

Govt. Shivalik College Naya Nangal

Teaching Plan(2022-23)

Class: B.Sc. PART-I (Ist Semester)

Paper: CHEMISTRY Name : Kirti Sharma

Sr. No	Dates	Topics
1.	30 aug - 7sep 2022	Atomic structure- electronic configuration, de-broglie equation, heseinberg uncertainty principle, hund's rule, schrodinger wave equation, wave functions, shielding effect and numericals based on screening effect.
A	8-9, 11-14 Sep 2022	Mathematical concept - differentiation and integration, limits, probability,
3.	19-28 Sep 2022	Structure and bonding - hybridisation, resonance, conjugation etc. chemical bonding 1.
4	4-12 Oct2022	Chemistry of noble gases, alkanes and cycloalkanes
5	17-24 Oct2022	Gaseous state and physical propeties and mol. Structure.
6	25-31 Oct2022	Mechanism of organic reactions- types of bonds, introduction to different-different reagents
7	1-8 November	Evaluation of analytical data - mean, mode, median, Q- test, F- test, confidence limit and problems based on these.
8.	9-12 November	MST exam
8	13-20 November	periodic properties- trends of periodic properties along periods and groups, chemical and physical properties of elements.
9	21-30 November	Alkenes and cycloalkenes- methods of preparation, physical and chemical properties.
10	1-7 December	Liquid state and liquid crystal- types of liquid crystals, difference b/w liquids ,solids and gases
11	8-15 December	Dienes - types and their methods of preparation, physical and chemical properties
12	15-20 December	Alkynes - types and their methods of preparation, physical and chemical properties
13	20-23 December	Revision & class test

Govt. Shivalik College Naya Nangal

Teaching Plan(2022-23)

Class:B.sc PART-II (3rdSemester)

Paper: CHEMISTRY

Name : Dr. Suman Kumari, Kirti Sharma

Sr. No	Dates	Topics
1.	22-31 August	Chemistry of elements of 1 st transition series, characteristics and properties of D-block elements.
2.	1-9 Sep	Alcohols - physical and chemical properties, methods of their preparations and mechanisms.
3.	10-16 Sep	Thermodynamics 1 & 2- laws related to thermodynamics, carnot cycle and carnot theorem.
4	19-22 Sep	Aldehydes- nomenclature, physical and chemical properties , mechanisms of reactions.
5	23-29 Sep	Phenols - physical and chemical properties, methods of their preparations and mechanisms.
6	4-12 Oct	Chemical equilibrium- thermodynamic derivations , law of mass action, Le-Chatelier's principle.
7	13-17 Oct	Ketones - physical and chemical properties, methods of preparations, mechanisms of reactions
8	18-24 Oct	Thermodynamics part 2-(part b) - concept of entropy, study of functions related to entropy, clausius inequality equation.
9	25-30 Oct	Chemistry of 1 st transition series - properties of elements, their complexes and their stability, coordination no. And their geometry.
10	31Oct-5Nov	Chemistry of lanthanoids and actinoids - general features, and their properties.
11.	9-12 Nov	MST exam
12	13-19 Nov	Thermodynamics 3 - laws of thermodynamics, Nernst equation, Gibbs function, Helmholtz function, variations of these with P, V and T.
13	19-25 Nov	Revision
14	26-30 Nov	Class test

Govt. Shivalik College Naya Nangal

Teaching Plan(2022-23)

Class:B.sc. PART-III (5TH Semester)

Paper: CHEMISTRY

Name : DR. Suman kumari

Sr. No	Dates	Topics
1.	22-31 August	Metal-ligand bonding in transition metal complexes- various theory & their limitations and CFT theory.
2.	1-9 Sep	Spectroscopy - NMR- basic principle , structure analysis and their applications
3.	10-16 Sep	Elementary quantum mechanics- Plank' radiations law, photo electric effect, schrodinger wave equation, particle in one dimentional box, Q. no. And their importance.
4	19-22 Sep	Magnetic propeties of transition metal complexes- types of mag. Behaviour, L-S coupling, magnetic moment and its applications
5	23-29 Sep	Organometallic compounds(Mg, Zn, Li) - methods of formation and chemical reactions
6	4-12 Oct	Spectroscopy - Rotational & vibrational - basic principle , structure analysis and their applications
7	13-17 Oct	Thermodynamic and kinetic aspects of metal complexes - brief outline of thermodynamic stability of metal complexes & their reactions.
8	18-24 Oct	Organosulphur compounds - nomenclature, structural features, methods of formation and chemical reactions
9	25-30 Oct	Electronic spectra of transition metal complexes- types of electronic transition, selections rule and Orgel- energy level diagram.
10	31Oct-5Nov	UV Spectroscopy - basic principle , structure analysis and their applications
11	9-12 Nov	MST exam
11	13-19 Nov	IR Spectroscopy - basic principle , structure analysis and their applications
12	19-25 Nov	revision
13	26-30 Nov	Class test

Govt. Shivalik College Naya Nangal
Teaching Plan (2022-23)
Class: B.Sc. I (SEM - II)

Subject : Chemistry

Name : Kirti Sharma

Sr. No	Dates	Topics
1.	7-9 Feb 2023	Stereochemisrt of org. Compounds- configuration, configuration, enantiomers, diastereomers, meso compounds, recemic mixture, cis and trans, E & Z System of nomenclsture
2.	12-16	S- block elements- comparative study, features of hydrides, complexation tendencies, functions in biosystems
3.	17-23	Solutions - types, colligative properties, determination of mol. Wt. Using colligative properties, degree of dissociatio and association
4	24-28	Alkyl & aryl halides- physical and chemical properties, relative reactivities of allyl, vinyl and aryl halides
5	1-6 Mar 2023	Chemical kinetics - rate of reaction, factors influencing it, order of different reactions, half life period ,radioactive decay, theories of Chemical kinetics
6	8-13	Huckel's rule of aromaticity
7	14-19	Catalysis - charactristics, types, acid base catalysis, enzyme catysis, michaelis menten eq.
8	20-25	Arene & aromaticity - Nomenclature , resonance structures, MO picture, Huckel rule, aromatic electrophilic substituion reactions.
9	26-31	Colloidal state - definition, classification, sols: properties, emulsions: types, preparation, gels: classification, preparation etc.
10	1-8 Apr 2023	P- Block elements - gp-13- comparative study, compounds of gp 13
11.	9-16	P- block - 14-17- comparative study, compounds of gp 14 to 17
12.	17-22	Revision
13.	24-29 Apr 2023	MST

Govt. Shivalik College Naya Nangal
Teaching Plan (2022-23)
Class: B.Sc. Part II (Semester IV)

Paper: Chemistry

Name : Dr. Suman Kumari, Kirti sharma

Sr. No	Dates	Topics
1.	7-11 Feb 2023	Coordination compounds- Werner's theory & exp. Verification, effective at. No. Concept, chelates and VBT of transition metal complexes.
2.	12-16 Feb 2023	Carboxylic acids - introduction, methods of preparation, physical and chemical properties
3.	16-23 Feb 2023	Phase equilibrium - phase rule, phase components, phase diagram of one and two component system.
4	24-28 Feb 2023	Oxidation and reduction - redox cycle and their stability, Frost, Latimer and Pourbaix diagram, extraction of elements.
5	1-6 Mar 2023	Carboxylic acid derivative - introduction, structure and relative stability and reactivity of carboxylic acid derivative
6	8-13 Mar 2023	Electrochemistry I-a-- specific and equivalent conductance, Kohlrausch law, Arrhenius theory, Ostwald dil. Law, Debye-Hückel-Onsager eq.
7	14-22 Mar 2023	ACID & BASE - various theories and Lewis concept of acid and base
8	23-31 Mar 2023	Ether & Epoxides - introduction, nomenclature, methods of preparation, physical & chemical properties, introduction, structure and occurrence of (fats, oils & detergents)
9	1-6 Apr 2023	Non-aqueous solvent - physical properties of solvent, types, and general characteristics with reference to liq. Ammonia & sulphur dioxide
10	7-12 Apr 2023	Electrochemistry 1-b- transport no., Hittorf's method, moving boundary method, conductometric titrations and conductance measurements, solubility of sparingly soluble salts. Electrochemistry II.
11.	13-17 Apr 2023	Nitro compounds - introduction, nomenclature, methods of preparation, physical & chemical properties, halonitroarenes
12.	18-22 Apr 2023	Amines – introduction, nomenclature, methods of preparation, physical & chemical properties, stereochemistry of amines, basicity and effect of substituents on it.
13.	24-29 Apr 2023	MST

Govt. Shivalik College Naya Nangal

Teaching Plan (2022-23)

Class: B.Sc. Part III (Semester VI)

Paper: chemistry, Name : Dr. Suman Kumari

Sr. No	Dates	Topics
1.	7-11 Feb 2023	Hard soft acid base - Pearson's HSAB concept, hardness and softness their theoretical basis, symbiosis.
2.	14-16 Feb 2023	Carbohydrates - introduction, classification and nomenclature, structures of glucose, fructose, ribose etc. Ring structure of glucose, fructose, starch and cellulose
3.	16-23 Feb 2023	Raman spectrum- concept of polarizability, rotational and vib. Raman spectra of diatomic molecules, selection rule
4	24-28 Feb 2023	Bioinorganic chemistry- Essential & trace elements, hemoglobin and myoglobin, biological role of alkali and alkaline earth metals, Nitrogen fixation.
5	1-6 Mar 2023	Solid state - Laws of crystallography, X-ray diffraction by crystals, Bragg's eq. Structure of NaCl, KCl.
6	8-13 Mar 2023	Polymer - preparation by various methods, addition & condensation polymerisation, natural & synthetic rubber,
7	15-20 Mar 2023	Silicones & phosphazenes - preparation, properties and classification of inorganic polymers and nature of bonding in them.
8	21-26 Mar 2023	Electronic spectrum- concept of bonding and antibonding molecular orbitals, Franck-Condon principle, selection rule of electronic spectrum.
9	27-31 Apr 2023	Amino acids, peptides, proteins and nucleic acids - their introduction and nomenclature, physical & chemical properties,
10	1-8 Apr 2023	Organometallic chemistry - classification, preparation of Li, Al, Hg, Sn, and Ti, mononuclear carbonyl and their nature of bonding
11.	10-17 Apr 2023	Enolates - introduction, preparation, applications of enolates in org. synthesis.
12.	18-23 Apr 2023	Photochemistry - Laws of photochemistry, qualitative description of fluorescence and non radiative process
13	24-29 Apr 2023	MST

