) 01 01 02 01 04 04
	UNIT TEST-IV From 23-11-2023 to 25-11-2023	

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DEC 2023 24	Chapter11 – HALOALKANES AND HALOARENES 11.1 Classification and nomenclature 11.2 Nature of C-X bond 11.3. Methods of preparation : alkyl and arylhalides 11.4 Physical properties of alkyl and arylhalides 11.5 Chemical reactions of alkyl and arylhalides 11.6 Poly-halogen compounds	(06) 01 02 01 01 01 (16)
	Chapter12 – ORGANIC COMPOUNDS CONTAININGC, HANDO (Alcohols, Phenols, Ethers, Aldehydes, Ketones and Carboxylic acids) <u>Alcohols, Phenols and Ethers</u> 12.1 classification- Alcohols, phenols and ethers 12.2 Nomenclature of alcohols, phenols and ethers	01
	12.3 Structures of hydroxyl, ether functional groups 12.4 Alcohols, phenols 12.5 Physical properties of alcohols and phenols 12.6 Chemical reactions of alcohols and phenol 12.7 some Commercially important alcohols 12.8 Ethers – Methods of preparation, physical properties and Chemical reactions <u>AldehydesandKetones</u> 12.9 Nomenclature and structure of carbonyl group 12.10 Preparation of aldehydes and ketones 12.11 Physical properties of aldehydes and ketones 12.12 Chemical reactions of aldehydes and ketones 12.13 Uses of aldehydes and ketones	02 02 01 02 02 01 04 01 04
	ASSIGNMENT- 4 (Weekly One) HALF-YEARLY EXAMINATIONS FROM 18-12-2023 TO 23-12-2023 EAPCET Classes 4 PRACTICALS: K. Qualitative analysis Determination of one cation and one anion in a given salt containing anions and cations studied in I year (Salts: 1 to 6)	

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JAN 2024 20	<u>Carboxylic Acids</u> 12.14 Nomenclature and structure of carboxyl group 12.15 Methods of preparation of carboxylic acids 12.16 Physical properties of carboxylic acids 12.17 Chemical reactions of carboxylic acids 12.18 Uses of carboxylic acids	02
	Chapter 13 – ORGANIC COMPOUNDS CONTAINING NITROGEN I. Amines 13.1 Structure of amines 13.2 Classification 13.3 Nomenclature 13.4 Preparation of amines 13.5 Physical properties of amines 13.6 Chemical reactions of amines	(08)
	II. Diazonium salts 13.7 Methods of preparation of diazonium salts 13.8 Physical properties 13.9 Chemical reactions 13.10 Importance of diazonium salts in synthesis of aromatic compounds	03
		01
	III. Cyanide sand Isocyanides 13.11 Structure and nomenclature of cyanides and isocyanides 13.12 Preparation, physical properties and chemical reactions of cyanides and isocyanides	01
	EAPCET Classes – 2 Assignment - 2 PRACTICALS: K. Qualitative analysis Determination of one cation and one anion in a given salt containing anions and cations studied in I year (Salts : 7 to 12) PROJECT Model Practical Examination	01 02
	SANKRANTHII HOLIDAYS: FROM 11.01.2024 TO 17.01.2024	
	PRE-FINAL EXAMINATIONS-I : FROM 19-01-2024 TO 25-01-2024	

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FEB. 2024 24	I.P.E. PRACTICALS 2024 2nd WEEK OF FEB 2024 (TENTATIVE)	22
MARCH 2024 21	I.P.E. THEORY EXAMINATIONS 1st WEEK OF MARCH 2024 LAST WORKING DAY: 28.03.2024	23
APR & MAY 2024	SUMMER VACATION 29-03-2024 TO 31-05-2024	