CLASSWISE TIME TABLE CHEMISTRY DEPARTMENT SESSION 2025-26

CLASS/PERIOD	9:00-10:00 I	10:00-11:00 II	11:00-12:00 III	12:00-1:00 IV	1:00-2:00 V	2:00-3:00 VI	3:00-4:00 VII
B.Sc.III	**SEC B 2C** (1,2) Pooja (3,4) Deepak (5,6) Sonika	**SEC A 5B 1 Meena 2 Anita Singhal 3,4 Aarti 5,6 Pooja** **SEC C 3B** 1,2 Deepak 3-4 Anita 5 Pooja Chahal 6 Meena **SEC D 2C** 1,2 Sonika 3,4 Pooja Chahal 5,6 Aarti	B.Sc 3rd Lab Anita singhal (1-6) Lab 3C Deepak 1-2,5-6 Lab 6B Pooja Chahal 3-6 Lab 5C Sonika 1-6 Lab 6B Pooja 7B (1-2,5-6) Meena Lab 5C (1-2) Aarti Lab 7B (3-4) Monika Lab 5C (3) Sangeeta Lab 5C (4) Manu Lab 3C (3-4)		B.Sc 3rdH.Sc Biochem Th (1-3) Monika LAB 3C(4-6) Monika	B.Sc 3rdH.Sc Biochem LAB 3C(4) Anita	

Government PG College for Women, Rohtak

Department of Chemistry Session: 2025-2026

Lesson Plan Semester - V

Name of Faculty : Dr. Anita Singal

Subject : Inorganic Chemistry

B.Sc. III

Section – A and C

July 2025

Fourth week **Unit I- Metal Ligand Bonding in Transition Metal Complexes**

Limitations of valence bond theory

August 2025

Inorganic

First week- An elementary idea of crystal field theory. Crystal field splitting in octahedral complexes.

Second week - Crystal field splitting in tetrahedral and square planar complexes.

Third week – Factors affecting crystal field parameters. (Assignment)

Fourth week – **Unit II - Thermodynamic & Kinetic aspects of Metal Complexes**

A brief outline of thermodynamic stability of metal complexes.

September 2025

Inorganic

First week- Factors affecting the stability of metal complexes.

Second week - Substitution reactions in Square planar complexes of Pt(II)

Third week – Trans effect and Assignment

Fourth week – **Unit – III Magnetic Properties of Transition Metal Complexes**
Types of magnetic behaviour, methods of determining magnetic susceptibility

October 2025

Inorganic

First week- Spin only formula.

Second week- LS coupling, correlation of μ_s and μ_{eff} values. Orbital contribution to magnetic moments.Application of magnetic moment data for 3d- metal complexes.

Third week – Diwali Break

Unit- IV Electronic Spectra of Transition Metal complexes

Types of electronic transitions, selection rules for d-d transitions, spectroscopic ground states.

Fourth week – Spectrochemical series.orgel- energy level diagram of d^1-d^9 states.

November 2025

Inorganic

First week- Revision of Unit –III. (Test)

Second week- Discussion of electronic spectrum of $[Ti(H_2O)_6]^{3+}$ complex ion.

Third week – Revision &Problem solving

Government College For Women, Rohtak

Department of Chemistry

Name of the Faculty – **Dr. Deepak**

Section – **B and C**

Subject - **Organic Chemistry**

July 2025

NMR spectroscopy – I

Introduction, Magnetic properties of nuclei, Principle of nuclear magnetic resonance, PMR spectrum

August 2025

First Week- Nuclear spin states.

SECOND Week- NMR spectrometer, position of signals. chemical shift

Third week: number of signals, peak areas, equivalent and nonequivalent protons

Fourth week: shielding and deshielding of protons, proton counting.

September 2025

First Week- splitting of signals, coupling constants. magnetic equivalence of protons.

SECOND Week- Applications of PMR spectroscopy., Limitations of PMR spectroscopy.

Third week: Discussion of PMR spectra of the molecules, ethyl bromide, n-propyl bromide, isopropyl bromide.

Fourth week: 1,1-dibromoethane, 1,1,2-tribromoethane, ethanol.,acetaldehyde, ethyl acetate, toluene, benzaldehyde and acetophenone

OCTOBER 2025

First week - Simple problems on PMR spectroscopy for structure determination of organic compounds. **(Assignment and Test)**

Second week: Organomagnesium compounds- the Grignard Reagents-formation, structure, Chemical reaction, Group revision and Problem solving.

Third week: Diwali Break

Fourth week: organo zinc compounds, formation, - chemical reactions of organozinc compounds organolithium compounds chemical reactions of organolithium compounds

NOVEMBER 2025

First week: - Classification and nomenclature. - Monosaccharides, Mechanism of osazone formation, interconversion of glucose and fructose, Mechanism of mutarotation. Structures of ribose and deoxyribose

Second week. Chain lengthening and shortening of aldoses, Configuration of monosacharides, Introduction to disaccharides and polysaccharides without involving structure determination.

Third week – Erythro and threo diastereomers.,Open chain and cyclic structure of D (+)-glucose Open chain and cyclic structure of D (-) – fructose, Introduction to disaccharides and polysaccharides without involving structure determination.

Government College For Women, Rohtak

Department of Chemistry

Name of the Faculty **– Pooja Chahal**

Section – **C, D**

Subject -**Physical Chemistry**

JULY 2025

Quantum Mechanics

Week 4: Black body radiation, Planks radiation Law, Photoelecric effect.

SEPTEMBER 2025

Week 1: Heat capacity of solids, Comptons effect. Wave function and its significance postulates of quantum mechanics. Quantum mechanical operator, commutation relations, Hamiltonian operators, Hermitian operators.

Week 2: Average value of square of hermitian as a positive quantity, Role of operator in quantum mechanics to show quantum mechanically that position and momentum cannot be predicted simultaneously, determination of wave function and energy of particle in one dimensional box, pictorial representation and its significance.Numerical problems

Week 3: test and problems discussion of unit 1

Week 4: Optical activity, clausius – Mossotti equation. Orientation of dipoles in an electric field, dipole moment, included dipole moment, measurement of dipole moment-temperature method and refractivity method, dipole moment and structure of molecules,

OCTOBER 2025

Week 1: Magnetic permeability, magnetic susceptibility and its determination. Applica tion of magnetic susceptibility, magnetic properties – paramagnetism, diamagnetism and ferromagnetics.

Week 2: Spectroscopy-introduction: Electromagnetic radiation, regions of spectrum, basic features of spectroscopy, statement of Born oppenheimer approximation, Degrees of freedom, Rotational Spectrum Diatomic molecules. Energy levels of rigid rotator (semi-classical principles), selection rules

Week 3: test & Diwali vacations

Week 4: Test of unit 2, spectral intensity distribution using population distribution (Maxwell-Boltzmann distribution), determination of bond length, qualitative description of non-rigid rotor, isotope effect, Vibrational spectrum Infrared spectrum: Energy levels of simple harmonic oscillator, selection rules, pure vibrational spectrum, intensity

November 2024

Week 1: determination of force constant and qualitative relation of force constant and bond energies, effects of anharmonic motion and isotopic effect on the spectra. idea of vibrational frequencies of different functional groups. Raman Spectrum: Concept of polarizibility,

Week 2: pure rotational and pure vibrational Raman spectra of diatomic molecules, selectin rules, Quantum theory of Raman spectra

Government PG College for Women, Rohtak

Department of Chemistry Session: 2025-2026

Lesson Plan Semester - V

Name of Faculty : Dr. sonika

Subject : Inorganic Chemistry

B.Sc. III

Section – B and D

July 2025

Fourth week **Unit I- Metal Ligand Bonding in Transition Metal Complexes**

Limitations of valence bond theory

August 2025

Inorganic

First week- An elementary idea of crystal field theory. Crystal field splitting in octahedral complexes.

Second week - Crystal field splitting in tetrahedral and square planar complexes.

Third week – Factors affecting crystal field parameters. (Assignment)

Fourth week – **Unit II - Thermodynamic & Kinetic aspects of Metal Complexes**

A brief outline of thermodynamic stability of metal complexes.

September 2025

Inorganic

First week- Factors affecting the stability of metal complexes.

Second week - Substitution reactions in Square planar complexes of Pt(II)

Third week – Trans effect and Assignment

Fourth week – **Unit – III Magnetic Properties of Transition Metal Complexes**
Types of magnetic behaviour, methods of determining magnetic susceptibility

October 2025

Inorganic

First week- Spin only formula.

Second week- LS coupling, correlation of μ_s and μ_{eff} values. Orbital contribution to magnetic moments.Application of magnetic moment data for 3d- metal complexes.

Third week – Diwali Break

Unit- IV Electronic Spectra of Transition Metal complexes

Types of electronic transitions, selection rules for d-d transitions, spectroscopic ground states.

Fourth week – Spectrochemical series.orgel- energy level diagram of d^1-d^9 states.

November 2025

Inorganic

First week- Revision of Unit –III. (Test)

Second week- Discussion of electronic spectrum of $[Ti(H_2O)_6]^{3+}$ complex ion.

Third week – Revision &Problem solving

Government College For Women, Rohtak

Department of Chemistry

Name of the Faculty – **Dr. Aarti Dalal (3024)**

Section – **A and D**

Subject - **Organic Chemistry**

July 2025

NMR spectroscopy – I

Introduction, Magnetic properties of nuclei, Principle of nuclear magnetic resonance, PMR spectrum

August 2025

First Week- Nuclear spin states.

SECOND Week- NMR spectrometer, position of signals. chemical shift

Third week: number of signals, peak areas, equivalent and nonequivalent protons

Fourth week: shielding and deshielding of protons, proton counting.

September 2025

First Week- splitting of signals, coupling constants. magnetic equivalence of protons.

SECOND Week- Applications of PMR spectroscopy., Limitations of PMR spectroscopy.

Third week: Discussion of PMR spectra of the molecules, ethyl bromide, n-propyl bromide, isopropyl bromide.

Fourth week: 1,1-dibromoethane, 1,1,2-tribromoethane, ethanol.,acetaldehyde, ethyl acetate, toluene, benzaldehyde and acetophenone

OCTOBER 2025

First week - Simple problems on PMR spectroscopy for structure determination of organic compounds. **(Assignment and Test)**

Second week: Organomagnesium compounds- the Grignard Reagents-formation, structure, Chemical reaction, Group revision and Problem solving.

Third week: Diwali Break

Fourth week: organo zinc compounds, formation, - chemical reactions of organozinc compounds organolithium compounds chemical reactions of organolithium compounds

NOVEMBER 2025

First week: - Classification and nomenclature. - Monosaccharides, Mechanism of osazone formation, interconversion of glucose and fructose, Mechanism of mutarotation. Structures of ribose and deoxyribose

Second week. Chain lengthening and shortening of aldoses, Configuration of monosacharides, Introduction to disaccharides and polysaccharides without involving structure determination.

Third week – Erythro and threo diastereomers.,Open chain and cyclic structure of D (+)-glucose Open chain and cyclic structure of D (-) – fructose, Introduction to disaccharides and polysaccharides without involving structure determination.

Government College For Women, Rohtak

Department of Chemistry

Name of the Faculty – **Pooja Chaudhary**

Section – **A,B**

Subject -**Physical Chemistry**

JULY 2025

Quantum Mechanics

Week 4: Black body radiation, Planks radiation Law, Photoelecric effect.

SEPTEMBER 2025

Week 1: Heat capacity of solids, Comptons effect. Wave function and its significance postulates of quantum mechanics. Quantum mechanical operator, commutation relations, Hamiltonian operators, Hermitian operators.

Week 2: Average value of square of hermitian as a positive quantity, Role of operator in quantum mechanics to show quantum mechanically that position and momentum cannot be predicted simultaneously, determination of wave function and energy of particle in one dimensional box, pictorial representation and its significance.Numerical problems

Week 3: test and problems discussion of unit 1

Week 4: Optical activity, clausius – Mossotti equation. Orientation of dipoles in an electric field, dipole moment, included dipole moment, measurement of dipole moment-temperature method and refractivity method, dipole moment and structure of molecules,

OCTOBER 2025

Week 1: Magnetic permeability, magnetic susceptibility and its determination. Applica tion of magnetic susceptibility, magnetic properties – paramagnetism, diamagnetism and ferromagnetics.

Week 2: Spectroscopy-introduction: Electromagnetic radiation, regions of spectrum, basic features of spectroscopy, statement of Born oppenheimer approximation, Degrees of freedom, Rotational Spectrum Diatomic molecules. Energy levels of rigid rotator (semi-classical principles), selection rules

Week 3: test & Diwali vacations

Week 4: Test of unit 2, spectral intensity distribution using population distribution (Maxwell-Boltzmann distribution), determination of bond length, qualitative description of non-rigid rotor, isotope effect, Vibrational spectrum Infrared spectrum: Energy levels of simple harmonic oscillator, selection rules, pure vibrational spectrum, intensity

November 2024

Week 1: determination of force constant and qualitative relation of force constant and bond energies, effects of anharmonic motion and isotopic effect on the spectra. idea of vibrational frequencies of different functional groups. Raman Spectrum: Concept of polarizibility,

Week 2: pure rotational and pure vibrational Raman spectra of diatomic molecules, selectin rules, Quantum theory of Raman spectra

GPGCW, ROHTAK

Department of Chemistry Lesson Plan

BSc -II Sem - 3rd 2025-26

Name of Faculty - Dr Suman (MIS-2954)

Class – BSc II Sec- A Fundamental Chemistry -III &

BSc II Sec- A Skill Enhancement Paper - III

July 2025

Third Week Fundamental Chemistry -III

Unit 1 Chemistry of Transition series elements

General characteristics of transition metals, Brief discussion of differences between the first, second and third transition series, stability of various oxidation states, magnetic and spectral properties.

Third Week Skill Enhancement Paper – III

Unit–I Basic Concepts

Components of cells and batteries & Classification of cells and batteries, About operation of a cell & theoretical cell voltage.

Fourth Week Fundamental Chemistry -III

Binary compounds and complexes, illustrating relative stability of their oxidation states, chemistry of Ti, V, Cr, Mn, Fe, Co, Mo and W in various oxidation states, some important compounds as laboratory reagents, potassium dichromate, potassium permanganate.

Fourth Week Skill Enhancement Paper – III

Capacity, energy, specific energy of practical batteries, About energy density of practical batteries.

August 2025

First Week Fundamental Chemistry -III

Some important compounds as laboratory reagents potassium ferrocyanide, potassium ferricyanide, sodium nitroprusside and sodium cobaltinitride.

Unit–II Thermodynamics-II

Third law of thermodynamics: Nernst heat theorem, concept of residual entropy.

First Week Skill Enhancement Paper - III

Unit–II Battery Design and Factors Affecting Battery Performance

General introduction, designing to eliminate potential safety problems.

Second Week Fundamental Chemistry -III

Evaluation of absolute entropy from heat capacity data. Gibbs and Helmholtz functions, Gibbs function (G) and Helmholtz function (A) as thermodynamic quantities.

Second Week Skill Enhancement Paper – III

Battery safeguards when using discrete batteries, battery construction.

Third Week Fundamental Chemistry -III

A & G as criteria for spontaneity, thermodynamic equilibrium and their advantage over entropy change. Variation of G and A with P, V and T. Partial molar quantities. **(ASSIGNMENT GIVEN)**

Third Week Skill Enhancement Paper – III

Design of rechargeable batteries, factors affecting battery performance.

(ASSIGNMENT GIVEN)

Fourth Week Fundamental Chemistry -III

Revision, Problem solving &Test of Unit 1

Fourth Week Skill Enhancement Paper – III

Revision, Problem solving &Test of Unit 1

September 2025

First Week Fundamental Chemistry -III

Unit–III Electrochemistry

Arrhenius theory of ionization, Ostwald's Dilution Law. Debye-Huckel–Onsager's equation for strong electrolytes (elementary treatment only).

First Week Skill Enhancement Paper - III

Unit–III Primary Batteries

General characteristics and applications of primary batteries, types and characteristics of primary batteries, comparison of the performance characteristics of primary battery systems.

Second Week Fundamental Chemistry -III

Transport number, definition and determination by Hittorf's methods. Electrolytic conduction, factors affecting electrolytic conduction. Applications of conductivity measurements: determination of dissociation constant (Ka) and degree of dissociation.

Second Week Skill Enhancement Paper – III

Recharging primary batteries. A) Zinc-Carbon Batteries (Leclanche´ and Zinc Chloride Cell Systems): General characteristics, cell chemistry, types of cells and batteries, construction, cell components.

Third Week Fundamental Chemistry -III

Determination of solubility product of sparingly soluble salts, conductometric titrations. Definition of pH and pKa, buffer solution, buffer action.

Third Week Skill Enhancement Paper – III

B) Magnesium and Aluminum Batteries: General characteristics, cell chemistry, construction of Mg/MnO2 batteries, performance characteristics of Mg/MnO2 batteries.

Fourth Week Fundamental Chemistry -III

Henderson – Hasselbalch equation, buffer mechanism of buffer action. Reversible electrodes – Metal- metal ion gas electrode, metal – metal insoluble salt- anion electrode and redox electrode. **Revision**

Fourth Week Skill Enhancement Paper – III

Sizes and types of Mg/MnO2 batteries, other types of magnesium primary batteries. **Revision**

October 2025

First Week Fundamental Chemistry -III

Unit–IV Alkyl and aryl halides

Alkyl halide: Nomenclature and classes of alkyl halides, general methods of preparation, physical properties and chemical reactions.

First Week Skill Enhancement Paper - III

Unit–IV Secondary Batteries

General characteristics and applications of secondary batteries, types and characteristics of secondary batteries.

Second Week Fundamental Chemistry -III

Mechanisms (SN1, SN2, E1, E2 and E1cb), stereochemistry of nucleophilic substitution reactions of alkyl halides with energy profile diagrams.

Second Week Skill Enhancement Paper – III

Comparison of performance characteristics for secondary battery systems and introduction, chemistry, construction, performance characteristics.

Third Week Fundamental Chemistry -III Diwali Holidays

Third Week Skill Enhancement Paper – III Diwali Holidays

Fourth Week Fundamental Chemistry -III

Elimination vs substitution reactions. Aryl halides: Methods of preparation, Reactions: Aromatic nucleophilic substitution and effect of substituents on reactivity.

Fourth Week Skill Enhancement Paper – III

Charging characteristics of following batteries: Lead batteries, Lithium ion batteries, Iron electrode batteries, Nickel-Cadmium.

November 2025

First Week Fundamental Chemistry -III

Benzyne Mechanism: KNH2/NH3 (or NaNH2/NH3), reactivity and relative strength of C-halogen bond in alkyl, allyl, benzyl, vinyl and aryl halides.

First Week Skill Enhancement Paper - III

Nickel-Metal hydride, NickelZinc batteries.

Second Week Fundamental Chemistry -III

Revision and Group Discussion.

Second Week Skill Enhancement Paper – III

Revision and Group Discussion.

Third Week Fundamental Chemistry -III

Problem solving

Third Week Skill Enhancement Paper – III

Problem solving

Government College For Women, Rohtak

Department of Chemistry

Name of the Faculty **–Ms.Meena**

B.Sc.3rd Sec A & C

B.Sc.2nd Sec C (Major)

Subject -**Physical Chemistry,Inorganic Chemistry**

JULY 2025

Week 4 :**Sec C**:**Quantum Mech.**Spectroscopy-introduction: Electromagnetic radiation, regions of spectrum,

Sec A:Thermodynamic & Kinetic aspects of Metal Complexes

A brief outline of thermodynamic stability of metal complexes.

Factors affecting the stability of metal complexes.

Sec C(2nd) : Chemistry of Transition series elements: General characteristics of transition metals,briefs discussion of difference between the first second and third transition series,stability of various states,magnetic and spectral properties

SEPTEMBER 2025

Week 1:**Sec C**: basic features of spectroscopy, statement of Born oppenheimer approximation, Degrees of freedom

Sec A: Substitution reactions in Square planar complexes of Pt(II)

Sec C(2nd) : Binary compounds and complexes illustrating relative stability of their oxidation states.chemistry of Ti,V,Cr,Mn,Mo,and W in various oxidation states,some important compounds as laboratory reagents potassium dichromate,potassium permanganate sodium cobaltnitrite

Week 2:**Sec C**: Rotational Spectra of Diatomic molecules. Energy levels of rigid rotator (semi-classical principles), selection rules

Sec A: Trans effect

Sec C(2nd) : THEERMODYNAMICS-Third law of dynamics :Nernst heat theorem,concept of residual entropy,evaluation of absolute entropy from heat capacity data.Gibbs and Helmholtz

functions,Gibbs function(G) and Helmholtz functions(A) as thermodynamic quantities,A&G as criteria of spontaniety

Week 3**: Sec C**: spectral intensity distribution using population distribution (Maxwell-Boltzmann distribution),

Sec A: Spin only formula.

Sec C(2nd) : Thermodynamic equilibrium and their advantage over entropy change. Variation of G and A with P,V,and T . Partial molar quantities

Week 4: **Sec C** :Thermodynamic equilibrium and their advantage over entropy change. Variation of G and A with P,V,and T . Partial molar quantities

Sec A:: LS coupling, correlation of μ_s and μ_{eff} values.

Sec C(2nd) : Arehenius theory of ionization,ostwald`s dilution law,Debye - Huckel-onsager`s equation for strong electrolyte(elementary treatment only).

OCTOBER 2025

Week 1: **Sec C:** isotope effect, Vibrational spectrum Infrared spectrum: Energy levels of simple harmonic oscillator,

Sec A: Orbital contribution to magnetic moments

Sec C(2nd) :Alkyl and aryl halides

Alkyl halide:Nomenclature and classes of alkyl halides,general methods of preparation,physical properties and chemical reactions

WEEK 2:**Sec C:** selection rules, pure vibrational spectrum, intensity

Sec A: Application of magnetic moment data for 3d- metal complexe

Sec C(2nd) :-Mechanisms(SN1,SN2,E1,E2,and E1 cb) and stereochemistry of nucleophilic substitution reactions of alkyl halides with energy profile diagrams,

WEEK 3: test & Diwali vacations

Week 4: **Sec C**:determination of force constant and qualitative relation of force constant and bond energies, effects of anharmonic motion and isotopic effect on the spectra.

Sec A: Application of magnetic moment data for 3d- metal complexe

Sec C(2nd) : Elimination vs substitution reactions

November 2025

Week 1: **Sec C:** idea of vibrational frequencies of different functional groups. Raman Spectrum: Concept of polarizibility,

Sec A:ASSIGNMENT & TEST

Sec C(2nd) :-Aryl halides: Method of preparation,reactions: Aromatic nucleophilic substitution and effect of substituents on reactivity.Benzyme Mechanism:KN2/NH3(or NaNH2/NH3),reactivity and relative strength of C-halogen bond in alkyl,alkyl,benzyl,vinyl and aryl halides

Week 2:**Sec C**: pure rotational and pure vibrational Raman spectra of diatomic molecules, selectin rules, Quantum theory of Raman spectra

Sec A: Doubt classes

Sec C(2nd) :ASSIGNMENT & TEST

CHEMISTRY DEPARTMENT GPGCW, ROHTAK

LESSION PLAN

NAME OF FACULTY- SEEMA CLASS- B.Sc.II

SUBJECT- 1.SKILL CHEMISTRY, 2. MAJOR CHEMISTRY

JULY3rd WEEK

SKILL CHEMISTRY: unit 1 Analysis of Soil and Water

Composition of soil, concept of pH and pH measurement of soil, complexometric titrations, chelation,

JULY 4TH WEEK

SKILL CHEMISTRY: chelating agents, use of indicators, estimation of calcium and magnesium ions in soil. Definition of pure water,

Major chemistry:Unit 1 Chemistry of Transition series elements

General characteristics of transition metals,briefs discussion of difference between the first second and third transition series,stability of various states,magnetic and spectral properties

AUGUST 1ST WEEK

skill CHEMISTRY : sources responsible for contaminating water, water sampling methods, water purification methods,

Major chemistry-Binary compounds and complexes illustrating relative stability of their oxidation states.chemistry of Ti,V,Cr,Mn,Mo,and W in various oxidation states,some important compounds as laboratory reagents potassium dichromate,potassium permanganate sodium cobaltnitrite

AUGUST 2ND WEEK

skill CHEMISTRY :determination of dissolved oxygen of a water sample.

Major Chemistry- **Unit2: THEERMODYNAMICS-||**

Third law of dynamics :Nernst heat theorem,concept of residual entropy,evaluation of absolute entropy from heat capacity data.Gibbs and Helmholtz functions,Gibbs function(G) and Helmholtz functions(A) as thermodynamic quantities,A&G as criteria of spontaniety

AUGUSTa 3RD WEEK

skill CHEMISTRY:A general study including preparation and uses of the following: Hair dye, soap, shampoo,

Major chemistry-Thermodynamic equilibrium and their advantage over entropy change. Variation of G and A with P,V,and T . Partial molar quantities

AUGUST 4TH WEEK

skill CHEMISTRY- suntan lotions, face powder, lipsticks, talcum powder, nail enamel.

Majorchemistry- Arehenius theory of ionization,ostwald`s dilution law,Debye - Huckel-onsager`s equation for strong electrolyte(elementary treatment only).

SEPTEMBER 1ST WEEK

skill CHEMISTRY:Pesticides

General introduction to pesticides (natural and synthetic), benefits and adverse effects, changing concepts of pesticides,

Major chemistry-unit3:Electrochemistry

Transport number ,defination and determination by Hittorf`s methods.Electrolyte conduction,factor affecting electrolytic conduction.

.

SEPTEMBER 2nd

skill CHEMISTRY: brief introduction of structure activity relationship, synthesis and technical manufacture and uses of representative pesticides

Major chemistry-Applications of conductivity measurements:determination of dissociation constant(Ka) and degree of dissociation,determination of solubility product of sparingly soluble salts

SEPTEMBER 3rd WEEK

skill CHEMISTRY:organochlorines (gammexene), organophosphates (malathion).

Major chemistry -conductometric titrations. Definition of pH and pKa

SEPTEMBER 4th WEEK

skill CHEMISTRY : Experimental Techniques

Basic principle of pH metric, potentiometric and conductometric titrations,

Minor chemistry-Buffer solution ,buffer action ,Henderson -Hasselbatch equation ,buffer mechanism of buffer action,

October 1st WEEK

skill CHEMISTRY : applications of conductivity

measurements: determination of degree of dissociation, determination of Ka of acids and base,

Major chemistry – Revesible electrodes- Metal-metal ion gas electrode,metal-metal insoluble salt-anion electrode and redox electrode.

October 2nd WEEK

SKILL CHEMISTRY- buffer solution, buffer action, Henderson–Hazel equation

Major chemistry:unit4:Alkyl and aryl halides

Alkyl halide:Nomenclature and classes of alkyl halides,general methods of preparation,physical properties and chemical reactions

October 4th WEEK

SKILL CHEMISTRY-, buffer mechanism of buffer action.

Major chemistry:-Mechanisms(SN1,SN2,E1,E2,and E1 cb) and stereochemistry of nucleophilic substitution reactions of alkyl halides with energy profile diagrams,

NOVEMBER 1st WEEK

SKILL CHEMISTRY-group discussion and revision of syllabus.

Major chemistry- Elimination vs substitution reactions

NOVEMBER 2nd WEEK

SKILL CHEMISTRY: test and assignment

Major chemistry-Aryl halides

Method of preparation,reactions: Aromatic nucleophilic substitution and effect of substituents on reactivity.Benzyme Mechanism:KN2/NH3(or NaNH2/NH3),reactivity and relative strength of C-halogen bond in alkyl,alkyl,benzyl,vinyl and aryl halides

NOVEMBER 3rd WEEK

Major chemistry-test and assignments

CHEMISTRY DEPARTMENT GPGCW, ROHTAK

LESSION PLAN

NAME OF FACULTY- NIDHI CLASS- BSc. 1st Non Med

SUBJECT- 1.MAJOR CHEMISTRY, 2. MINOR CHEMISTRY

JULY3rd WEEK

MAJOR CHEMISTRY Chemical Bonding and Molecular Structure

Ionic bond, lattice energy, Born-Haber cycle and its applications, **JULY 4TH WEEK**

MAJOR CHEMISTRY. Fajan's rules, hydration energy, bond moment, dipole moment and percentage ionic character

B.SC 2ND minor -Valance electron,ionic bond,bond parameters

AUGUST 1ST WEEK

MAJOR CHEMISTRY Resonance and resonance energy: study of some inorganic and organic compounds.

Minor chemistry-lewis structure,polar character of covalent bond,;valance, bond theory**AUGUST 2ND WEEK**

MAJOR CHEMISTRY Molecular Orbital Approach: LCAO method, bonding and antibonding MOs and their characteristics for s-s, s-p and p-p combination of atomic orbitals, non- bonding combination of orbitals

Minor chemistry- ,resonance .,geometry of covalent molecules,molecular orbital theory of homo nuclear diatomic molecules(qualitative idea only)

AUGUST 3RD WEEK

MAJOR CHEMISTRY MO treatment of homonuclear diatomic molecules of 1st and 2nd periods (including idea of s-p 17 mixing) and heteronuclear diatomic molecules such as O2 - , O2 2- , N2 - , CO, NO+ , CN-

. Minor chemistry-hydrogen bond with its examples ,vander waal forces

AUGUST 4TH WEEK

MAJOR CHEMISTRY- heteronuclear diatomic molecules such as O2 - , O2 2- , N2 - , CO, NO+ , CN

Minor chemistry-thermodynamics -general thermodynamics,concept of system types of system,surrounding ,extensive and intensive properties

SEPTEMBER 1ST WEEK

MAJOR CHEMISTRY Unit–II p-Block Elements Oxides – structures of oxides of N, P. Oxyacids – structure and relative acid strengths of oxyacids of nitrogen and phosphorus.

Minor chemistry-state function,variable function,law of thermo dyna mics

SEPTEMBER 2nd

MAJOR CHEMISTRY Structure of white, yellow and red phosphorus. Oxyacids of sulphur – structures and acidic strength, H_2O_2–structure, properties and uses. Basic properties of halogen, interhalogen compounds-types and properties,

Minor chemistry-internal energy,enthalpy,heat capacity and specific heat,gibbs free energy and helmhotz function

SEPTEMBER 3rd WEEK

MAJOR CHEMISTRY halogen-acids and oxyacids of chlorine – structure and comparison of acidic strength.

Acids and Bases: Brönsted–Lowry concept, conjugate acids and bases, relative strengths of acids and bases, effects of substituent and solvent, differentiating and levelling solvents

Minor chemistry -mesurement ofH and U,hess,s lawof constant summation,enthalpy of bond dissocistion

SEPTEMBER 4th WEEK

MAJOR CHEMISTRY Lewis acid-base concept, classification of Lewis acids and bases, Lux-Flood concept.

Minor chemistry-enthalpy of combustion, formation, atomization, sublimation ,transition, ionization

October 1st WEEK

MAJOR CHEMISTRY Unit–III Gaseous States : Maxwell's distribution of velocities and energies (derivation excluded), calculation of root mean square velocity, average velocity and most probable velocity.

Minor chemistry –dynamic naturechemical and ionic equilibrium-dynamic nature of equilibrium law of mass action ,equilibrium const.

October 2nd WEEK

MAJOR CHEMISTRY Collision diameter, collision number, collision frequency and mean free path, deviation of real gases from ideal behaviour, test and assignments

Minor chemistry-lechateliers principle and its application,theories of acid base,ionization of acid and bases

October 4th WEEK

MAJOR CHEMISTRY derivation of Van der Waals Equation of state and its applications in the calculation of Boyle's temperature (compression factor), explanation of behavior of real gases using Van der Waals equation. Critical Phenomenon: Critical temperature, critical pressure, critical volume and their determination

Minor chemistry-stron,weak electrolytes,degree of ionization,acidic basic strength,concept of ph,hydrolysis,buffer solution,solubility product,common ion effect

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NOVEMBER 1st WEEK

MAJOR CHEMISTRY PV isotherms of real gases, continuity of states, isotherms of Van der Waals equation, relationship between critical constants and Van der Waals constants, compressibility factor. Law of corresponding states.

Minor chemistry-structure of haloalkanes,general methods of preparation ,nucleophilic substitution reac.with mech.

NOVEMBER 2nd WEEK

MAJOR CHEMISTRY Unit–IV Basics of Organic Chemistry and Stereochemistry

Electronic displacements and its applications, reaction intermediates and concept of aromaticity. Concept of isomerism, types of isomerism, optical isomerism, optical activity, elements of symmetry, molecular chirality, enantiomers,

Minor chemistry-nucleophilic specific reac.with example,nitration, hydrolysis,formation of nitrile isonitrile and Williamson's ether synthesis

NOVEMBER 3rd WEEK

MAJOR CHEMISTRY stereogenic centre, properties of enantiomers, chiral and achiral molecules with two stereogenic centres, diastereomers, threo and erythro diastereomers, meso compounds, resolution of enantiomers, inversion, retention and racemization, relative and absolute configuration, sequence rules, R & S system of nomenclature..

Minor chemistry-test and assignments

CHEMISTRY DEPARTMENT GPGCW, ROHTAK

LESSION PLAN

NAME OF FACULTY- MANU CLASS- BSc. 1st (NM), B.Sc.II

SUBJECT- 1.SKILL CHEMISTRY, 2. MINOR CHEMISTRY

JULY3rd WEEK

SKILL CHEMISTRY: unit 1 Analysis of Soil and Water

Composition of soil, concept of pH and pH measurement of soil, complexometric titrations, chelation,

JULY 4TH WEEK

SKILL CHEMISTRY: chelating agents, use of indicators, estimation of calcium and magnesium ions in soil. Definition of pure water,

Minor chemistry:Unit 1 metals and non-metals

Occurrence of elements in nature,physical and chemical properties of metals and non metals,minerals and ores.

AUGUST 1ST WEEK

skill CHEMISTRY : sources responsible for contaminating water, water sampling methods, water purification methods,

Minor chemistry-metallurgical processes(benefaction,roasting,calcination and reduction of metal oxides processes), refining of metals,metallurgy of Fe,Zn,Al and Cu.

AUGUST 2ND WEEK

skill CHEMISTRY :determination of dissolved oxygen of a water sample.

Minor chemistry- **Unit2: solution**

types of solutions,expression of concentration of solutions of solids in liquids,solubility of gases in liquids,solid solutions,raoult's law.

AUGUST 3RD WEEK

skill CHEMISTRY:A general study including preparation and uses of the following: Hair dye, soap, shampoo,

Minor chemistry-colligative properties- relative lowering of vapour pressure,elevation of boiling point,depression in freezing point,osmotic pressure,

AUGUST 4TH WEEK

skill CHEMISTRY- suntan lotions, face powder, lipsticks, talcum powder, nail enamel.

Minor chemistry-determination of molecular masses using colligative properties,abnormal molecular mass,van't Hoff factor.

SEPTEMBER 1ST WEEK

skill CHEMISTRY:Pesticides

General introduction to pesticides (natural and synthetic), benefits and adverse effects, changing concepts of pesticides,

Minor chemistry-unit3:hydrocarbons

Alkanes:general methods of preparation and reactions:free radical sustitution.

Alkenes:general methods of preparation and reactions:cis-addition(alk. KMnO4) and trans-addition(bromine).

SEPTEMBER 2nd

skill CHEMISTRY: brief introduction of structure activity relationship, synthesis and technical manufacture and uses of representative pesticides

Minor chemistry-addition of HX,(markownikoff's and anti-markownikoff's addition),hydration,ozonolysis,oxymercuration-demercuration,hydoboration oxidation.

SEPTEMBER 3rd WEEK

skill CHEMISTRY:organochlorines (gammexene), organophosphates (malathion).

Minor chemistry -alkynes: general methods of preparation and reaction: formation of metal acetylides and acidity of alkynes,addition of bromine and alik. KMnO4,

SEPTEMBER 4th WEEK

skill CHEMISTRY : Experimental Techniques

Basic principle of pH metric, potentiometric and conductometric titrations,

Minor chemistry-ozonolysis and oxidation with hot alk.KMnO4,

October 1st WEEK

skill CHEMISTRY : applications of conductivity

measurements: determination of degree of dissociation, determination of Ka of acids and base,

Minor chemistry – hydration to form carbonyl compounds.

October 2nd WEEK

SKILL CHEMISTRY- buffer solution, buffer action, Henderson–Hazel equation

Minor chemistry:unit4:aromatic hydrocarbon

Structure of benzene(kekule,hybrid and resonance),preparation of benzene.

October 4th WEEK

SKILL CHEMISTRY-, buffer mechanism of buffer action.

Minor chemistry:-electrophillic substitution reactions of benzenes citing example of nitration,sulphonation.

NOVEMBER 1st WEEK

SKILL CHEMISTRY-group discussion and revision of syllabus.

Minor chemistry-side chain oxidation of alkyl benzene.

NOVEMBER 2nd WEEK

SKILL CHEMISTRY: test and assignment

Minor chemistry-friedel-craft alkylation and acylation with special emphasis on carbocationic rearrangement,

NOVEMBER 3rd WEEK

Minor chemistry-test and assignments

CHEMISTRY DEPARTMENT GPGCW, ROHTAK

LESSION PLAN(2025-2026) ODD SEM

NAME OF FACULTY- VIJAITA CLASS- BSc. 1ST MAJOR CHEMISTRY

BSc. IInd SKILL CHEMISTRY

JULY 4TH WEEK

MAJOR CHEMISTRY Chemical Bonding and Molecular Structure

Ionic bond, lattice energy, Born-Haber cycle and its applications, Fajan's rules, hydration energy, bond moment, dipole moment and percentage ionic character.

SKILL CHEMISTRY ,

Basic concept , components of cells and batteries, ,theoretical cell voltage, **AUGUST 1ST WEEK**

MAJOR CHEMISTRY Resonance and resonance energy: study of some inorganic and organic compounds.

SKILL CHEMISTRY classification of cell and batteries, operation of cell

AUGUST 2ND WEEK

MAJOR CHEMISTRY Molecular Orbital Approach: LCAO method, bonding and antibonding MOs and their characteristics for s-s, s-p and p-p combination of atomic orbitals, non- bonding combination of orbitals

SKILL CHEMISTRY capacity,energy, specific energy,energy density of practical batteries

AUGUST 3RD WEEK

MAJOR CHEMISTRY MO treatment of homonuclear diatomic molecules of 1st and 2nd periods (including idea of s-p 17 mixing) and heteronuclear diatomic molecules such as O2 - , O2 2- , N2 - , CO, NO+ , CN- .

SKILL CHEMISTRY Battery design and factors affecting battery performance

General introduction ,designing to eliminate potential safty problems,

AUGUST 4TH WEEK

MAJOR CHEMISTRY Comparison of VB and MO approach

SKILL CHEMISTRY battery safeguards when using discrete batteries, battery construction

SEPTEMBER 1ST WEEK

MAJOR CHEMISTRY Unit–II p-Block Elements Oxides – structures of oxides of N, P. Oxyacids – structure and relative acid strengths of oxyacids of nitrogen and phosphorus.

SKILL CHEMISTRY design of rechargeable battery, factors affecting battery performance

SEPTEMBER 2nd

MAJOR CHEMISTRY Structure of white, yellow and red phosphorus. Oxyacids of sulphur – structures and acidic strength, H2O2–structure, properties and uses. Basic properties of halogen, interhalogen compounds-types and properties,

SKILL CHEMISTRY primary batteries, general charteristics

SEPTEMBER 3rd WEEK

MAJOR CHEMISTRY halogen-acids and oxyacids of chlorine – structure and comparison of acidic strength.

Acids and Bases: Brönsted–Lowry concept, conjugate acids and bases, relative strengths of acids and bases, effects of substituent and solvent, differentiating and levelling solvents.

SKILL CHEMISTRY zinc carbon battery

SEPTEMBER 4th WEEK

MAJOR CHEMISTRY Lewis acid-base concept, classification of Lewis acids and bases, Lux-Flood concept.

SKILL CHEMISTRY magnesium aluminum battery

October 1st WEEK

MAJOR CHEMISTRY Unit–III Gaseous States : Maxwell's distribution of velocities and energies (derivation excluded), calculation of root mean square velocity, average velocity and most probable velocity

SKILL CHEMISTRY test of unit 1st and 2nd and proplem solving

October 2nd WEEK

MAJOR CHEMISTRY Collision diameter, collision number, collision frequency and mean free path, deviation of real gases from ideal behaviour, test and assignments

SKILL CHEMISTRY secondary batteries – general characteristics

October 3rd WEEK

MAJOR CHEMISTRY derivation of Van der Waals Equation of state and its applications in the calculation of Boyle's temperature (compression factor),

SKILL CHEMISTRY lead batteries

October 4th WEEK

MAJOR CHEMISTRY explanation of behavior of real gases using Van der Waals equation. Critical Phenomenon: Critical temperature, critical pressure, critical volume and their determination.

SKILL CHEMISTRY lithium ion batteries

NOVEMBER 1st WEEK

MAJOR CHEMISTRY PV isotherms of real gases, continuity of states, isotherms of Van der Waals equation, relationship between critical constants and Van der Waals constants, compressibility factor. Law of corresponding states.

SKILL CHEMISTRY iron electrode battery, nickel cadmium battery

NOVEMBER 2nd WEEK

MAJOR CHEMISTRY Unit–IV Basics of Organic Chemistry and Stereochemistry

Electronic displacements and its applications, reaction intermediates and concept of aromaticity. Concept of isomerism, types of isomerism, optical isomerism, optical activity, elements of symmetry, molecular chirality, enantiomers,

SKILL CHEMISTRY nickel metal hydride , nickel zinc batteries

NOVEMBER 3rd WEEK

MAJOR CHEMISTRY stereogenic centre, properties of enantiomers, chiral and achiral molecules with two stereogenic centres, diastereomers, threo and erythro diastereomers, meso compounds, resolution of enantiomers, inversion, retention and racemization, relative and absolute configuration, sequence rules, R & S system of nomenclature.

SKILL CHEMISTRY test of unit 3rd and 4th, assignments.

Government College For Women, Rohtak

Department of Chemistry

Name of the Faculty – **Ms.Monika**

B.Sc Home Sc. Sem 5th

Subject - **Biochemistry**

July 2025

Introduction to Biochemistry,Objectives,inter relationship between biochemistry and other biological science

August 2025

First Week- Enzymes-definition ,classification

Second Week- Different types of co-enzymes, specificity of enzymes

Third week: factors affecting enzyme activity

Fourth week: Enzymes kinetics ,Enzyme inhibition(competitive and non-competitive)

September 2025

First Week- Biological role of Vitamins A, Vitamin D

Second Week- Vitamin e, Vitamin K , Vitamin C

Third week: Vitamin B_1 , B_2 ,B_3 ,B_6

Fourth week: Carbohydrates: Definition, Classification; Monosaccharides -Glucose, Fructose, Galactose

OCTOBER 2025

First week - Monthly test and Discussion, Disaccharides-maltose

Second week: Disaccharides-Lactose, Sucrose, Polysaccharides-Starch, Glycogen

Third week: **Diwali Break**

Fourth week: Glycolysis Cycle, Gluconeogenesis cycle, Glycogenesis cycle glycogenolysis cycle

NOVEMBER 2025

First week: - Protein-Definition, Classification,Properties, Amino acids and their types with structure

Second week: Monthly Discussion and Assignment

Third week – General reaction of Amino Acid metabolism, Urea cycle

CHEMISTRY DEPARTMENT GPGCW, ROHTAK

LESSION PLAN (2025-26)

NAME OF FACULTY- PREETI CLASS- BSc. 1st Med , Non-Med

SUBJECT- 1.MAJOR CHEMISTRY , 2. MINOR CHEMISTRY

JULY

3RD WEEK MAJOR CHEMISTRY

Chemical Bonding and Molecular Structure

MINOR CHEMISTRY Atomic models, Rutherford's model and its limitations,

4TH WEEK

MAJOR CHEMISTRY Ionic bond, lattice energy, Born-Haber cycle and its applications, Fajan's rules, hydration energy, bond moment, dipole moment and percentage ionic character.

MINOR CHEMISTRY Unit I :Atomic Structure

Bohr's model and its applications, dual nature of matter and light, de Broglie's relationship

AUGUST

1ST WEEK

MAJOR CHEMISTRY Resonance and resonance energy: study of some inorganic and organic compounds.

MINOR CHEMISTRY Heisenberg uncertainty principle, concept of orbitals, quantum numbers, shapes of s, p and d orbitals,

2ND WEEK

MAJOR CHEMISTRY Molecular Orbital Approach: LCAO method, bonding and antibonding MOs and their characteristics for s-s, s-p and p-p combination of atomic orbitals, non- bonding combination of orbitals

MINOR CHEMISTRY for filling electrons in orbitals rules - Aufbau principle, Pauli's 20 exclusion principle and Hund's rule, electronic configuration of atoms, stability of half-filled and completely filled orbitals.

3RD WEEK

MAJOR CHEMISTRY MO treatment of homonuclear diatomic molecules of 1st and 2nd periods (including idea of s-p 17 mixing) and heteronuclear diatomic molecules such as O2 - , O2 2- , N2 - , CO, NO+ , CN- .

MINOR CHEMISTRY Unit–II Periodic Table and Atomic Properties

Brief history of the development of periodic table,

4TH WEEK

MAJOR CHEMISTRY Comparison of VB and MO approach

MINOR CHEMISTRY modern periodic law and the present form of periodic table, periodic trends in properties of elements -atomic radii, ionic radii, inert gas radii,

SEPTEMBER

1ST WEEK

MAJOR CHEMISTRY Unit–II p-Block Elements Oxides – structures of oxides of N, P. Oxyacids – structure and relative acid strengths of oxyacids of nitrogen and phosphorus.

MINOR CHEMISTRY ionization enthalpy, electron gain enthalpy, electronegativity, valency

2nd WEEK

MAJOR CHEMISTRY Structure of white, yellow and red phosphorus. Oxyacids of sulphur – structures and acidic strength, H2O2–structure, properties and uses. Basic properties of halogen, interhalogen compounds-types and properties,

MINOR CHEMISTRY Nomenclature of elements with atomic number greater than 100.

3rd WEEK

MAJOR CHEMISTRY halogen-acids and oxyacids of chlorine – structure and comparison of acidic strength.

Acids and Bases: Brönsted–Lowry concept, conjugate acids and bases, relative strengths of acids and bases, effects of substituent and solvent, differentiating and levelling solvents.

4th WEEK

MAJOR CHEMISTRY Lewis acid-base concept, classification of Lewis acids and bases, Lux-Flood concept.

MINOR CHEMISTRY test and assignments

October

1st WEEK

MAJOR CHEMISTRY Unit–III Gaseous States : Maxwell's distribution of velocities and energies (derivation excluded), calculation of root mean square velocity, average velocity and most probable velocity.

MINOR CHEMISTRY . Unit–III Mole Concept : Atomic mass, mole concept and molar mass, Avogadro's number and its significance

2nd WEEK

MAJOR CHEMISTRY Collision diameter, collision number, collision frequency and mean free path, deviation of real gases from ideal behaviour, test and assignments, derivation of Van der Waals Equation of state and its applications in the calculation of Boyle's temperature (compression factor),

MINOR CHEMISTRY percentage composition, empirical and molecular formula, chemical reactions, ways of expressing concentration of solutions -molarity

3rd WEEK

Diwali Vacations

4th WEEK

MAJOR CHEMISTRY explanation of behavior of real gases using Van der Waals equation. Critical Phenomenon: Critical temperature, critical pressure, critical volume and their determination.

MINOR CHEMISTRY normality, molality, mole percentage, strength stoichiometric calculations involving reactants and products.

NOVEMBER

1st WEEK

MAJOR CHEMISTRY PV isotherms of real gases, continuity of states, isotherms of Van der Waals equation, relationship between critical constants and Van der Waals constants, compressibility factor. Law of corresponding states.

MINOR CHEMISTRY Unit–IV Fundamentals of Organic Chemistry : Electronic displacements: Inductive effect, electromeric effect,

2nd WEEK

MAJOR CHEMISTRY Unit–IV Basics of Organic Chemistry and Stereochemistry

Electronic displacements and its applications, reaction intermediates and concept of aromaticity. Concept of isomerism, types of isomerism, optical isomerism, optical activity, elements of symmetry, molecular chirality, enantiomers,

MINOR CHEMISTRY resonance, hyperconjugation. Cleavage of bonds: homolysis and heterolysis. Reaction intermediates: carbocations, carbanions, free radicals, and carbenes.

3rd WEEK

MAJOR CHEMISTRY stereogenic centre, properties of enantiomers, chiral and achiral molecules with two stereogenic centres, diastereomers, threo and erythro diastereomers, meso compounds, resolution of enantiomers, inversion, retention and racemization, relative and absolute configuration, sequence rules, R & S system of nomenclature.

MINOR CHEMISTRY Electrophiles and nucleophiles. Aromaticity: benzenoids and Huckel's rule.

CHEMISTRY DEPARTMENT GPGCW, ROHTAK

LESSION PLAN (2025-26)

NAME OF FACULTY- SANGEETA CLASS- BSc. 1st Non-Med

SUBJECT- 1. MAJOR CHEMISTRY, 2. MINOR CHEMISTRY

JULY

3RD WEEK MAJOR CHEMISTRY

Chemical Bonding and Molecular Structure

MINOR CHEMISTRY Atomic models, Rutherford's model and its limitations,

4TH WEEK

MAJOR CHEMISTRY Ionic bond, lattice energy, Born-Haber cycle and its applications, Fajan's rules, hydration energy, bond moment, dipole moment and percentage ionic character.

MINOR CHEMISTRY Unit I :Atomic Structure

Bohr's model and its applications, dual nature of matter and light, de Broglie's relationship

AUGUST

1ST WEEK

MAJOR CHEMISTRY Resonance and resonance energy: study of some inorganic and organic compounds.

MINOR CHEMISTRY Heisenberg uncertainty principle, concept of orbitals, quantum numbers, shapes of s, p and d orbitals,

2ND WEEK

MAJOR CHEMISTRY Molecular Orbital Approach: LCAO method, bonding and antibonding MOs and their characteristics for s-s, s-p and p-p combination of atomic orbitals, non- bonding combination of orbitals

MINOR CHEMISTRY for filling electrons in orbitals rules - Aufbau principle, Pauli's 20 exclusion principle and Hund's rule, electronic configuration of atoms, stability of half-filled and completely filled orbitals.

3RD WEEK

MAJOR CHEMISTRY MO treatment of homonuclear diatomic molecules of 1st and 2nd periods (including idea of s-p 17 mixing) and heteronuclear diatomic molecules such as O2 - , O2 2- , N2 - , CO, NO+ , CN- .

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Brief history of the development of periodic table,

4TH WEEK

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MINOR CHEMISTRY modern periodic law and the present form of periodic table, periodic trends in properties of elements -atomic radii, ionic radii, inert gas radii,

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MINOR CHEMISTRY ionization enthalpy, electron gain enthalpy, electronegativity, valency

2nd WEEK

MAJOR CHEMISTRY Structure of white, yellow and red phosphorus. Oxyacids of sulphur – structures and acidic strength, H2O2–structure, properties and uses. Basic properties of halogen, interhalogen compounds-types and properties,

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4th WEEK

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MINOR CHEMISTRY test and assignments

October

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3rd WEEK

Diwali Vacations

4th WEEK

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MINOR CHEMISTRY normality, molality, mole percentage, strength stoichiometric calculations involving reactants and products.

NOVEMBER

1st WEEK

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MINOR CHEMISTRY Electrophiles and nucleophiles. Aromaticity: benzenoids and Huckel's rule.