DEPARTMENT OF CHEMISTRY

Honours	Month	No of lectures		Topic	
		Theory	Practical	Theory	Practical
Part 1 (Sem 1) **Core T1, Core P1**	July	10	8	Valence Bond Theory, Electronic displacements	Separation based upon solubility
	August	17	16	MO theory, Physical properties of molecules, Reaction Mechanism	Purification of the separated components
	September	11	10	Reactive intermediates, Stereochemistry-Bonding geometries of carbon compounds	Determination of melting pointof the separated components
	October	6	10	Concept of chirality and symmetry	Determination of boiling point of common organic liquid compounds
	November	8	8	Relative and absolute configuration	Identification of a Pure Organic Compound-Solid
	December	8	8	Optical activity of chiral compounds	Identification of a Pure Organic Compound-Liquid
Part 1 (Sem 1) **Core T2, Core P2**	July	11	8	Kinetic Theory of gases, Maxwell distribution of speed and energy	Determination of pH of unknown solution (buffer), by color matching method
	August	16	18	Real gas and virial equation, Zeroth and 1st law of Thermodynamics	Determination of heat of neutralization of a strong acid by a strong base
	September	10	8	Thermochemistry,Second Law of Thermodynamics	Study of kinetics of acid-catalyzed hydrolysis of methyl acetate
	October	7	8	Thermodynamic relations, Rate law, order and molecularity	Study of kinetics of decomposition of H2O2
	November	9	10	Role of temperature and theories of reaction rate	Determination of heat of solution of oxalic acid from solubility measurement
	December	7	8	Homogeneous catalysis	Revision
Part 1 (Sem 2) **Core T3, Core P3**	January	11	10	Extra nuclear Structure of atom	Estimation of carbonate and hydroxide present together in Mixture, Estimation of carbonate and bicarbonate present together in a mixture.
	February	14	14	Quantum numbers and their significance, Ground state Term symbols of atoms and ions for atomic number upto 30	Estimation of free alkali present in different soaps/detergents, Estimation of Fe(II) using standardized KMnO4 solution
	March	13	12	Chemical periodicity	Estimation of oxalic acid and sodium oxalate in a given mixture
	April	10	10	Acid-Base reactions	Estimation of Fe(II) and Fe(III) in a given mixture using $K_2Cr_2O_7$solution, Estimation of Fe(III) and Cu(II) in a mixture using $K_2Cr_2O_7$.
	May	7	8	Redox Reactions	Estimation of Fe(III) and Mn(II) in a mixture usingstandardized $KMnO_4$ solution
	June	5	6	Precipitation reactions	Estimation of Fe(III) and Cr(III) in a mixture using $K_2Cr_2O_7$

Core T4, Core P4	January	10	12	Chirality arising out of stereoaxis, Concept of prostereoisomerism	Organic Preparationsnoting the yield of the crude product, purification and determination of melting point-Nitration of aromatic compounds, Condensation reactions
	February	15	12	Conformational nomenclature, Reaction thermodynamics,Concept of organic acids and bases	Hydrolysis of amides/imides/esters. Acetylation of phenols/aromatic amines
	March	9	10	Tautomerism, Reaction kinetics	Benzoylation of phenols/aromatic amines, Side chain oxidation of aromatic compounds
	April	11	10	Free-radical substitution reaction	Diazo coupling reactions of aromatic amines, Bromination of anilides using green approach, Redox reaction including solid-phase method
	May	8	10	Nucleophilic substitution reactions	Green 'multi-component-coupling' reaction
	June	7	6	Elimination reactions	Selective reduction of m-dinitrobenzene to m-nitroaniline

HONOURS	NUMBER OF LECTURES	JULY-SEPTEMBER	OCTOBER -DECEMBER	JANUARY-MARCH	TEST EXAMINATION	APRIL-JUNE	UNIVERSITY FINAL EXAMINATION
PART-II PAPER-III	204	CEMAT 23-IA: UNIT-I: CHEMICAL PERIODICITYII=16L CEMAT 23-OA: UNIT-I: SPECTROSCOPY=20L	CEMAT 23-IA:UNIT-I=10L UNIT-II=22L CEMAT 23-OA: UNIT-I=12L UNIT-II=20L	CEMAT 23-IB: UNIT-I=24L UNIT-II=18L CEMAT 23-OB: UNIT-I=22L UNIT-II=20L		CEMAT 23-IB: UNIT-II=08L CEMAT 23-OB: UNIT-II=12L	
PAPER-IV	102	CEMAT 24-PA: UNIT-I: QUANTUM HEMISTRYI =34L	CEMAT 24-PA:UNIT-I=14L UNIT-II: QUANTUM CHEMISTRY IIA ND PHOTOCHEMISTRY=10L	CEMAT 24-PA:UNIT-II=10L CEMAT 24-PB: UNIT-I=16L UNIT-II=10L		CEMAT 12-PB: UNIT-II=08L	
PRACTICAL	192	CEMAP 24-PRA =22PERIODS CEMAP 24-PRB =30 PERIODS	CEMAP 24-PRA =34 PERIODS CEMAP 24-PRB =36 PERIODS	CEMAP 24-PRA = 32PERIODS CEMAP 24-PRB =38PERIODS			

PART III Paper-V	204	CEMAT 35-IA: UNIT-I: CHEMISTRY OF COORDINATION COMPOUNDS=23L CEMAT 35-AA: UNIT-I: BIOINORGANIC CHEMISTRY=23L	CEMAT 35-IA:UNIT-I=12L UNIT-II: CHEMISTRY OF D AND F BLOCK ELEMENTS=23L CEMAT 35-AA: UNIT-I=12L UNIT-II: MATERIAL CHEMISTRY=23L	CEMAT 35-IB:UNIT-I=19L UNIT-II=22L CEMAT 35-AB: UNIT-I: BIO INORGANIC CHEMISTRY=26L UNIT-II: BIOPHYSICAL CHEMISTRY=21L			

HONOURS	NUMBER OF LECTURES	JULY-SEPTEMBER	OCTOBER -DECEMBER	JANUARY-MARCH	TEST EXAMIATION	APRIL-JUNE	UNIVERSITY FINALEXAMINATION
PAPER-VI	204	CEMAT 36-OA: UNIT-I: PERICYCLIC REACTIONS=19L CEMAT 36-PA: UNIT-I: STATISTICAL THERMODYNAMICS=19L CEMAT 36-PB: PROPERTIES OF SOLID INTERFACE AND DIELECTRICS =27L	CEMAT 36-OA: UNIT-I: POLYNUCLEAR HYDROCARBON=12L UNIT-II: HETERONUCLEAR COMPOUNDS =22L CEMAT 36-PA: UNIT-I=12L UNIT-II: MOLECULAR SPECTROSCOPY=22L	CEMAT 36-OB: UNIT-I: CYCLOHEXANE AND CARBOHYDRATES=27L UNIT-II: AMINO ACIDS, NATURAL PRODUCTS AND ALKALOIDS=22L UNIT-I: UNIT-II: PHASE EQUILIBRIA AND COLLIGATIVE PROPERTIES=22L			
PAPER-VII	72	CEMAP 37-PRA =12 PERIODS CEMAP 37-PRB =12 PERIODS	CEMAP 37-PRA =12 PERIODS CEMAP 37-PRB =12 PERIODS	CEMAP 37-PRA =12 PERIODS CEMAP 37-PRB =12 PERIODS			
PAPER-VIII	108	CEMAP 38-PRA =18 PERIODS CEMAP 38-PRB =16 PERIODS	CEMAP 38-PRA =20 PERIODS CEMAP 38-PRB =18 PERIODS	CEMAP 38-PRA =16 PERIODS CEMAP 38-PRB =20 PERIODS			

DEPARTMENT OF CHEMISTRY

General	**Month**	**No of lectures**		**Topic**	
		Theory	**Practical**	**Theory**	**Practical**
Semester 1 DSC 2A, DSC 2A Lab	July	10	8	Atomic Structure: Review of: Bohr's theory and its limitations, dual behaviour of matter and radiation, de Broglie's relation, Physical Effects, Electronic Displacements in organic molecule	Estimation of sodium carbonate and sodium hydrogen carbonate present in a mixture, Detection of extra elements (N, S, Cl, Br, I) in organic compounds
	August	17	16	Heisenberg Uncertainty principle.	Estimation of oxalic acid by titrating it with

				Hydrogen atom spectra, Rules for filling electrons in various orbitals, Structure, shape and reactivity of organic molecules	$KMnO_4$, Detection of extra elements (N, S, Cl, Br, I) in organic compounds
	September	11	10	Ionic Bonding and Covalent bonding, Strength of organic acids and bases	Estimation of water of crystallization in Mohr salt by titrating with $KMnO_4$, Separation of mixtures of amino acids by Chromatography
	October	6	10	Concept of resonance and resonating structures in various inorganic and organic compounds, Stereochemistry	Estimation of Fe (II) ions by titrating it with $K_2Cr_2O_7$ using internal indicator, Separation of mixtures of amino acids by Chromatography
	November	8	8	Alkanes, Alkenes, Alkynes	Estimation of Cu (II) ions iodometrically using $Na_2S_2O_3$, Separation of mixtures of sugarby Chromatography
	December	8	8	Alkanes, Alkenes, Alkynes	Separation of mixtures of sugar by Chromatography
Semester 2 **DSC 2B, DSC 2B Lab**	January	11	12	Review of thermodynamics and the Laws of Thermodynamics	Determination of heat capacity of calorimeter for different volumes, Purification of organic compounds by crystallization and distillation.
	February	14	12	Chemical Equilibrium, Aromatic hydrocarbons- preparations and reactions	Determination of enthalpy of neutralization of hydrochloric acid with sodium hydroxide, Determination of melting and boiling points of organic compounds
	March	13	10	Ionic Equilibria	Determination of enthalpy of ionization of acetic acid, Determination of integral enthalpy of solution of salts, Preparations:Bromination of Phenol/Aniline
	April	10	10	Alkyl and Aryl Halides- preparations and reactions	Determination of enthalpy of hydration of copper sulphate, Preparations:Benzoylation of amines/phenols
	May	7	10	Alcohols and Phenols- preparations and reactions	Measurement of pH of different solutions, Preparations:Oxime and 2,4-dinitrophenylhydrazone of aldehyde/ketone
	June	5	6	Ethers, Aldehydes and ketones- preparations and reactions	Preparation of buffer solutions

GENERAL	NUMBER OF LECTURES	JULY-SEPTEMBER	OCTOBER -DECEMBER	JANUARY-MARCH		APRIL-JUNE	
PART -II PAPER-II	192	CEMGT22 A: UNITI: BASIC PHYSICAL CHEMISTRYIII (A) SECOND LAW OF THERMODYNAMICS=20L (B) CHEMICAL EQUILIBRIUM = 4L UNIT II: BASIC PHYSICAL CHEMISTRY IV: (A) CHEMICAL KINETICS=22L	CEMGT 22A: UNITI: (C) PHASE EQUILIBRIUM=4L CEMGT 22A: UNIT II: PHOTOCHEMISTRY=8L CEMGT 22B: UNIT I: ACID-BASES AND SOLVENTS=16L SOLUTION OF ELECTROLYTES =12L ELECTRODE POTENTIAL=08L	CEMGT 22B: UNIT-II : COLLIGATIVE PROPERTIES OF SOLUTION=14L COLLOIDS=4L CEMGT 22C: UNIT-I : BASIC ORGANIC CHEMISTRYIIIALDEHYDES AND KETONES=22L UNIT II: CARBOXYLIC ACIDS AND THEIR DERIVATIVES=8L	TEST EXAMIATION	CEMGT 22CUNIT I : CARBOHYDRATES=10L UNIT –II: (A)PHENOLS=10L (B) NITROGEN CONTAINING COMPOUNDS=4L (C) AMINO ACIDS AND PROTEINS=10L CEMGT 22D UNITI: COORDINATION COMPOUNDS=6L (B)PREPARATION OF COMPOUNDS=4L UNIT-II: COMPARATIVE CHEMISTRY=6L	UNIVERSITY FINALEXAMINATION

DEPARTMENT OF CHEMISTRY

GENERAL	NUMBER OF LECTURES	JULY-SEPTEMBER	OCTOBER -DECEMBER	JANUARY-MARCH	TEST EXAMIATION	APRIL-JUNE	UNIVERSITY FINALEXAMINATION
PART -II PAPER-III	102 (PRACTICAL)	CEMGP 23 A: ORGANIC PRACTICAL =14 PERIODS CEMGP 23 B : INORGANIC PRACTICAL = 16 PERIODS	CEMGP 23 A =16 PERIODS CEMGP 23 B = 18 PERIODS	CEMGP 23 A = 20 PERIODS CEMGP 23B=18 PERIODS			
PART -III **PAPER-IV** (CEMGT 34 A,34 B, 34 C) (THEORY)	144	CEMGT 34 A: UNIT-I CHEMICAL ANALYSIS =22L UNIT-II: VOLUMETRIC ANALYSIS=26L	CEMGT 34 B UNIT-I : INDUSTRIAL CHEMISTRY I=24L CEMGT34B UNIT- II: INDUSTRIAL CHEMISTRY II=24 L	CEMGT 34 C UNIT-I: ENVIRONMENTAL CHEMISTRY=16L UNIT-II: INDUSTRIAL CHEMISTRY III=20L		CEMGT 34 C UNIT I=6L UNIT II=6L	
CEMGP 34D(PRACTICAL)	44	CEMGP 34 D =12 PERIODS	CEMGP 34 D =18 PERIODS	CEMGP 34D=14 PERIODS			