**TeachingPlan(2020-21):Class:B.Sc.PART-I(Ist Semester)**

**Paper:CHEMISTRY**

**Name:KirtiSharma**

| Sr.No | Dates | Topics |
|---|---|---|
| 1. | 1-5September | Atomicstructure-electronicconfiguration, de-broglie equation, heseinberguncertainity principle hund'srule schrodingerwaveequation wavefunctions shieldingeffectandnumer |
| A | 7-12September | Mathematicalconcept-differentiationandintegration,limits,probability, |
| 3. | 14-19September | Structureand bonding -hybridisation,resonance,conjugationetc.chemicalbonding1. |
| 4 | 21-26September | Chemistryofnoblegases,alkanesandcycloalkanes |
| 5 | 28-03October | Gaseousstateandphysicalpropetiesandmol.Structure. |
| 6 | 05-10October | Mechanismoforganic reactions-typesofbonds,introductionto different-differentreagents |
| 7 | 12-17October | Evaluationofanalyticaldata -mean,mode,median,Q-test,F-test, confidencelimitandproblemsbasedonthese. |
| 8 | 19-24October | periodicproperties-trendsofperiodicpropertiesalong periodsand groups,chemicalandphysicalpropertiesofelements. |
| 9 | 26-31October | Alkenesandcycloalkenes-methodsofpreparation,physicalandchemicalproperties. |
| 10 | 02-07November | Liquidstateandliquidcrystal-typesofliquid crystals,differenceb/wliquids,solidsandgases |
| 11 | 09-14November | Dienes-typesandtheirmethodsofpreparation,physicalandchemicalproperties |
| 12 | 16- | Alkynes-typesandtheirmethodsofpreparation,physicalandchemicalproperties |
| 13 | 23- | MSTExams... |

**Govt.ShivalikCollegeNayaNangal**

**TeachingPlan(2020-21):Class:B.scPART-II(3rdSemester)**

**Paper:CHEMISTRY**

**Name:Dr.SumanKumari,KirtiSharma**

| Sr.No | Dates | Topics |
|---|---|---|
| 1. | 1-5September | Chemistryof elementsof1st transitionseries,characteristicsandproperties ofD-block elements. |
| 2. | 7-12September | Alcohols -physicalandchemicalproperties,metods of theirpreparations andmechanisms. |
| 3. | 14-19September | Thermodynamics1&2-laws relatedtothermodynamics,carnotcycleandcarnottheorem. |
| 4 | 21-26September | Aldehydes-nomenclature,physicalandchemicalproperties,mecahismsofreactions. |
| 5 | 28-03October | Phenols-physicalandchemicalproperties,metodsoftheirpreparationsandmechanisms. |
| 6 | 05-10October | Chemicalequilibrium-thermodynamic derivations ,lawofmass action,Le-Chatelier's principle. |
| 7 | 12-17October | Ketones -physicaland chemicalproperties,methods ofpreparations,mechanisms ofreactions |
| 8 | 19-24October | Thermodynamicspart2-(partb)-conceptofentropy, study offunctions related toentropy,clausius inequality equation. |
| 9 | 26-31October | Chemistryof 1st transitionseries-properties ofelements,theircomplexes andtheirstability,coordinationno.Andtheirgeometry. |
| 10 | 02-07November | Chemistryof lanthoids andactinids-generalfeatures,andtheirproperties. |
| 11 | 09-14November | Thermodynamis3-lawsofthermodynamics,Nernstequation,Gibbs function,Helmholtzfunction,variations ofthesewithP,Vand T. |
| 12 | 16- | Revision |
| 13 | 23- | MSTExams... |

Govt.ShivalikCollegeNayaNangal

**TeachingPlan(2020-21) : Class:B.sc.PART-III(5TH Semester)**

**Paper:CHEMISTRY**

**Name:DR.Suman kumari**

| Sr.No | Dates | Topics |
|---|---|---|
| 1. | 1-5September | Metal-ligandbondingintransitionmetalcomplexes-varioustheory&their limitationsandCFTtheory. |
| 2. | 7-12September | Spectroscopy-NMR-basicprinciple,structureanalysisandtheir applications |
| 3. | 14-19September | Elementaryquantum mechanics-Plank'radiationslaw,photoelectriceffect,schrodingerwave equation, particleinonedimentionalbox,Q.no.Andtheirimportance. |
| 4 | 21-26September | Magneticpropetiesoftransitionmetalcomplexes-typesofmag.Behaviour,L-S coupling,magneticmomentanditsapplications |
| 5 | 28-03October | Organometalliccompounds(Mg,Zn,Li) -methodsofformationand chemicalreactions |
| 6 | 05-10October | Spectroscopy-Rotational& vibrational-basicprinciple,structureanalysisandtheirapplications |
| 7 | 12-17October | Thermodynamicandkineticaspectsofmetalcomplexes-briefoutlineofthermodynamicstabilityofmetalcomplexes&theirreactions. |
| 8 | 19-24October | Organosulphurcompounds-nomenclature,structuralfeatures,methodsofformationandchemicalreactions |
| 9 | 26-31October | Electronicspectraoftransitionmetalcomplexes-typesofelectronictransition,selectionsruleandOrgel-energyleveldiagram. |
| 10 | 02-07November | UVSpectroscopy-basicprinciple,structureanalysisandtheir applications |
| 11 | 09-14November | IRSpectroscopy-basicprinciple,structureanalysisandtheirapplications |
| 12 | 16-21November | Revision |
| 13 | 23-03December | MSTExams... |

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# Govt. Shivalik College Naya Nangal

## Teaching Plan(2020-21)

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

**Paper:Chemistry**

**Name :Kirti Sharma**

| Sr. No | Dates | Topics |
|---|---|---|
| 1. | 1-6 February | Stereochemisrt of org. Compounds- configuration, configuration, enantiomers, diastereomers, meso compounds, recemic mixture, cis and trans, E & Z System of nomenclsture |
| 2. | 8-13 February | S- block elements- comparative study, features of hydrides, complexation tendencies, functions in biosystems |
| 3. | 15-20 February | Solutions - types, colligative properties, determination of mol. Wt. Using colligative properties, degree of dissociatio and association |
| 4 | 22-27 February | Alkyl & aryl halides- physical and chemical properties, relative reactivities of allyl, vinyl and aryl halides |
| 5 | 01-06 March | Chemical kinetics - rate of reaction, factors influencing it, order of different reactions, half life period ,radioactive decay, theories of Chemical kinetics |
| 6 | 08-13 March | Huckel's rule of aromaticity |
| 7 | 15-20 March | Ctalysis - charactristics, types, acid base catalysis, enzyme catysis, michaelis menten eq. |
| 8 | 22-27 March | Arene & aromaticity - Nomenclature , resonance structures, MO picture, Huckel rule, aromatic electrophilic substituion reactions. |
| 9 | 29-03 April | Colloidal state - definition, classification, sols: properties, emulsions: types, preparation, gels: classification, preparation etc. |
| 10 | 05-10 April | P- Block elements - gp-13- comparative study, compounds of gp 13 |
| 11. | 12-17 April | P- block - 14-17- comparative study, compounds of gp 14 to 17 |
| 12. | 19-24 April | Revision |
| 13. | 26-04 May | MST Exams... |

# Govt. Shivalik College Naya Nangal

## Teaching Plan(2020-21)

**Class:B.Sc. Part II Semester IV**

**Paper:chemistry**

**Name : Dr. Suman kumari, Kirti sharma**

| Sr. No | Dates | Topics |
|---|---|---|
| 1. | 1-6 February | Coordination compounds- Werner's theory & exp. Verification, effective at. No. Concept, chelates and VBT of transition metal complexes. |
| 2. | 8-13 February | Carboxylic acids - introduction, metods of preparation , physical and chemical properties |
| 3. | 15-20 February | Phase equilibrium - phase rule, phase components, phase diagram of one and two component system. |
| 4 | 22-27 February | Oxidation and reduction - redox cycle and their stability, frost, latimer and pourbaix diagram , extraction of elements. |
| 5 | 01-06 March | Carboxylic acid derivative - introduction, structure and relative stability and reactivity of carboxylic acid derivative |
| 6 | 08-13 March | Electrochemistry I-a-- specific and equivalent conductance, Kohlrausch law, arrhenius theory, ostwal dil. Law , Debye - huckel onsagar eq. |
| 7 | 15-20 March | ACID & BASE - various theories and Lewis concept of acid and base |
| 8 | 22-27 March | Ether & Epoxides - introduction , nomenclature, methods of preparation , physical & chemical properties, introduction, structure and occurrence of ( fats, oils & detergents) |
| 9 | 29-03 April | Non-aqueous solvent - physical properties of solvent, types, and genral characteristics with referece to liq. Ammonia & sulphur dioxide |
| 10 | 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. |
| 11. | 12-17 April | Nitro compounds - introduction , nomenclature, methods of preparation , physical & chemical properties, halonitroarenes |
| 12. | 19-24 April | Amines - introduction , nomenclature, methods of preparation , physical & chemical properties, stereochemistry of amines, basicity and effect of substituents on it. |
| 13. | 26-04 May | MST Exams... |

# Govt. Shivalik College Naya Nangal

## Teaching Plan(2020-21)

**Class:B.Sc.Part III Semester VI**

**Paper: chemistry**

**Name : Dr. Suman Kumari**

| Sr. No | Dates | Topics |
|---|---|---|
| 1. | 1-6 February | Hard soft acid base - Pearson's HSAB concept, hardness and softness their theoretical basis, symbiosis. |
| 2. | 8-13 February | Carbohydrates - introduction, classification and nomenclature, structurs of glucose, fructose, ribose etc. Ring structure of glucose, fructose, starch and cellulose |
| 3. | 15-20 February | Raman sppectrum- concept of polarizability, rotational and vib. Raman spectra of diatomic molecules, selection rule |
| 4 | 22-27 February | Bioinorganic chemistry- Essential & trace elements, heamoglobin and myoglobin, biological role of alkali and alkaline earth metals, Nitrogen fixation. |
| 5 | 01-06 March | Solid state - Laws of crystallography, X-ray diffraction by crystals, bragg's eq. Structure of NaCl, KCl. |
| 6 | 08-13 March | Polymer - preparation by varous methods, addition & condensation polymerisation, natural & synthetic rubber, |
| 7 | 15-20 March | Silicones & phosphazenes - preparation, properties and classification of inorganic polymers ang nature of bonding in them. |
| 8 | 22-27 March | Electronic spectrum- concept of bonding and antibonding molecular orbitals, Franck- condon principle, selections rule of electronic spectrum. |
| 9 | 29-03 April | Amino acids, peptides, proteins and nucleic acids - their introduction and nomenclature, physical & chemical properties, |
| 10 | 05-10 April | Organometallic chemistry - classification, preparation of Li, Al, Hg, Sn, and Ti, mononuclear carbonyl and their nature of bonding |
| 11. | 12-17 April | Enolates - introduction , praparation, applications of enolates in org. Synthesis. |
| 12. | 19-24 April | Photochemistry - Laws of photochemistry, qualitative description of fluorescence and non radiative process |
| 13. | 26-04 May | MST Exams... |