

Paper: CHEMISTRY

Name :KirtiSharma

S. No	Dates	Topics
	1-5 September	Atomic structure- electronic configuration, de-broglie equation, heseinberguncertainty principle, hund's rule, schrodinger wave equation, wave functions, shielding effect and numericals based on screening effect.
	7-12 September	Mathematical concept - differentiation and integration, limits, probability,
	14-19 September	Structure and bonding - hybridisation, resonance, conjugation etc. chemical bonding 1.
	21-26 September	Chemistry of noble gases, alkanes and cycloalkanes
	28-03 October	Gaseous state and physical propeties and mol. Structure.
	05-10 October	Mechanism of organic reactions- types of bonds, introduction to different- different reagents
	12-17 October	Evaluation of analytical data - mean, mode, median, Q- test, F- test, confidence limit and problems based on these.
	19-24 October	periodic properties- trends of periodic properties along periods and groups, chemical and physical properties of elements.
	26-31 October	Alkenes and cycloalkenes- methods of preparation, physical and chemical properties.
	02-07 November	Liquid state and liquid crystal- types of liquid crystals, difference b/w liquids ,solids and gases
	09-14 November	Dienes - types and their methods of preparation, physical and chemical properties
	16-21 November	Alkynes - types and their methods of preparation, physical and chemical properties
	23-03 December	MST Exams...

Class:B.Sc. I (SEM - II)

Paper:Chemistry

Name :KirtiSharma

S. No	Dates	Topics
	1-6 February	Stereochemisrt of org. Compounds- configuration, configuration, enantiomers, diastereomers, meso compounds, recemic mixture, cis and trans, E & Z System of nomenclsture
	8-13 February	S- block elements- comparative study, features of hydrides, complexation tendencies, functions in biosystems
	15-20 February	Solutions - types, colligative properties, determination of mol. Wt. Using colligative properties, degree of dissociatio and association
	22-27 February	Alkyl & aryl halides- physical and chemical properties, relative reactivities of allyl, vinyl and aryl halides
	01-06 March	Chemical kinetics - rate of reaction, factors influencing it, order of different reactions, half life period ,radioactive decay, theories of Chemical kinetics
	08-13 March	Huckel's rule of aromaticity
	15-20 March	Ctalysis - characteristics, types, acid base catalysis, enzyme catysis, michaelismenten eq.
	22-27 March	Arene&aromaticity - Nomenclature , resonance structures, MO picture, Huckel rule, aromatic electrophilic substitiuon reactions.
	29-03 April	Colloidal state - definition, classification, sols: properties, emulsions: types, preparation, gels: classification, preparation etc.
	05-10 April	P- Block elements - gp-13- comparative study, compounds of gp 13
	12-17 April	P- block - 14-17- comparative study, compounds of gp 14 to 17
	19-24 April	Revision

26-04 May

MST Exams...

Govt. Shivalik College NayaNangal

Teaching Plan(2021-22) : Class: B.sc PART-II (3rdSemester)

Paper: CHEMISTRY

Name :Dr. SumanKumari, Kirti Sharma

Dates	Topics
1-5 September	Chemistry of elements of 1 st transition series, characteristics and properties of D- block elements.
7-12 September	Alcohols - physical and chemical properties, methods of their preparations and mechanisms.
14-19 September	Thermodynamics 1 & 2- laws related to thermodynamics, carnot cycle and carnot theorem.
21-26 September	Aldehydes- nomenclature, physical and chemical properties ,mechanisms of reactions.
28-03 October	Phenols - physical and chemical properties, methods of their preparations and mechanisms.
05-10 October	Chemical equilibrium- thermodynamic derivations , law of mass action, Le- Chatelier's principle.
12-17 October	Ketones - physical and chemical properties, methods of preparations, mechanisms of reactions
19-24 October	Thermodynamics part 2-(part b) - concept of entropy, study of functions related to entropy, clausius inequality equation.
26-31 October	Chemistry of 1 st transition series - properties of elements, their complexes and their stability, coordination no. And their geometry.
02-07 November	Chemistry of lanthoids and actinids - general features, and their properties.
09-14 November	Thermodynamis 3 - laws of thermodynamics, Nernst equation, Gibbs function, Helmholtz function, variations of these with P, V and T.
16-21 November	Revision
23-03 December	MST Exams...

Class:B.Sc. Part II SemesterIV

Name :Dr. Sumankumari, Kirtisharma

S. No	Dates	Topics
	1-6 February	Coordination compounds- Werner's theory & exp. Verification, effective at. No. Concept, chelates and VBT of transition metal complexes.
	8-13 February	Carboxylic acids - introduction, methods of preparation , physical and chemical properties
	15-20 February	Phase equilibrium - phase rule, phase components, phase diagram of one and two component system.
	22-27 February	Oxidation and reduction - redox cycle and their stability, frost, latimer and pourbaixdiagram , extraction of elements.
	01-06 March	Carboxylic acid derivative - introduction, structure and relative stability and reactivity of carboxylic acid derivative
	08-13 March	Electrochemistry I-a-- specific and equivalent conductance, Kohlrausch law, arrhenius theory, ostwal dil. Law , Debye - huckelonsagar eq.
	15-20 March	ACID & BASE - various theories and Lewis concept of acid and base
	22-27 March	Ether & Epoxides - introduction , nomenclature, methods of preparation , physical & chemical properties, introduction, structure and occurrence of (fats, oils & detergents)
	29-03 April	Non-aqueous solvent - physical properties of solvent, types, and genral characteristics with referece to liq. Ammonia & sulphur dioxide
	05-10 April	Electrochemistry 1-b- transport no., Hittorf's method, moving boundary method, conductometric titrations and conductance measurements, soiubility of sparingly soluble salts. Electrochemistry II.
	12-17 April	Nitro compounds - introduction , nomenclature, methods of preparation , physical & chemical properties, halonitroarenes
	19-24 April	Amines - introduction , nomenclature, methods of preparation , physical & chemical properties, stereochemistry of amines, basicity and effect of substituents on it.
	26-04 May	MST Exams...

Govt. Shivalik College NayaNangal

Teaching Plan(2021-22) : Class: B.sc. PART-III (5TH Semester)

Paper: CHEMISTRY

Name :DR. Sumankumari

Dates	Topics
1-5 September	Metal-ligand bonding in transition metal complexes- various theory & their limitations and CFT theory.
7-12 September	Spectroscopy - NMR- basic principle , structure analysis and their applications
14-19 September	Elementary quantum mechanics- Plank' radiations law, photo electric effect, schrodinger wave equation, particle in one dimensional box, Q. no. And their importance.
21-26 September	Magnetic propeties of transition metal complexes- types of mag. Behaviour, L-S coupling, magnetic moment and its applications
28-03 October	Organometallic compounds(Mg, Zn, Li) - methods of formation and chemical reactions
05-10 October	Spectroscopy - Rotational & vibrational - basic principle , structure analysis and their applications
12-17 October	Thermodynamic and kinetic aspects of metal complexes - brief outline of thermodynamic stability of metal complexes & their reactions.
19-24 October	Organosulphur compounds - nomenclature, structural features, methods of formation and chemical reactions
26-31 October	Electronic spectra of transition metal complexes- types of electronic transition, selections rule and Orgel- energy level diagram.
02-07 November	UV Spectroscopy - basic principle , structure analysis and their applications
09-14 November	IR Spectroscopy - basic principle , structure analysis and their applications
16-21 November	Revision
23-03 December	MST Exams...

Class:B.Sc.Part III Semester VI Name : Dr. SumanKumari

Dates	Topics
1-6 February	Hard soft acid base - Pearson's HSAB concept, hardness and softness their theoretical basis, symbiosis.
8-13 February	Carbohydrates - introduction, classification and nomenclature, structurcs of glucose, fructose, ribose etc. Ring structure of glucose, fructose, starch and cellulose
15-20 February	Raman sppectrum- concept of polarizability, rotational and vib. Raman spectra of diatomic molecules, selection rule
22-27 February	Bioinorganic chemistry- Essential & trace elements, heamoglobin and myoglobin, biological role of alkali and alkaline earth metals, Nitrogen fixation.
01-06 March	Solid state - Laws of crystallography, X-ray diffraction by crystals, bragg's eq. Structure of NaCl, KCl.
08-13 March	Polymer - preparation by varous methods, addition & condensation polymerisation, natural & synthetic rubber,
15-20 March	Silicones &phosphazenes - preparation, properties and classification of inorganic polymers ang nature of bonding in them.
22-27 March	Electronic spectrum- concept of bonding and antibonding molecular orbitals, Franck- condon principle, selections rule of electronic spectrum.
29-03 April	Amino acids, peptides, proteins and nucleic acids - their introduction and nomenclature, physical & chemical properties,
05-10 April	Organometallic chemistry - classification, preparation of Li, Al, Hg, Sn, and Ti, mononuclear carbonyl and their nature of bonding
12-17 April	Enolates - introduction ,praparation, applications of enolates in org. Synthesis.
19-24 April	Photochemistry - Laws of photochemistry, qualitative description of fluorescence and non radiative process
	MST Exams...

