

Teacher Name: Satish Kumar
 Class B.Sc. IIIrd
 Semester- 5th
 Session 2025-26
 Paper: Organometallic and Bioinorganic Chemistry

Week	Topic
01.08.2025 to 09.08.2025	Organometallic Compounds-I Definition and classification of organometallic compounds on the basis of bond type. Concept of hapticity of organic ligands. Metal carbonyls: 18 electron rule, electron count of mononuclear, polynuclear and substituted metal carbonyls of 3d series.
11.08.2025 to 16.08.2025	General methods of preparation (direct combination, reductive carbonylation, thermal and photochemical decomposition) of mono and binuclear carbonyls of 3d series.
18.08.2025 to 23.08.2025	Structures of mononuclear and binuclear carbonyls of Cr, Mn and Fe using VBT
25.08.2025 to 30.08.2025	Structures of mononuclear and binuclear carbonyls of Co and Ni using VBT
01.09.2025 to 06.09.2025	π -acceptor behaviour of CO (MO diagram of CO to be discussed), synergic effect and use of IR data to explain extent of back bonding
08.09.2025 to 13.09.2025	Revision of topics covered and unit test
15.09.2025 to 20.09.2025	Organometallic Compounds-II Zeise's salt: Preparation and structure, evidences of synergic effect and comparison of synergic effect with that in carbonyls.
22.09.2025 to 27.09.2025	Metal Alkyls: Important structural features of methyl lithium (tetramer) and trialkyl aluminium (dimer), concept of multicentre bonding in these compounds.
29.09.2025 to 04.10.2025	Ferrocene: Preparation and reactions (acetylation, alkylation, metallation, Mannich Condensation), Structure and aromaticity. Comparison of aromaticity and reactivity with that of benzene.
06.10.2025 to 11.10.2025	Mid Term Exam
13.10.2025 to 18.10.2025	Catalysis by Organometallic: Compounds Study of the following industrial processes and their mechanism: 1. Alkene hydrogenation (Wilkinson's Catalyst) 2. Synthetic gasoline (Fischer Tropsch reaction) 3. Polymerisation of ethene using Ziegler-Natta catalyst
20.10.2025 to 25.10.2025	Deepawali vacation
27.10.2025 to 01.11.2025	Bioinorganic Chemistry: Metal ions present in biological systems, classification of elements according to their action in biological system. Geochemical effect on the distribution of metals.
03.11.2025 to 08.11.2025	Sodium / K-pump, carbonic anhydrase and carboxypeptidase. Revision
10.11.2025 to 15.11.2025	Excess and deficiency of some trace metals. Toxicity of metal ions (Hg, Pb, Cd and As), reasons for toxicity, Use of chelating agents in medicine.
17.11.2025 to 22.11.2025	Cisplatin as an anti-cancer drug. Iron and its application in bio-systems, Haemoglobin, Myoglobin; Storage and transfer of iron.
24.11.2025 to 29.11.2025	Revision

Teacher Name: Deepak
 Class B.Sc. IIIrd
 Semester- 5th
 Session 2025-26
 Paper: Organic Spectroscopy -I

Week	Topic
01.08.2025 to 09.08.2025	NMR Spectroscopy-I: Principle of nuclear magnetic resonance. The PMR spectrum, number of signals.
11.08.2025 to 16.08.2025	Peak areas. Equivalent and non-equivalent protons position of signals and chemical shift. Shielding and deshielding of protons.
18.08.2025 to 23.08.2025	proton counting, splitting of signals and coupling constants. Magnetic equivalence of protons.
25.08.2025 to 30.08.2025	NMR Spectroscopy-II: Simple problem on PMR spectroscopy or structure determination of common organic compounds. IR Spectroscopy: IR absorption spectroscopy-molecular vibrations, Hook's law.
01.09.2025 to 06.09.2025	selection rules, intensity and position of IR bands. Measurement of IR spectrum.
08.09.2025 to 13.09.2025	Fingerprint region, characteristic absorption of various functional groups.
15.09.2025 to 20.09.2025	Interpretation of IR spectra of simple organic compounds.
22.09.2025 to 27.09.2025	Revision of NMR and IR and assignment submission
29.09.2025 to 04.10.2025	UV-Spectroscopy: UV-Absorption spectroscopy -absorption laws, molar absorptivity.
06.10.2025 to 11.10.2025	Mid term exam
13.10.2025 to 18.10.2025	Presentation and analysis of UV-spectra. Types of electronic transition.
20.10.2025 to 25.10.2025	Deepawali vacation
27.10.2025 to 01.11.2025	Presentation and analysis of UV-spectra. Types of electronic transition.
03.11.2025 to 08.11.2025	effect of conjugation. Concept of chromophore and auxochrome. Different type of shifts.
10.11.2025 to 15.11.2025	UV-spectra of conjugated enes and enones.
17.11.2025 to 22.11.2025	UV-spectra of conjugated enes and enones.
24.11.2025 to 29.11.2025	Revision

Teacher Name: Anuj
 Class B.Sc. IIIrd
 Semester- 5th
 Session 2025-26
 Paper: Organometallic and Bioinorganic Chemistry

Week	Topic
01.08.2025 to 09.08.2025	Organometallic Compounds-I Definition and classification of organometallic compounds on the basis of bond type. Concept of hapticity of organic ligands. Metal carbonyls: 18 electron rule, electron count of mononuclear, polynuclear and substituted metal carbonyls of 3d series.
11.08.2025 to 16.08.2025	General methods of preparation (direct combination, reductive carbonylation, thermal and photochemical decomposition) of mono and binuclear carbonyls of 3d series.
18.08.2025 to 23.08.2025	Structures of mononuclear and binuclear carbonyls of Cr, Mn and Fe using VBT
25.08.2025 to 30.08.2025	Structures of mononuclear and binuclear carbonyls of Co and Ni using VBT
01.09.2025 to 06.09.2025	π -acceptor behaviour of CO (MO diagram of CO to be discussed), synergic effect and use of IR data to explain extent of back bonding
08.09.2025 to 13.09.2025	Revision of topics covered and unit test
15.09.2025 to 20.09.2025	Organometallic Compounds-II Zeise's salt: Preparation and structure, evidences of synergic effect and comparison of synergic effect with that in carbonyls.
22.09.2025 to 27.09.2025	Metal Alkyls: Important structural features of methyl lithium (tetramer) and trialkyl aluminium (dimer), concept of multicentre bonding in these compounds.
29.09.2025 to 04.10.2025	Ferrocene: Preparation and reactions (acetylation, alkylation, metallation, Mannich Condensation), Structure and aromaticity. Comparison of aromaticity and reactivity with that of benzene.
06.10.2025 to 11.10.2025	Mid Term Exam
13.10.2025 to 18.10.2025	Catalysis by Organometallic: Compounds Study of the following industrial processes and their mechanism: 1. Alkene hydrogenation (Wilkinson's Catalyst) 2. Synthetic gasoline (Fischer Tropsch reaction) 3. Polymerisation of ethene using Ziegler-Natta catalyst
20.10.2025 to 25.10.2025	Deepawali vacation
27.10.2025 to 01.11.2025	Bioinorganic Chemistry: Metal ions present in biological systems, classification of elements according to their action in biological system. Geochemical effect on the distribution of metals.
03.11.2025 to 08.11.2025	Sodium / K-pump, carbonic anhydrase and carboxypeptidase. Revision
10.11.2025 to 15.11.2025	Excess and deficiency of some trace metals. Toxicity of metal ions (Hg, Pb, Cd and As), reasons for toxicity, Use of chelating agents in medicine.
17.11.2025 to 22.11.2025	Cisplatin as an anti-cancer drug. Iron and its application in bio-systems, Haemoglobin, Myoglobin; Storage and transfer of iron.
24.11.2025 to 29.11.2025	Revision

Teacher Name: Sandeep
 Class B.Sc. IIIrd
 Semester- 5th
 Session 2025-26
 Paper: Organic Spectroscopy -I

Week	Topic
01.08.2025 to 09.08.2025	NMR Spectroscopy-I: Principle of nuclear magnetic resonance. The PMR spectrum, number of signals.
11.08.2025 to 16.08.2025	Peak areas. Equivalent and non-equivalent protons position of signals and chemical shift. Shielding and deshielding of protons.
18.08.2025 to 23.08.2025	proton counting, splitting of signals and coupling constants. Magnetic equivalence of protons.
25.08.2025 to 30.08.2025	NMR Spectroscopy-II: Simple problem on PMR spectroscopy or structure determination of common organic compounds. IR Spectroscopy: IR absorption spectroscopy-molecular vibrations, Hook's law.
01.09.2025 to 06.09.2025	selection rules, intensity and position of IR bands. Measurement of IR spectrum.
08.09.2025 to 13.09.2025	Fingerprint region, characteristic absorption of various functional groups.
15.09.2025 to 20.09.2025	Interpretation of IR spectra of simple organic compounds.
22.09.2025 to 27.09.2025	Revision of NMR and IR and assignment submission
29.09.2025 to 04.10.2025	UV-Spectroscopy: UV-Absorption spectroscopy -absorption laws, molar absorptivity.
06.10.2025 to 11.10.2025	Mid term exam
13.10.2025 to 18.10.2025	Presentation and analysis of UV-spectra. Types of electronic transition.
20.10.2025 to 25.10.2025	Deepawali vacation
27.10.2025 to 01.11.2025	Presentation and analysis of UV-spectra. Types of electronic transition.
03.11.2025 to 08.11.2025	effect of conjugation. Concept of chromophore and auxochrome. Different type of shifts.
10.11.2025 to 15.11.2025	UV-spectra of conjugated enes and enones.
17.11.2025 to 22.11.2025	UV-spectra of conjugated enes and enones.
24.11.2025 to 29.11.2025	Revision

Teacher Name: Mrs. Shanta Sharma
 Class B.Sc, Non-Med & Med
 Semester- 5TH
 Session 2025-26

Week	Topic
01.08.2025 to 09.08.2025	Air Pollution: Major regions of the atmosphere. Chemical and photochemical reactions in the atmosphere.
11.08.2025 to 16.08.2025	Air pollutants: types, sources, particle size and chemical nature; Photochemical smog: its constituents and photochemistry.
18.08.2025 to 23.08.2025	Environmental effects of ozone, Major sources of air pollution
25.08.2025 to 30.08.2025	Pollution by SO ₂ , CO ₂ , CO, NO, FeS, and other foul-smelling gases. Methods of estimation of CO, NO, SO, and control procedures.
01.08.2025 to 09.08.2025	Effects of air pollution on living organisms and vegetation. Greenhouse effect and Global warming, Ozone depletion by oxides of nitrogen, chlorofluorocarbons and Halogens.
01.09.2025 to 06.09.2025	Revision of unit-1
08.09.2025 to 13.09.2025	Water Pollution: Hydrological cycle, water resources, aquatic ecosystems, Sources and nature of water pollutants,
15.09.2025 to 20.09.2025	Techniques for measuring water pollution, Impacts of water pollution on hydrological and ecosystems. Water purification methods.
22.09.2025 to 27.09.2025	Effluent treatment plants (primary, secondary, and tertiary treatment).
29.09.2025 to 04.10.2025	Industrial effluents from the following industries and their treatment: electroplating, textile, tannery, dairy, petroleum and petrochemicals, agro, fertilizer, etc
06.10.2025 to 11.10.2025	Midterm exam
13.10.2025 to 18.10.2025	Water treatment and purification (reverse osmosis, electro dialysis, ion exchange). Water quality parameters for waste water, industrial water and domestic water.
20.10.2025 to 25.10.2025	Deepawali vacation
27.10.2025 to 01.11.2025	Energy & Environment: Sources of energy- Coal, petrol and natural gas, nuclear fusion/fission, solar energy, hydrogen, geothermal, tidal and hydel, etc
03.11.2025 to 08.11.2025	Nuclear Pollution-Disposal of nuclear waste, nuclear disaster and its management
10.11.2025 to 15.11.2025	Biocatalysis: Introduction to biocatalysis.
17.11.2025 to 22.11.2025	Importance in "Green Chemistry" and Chemical Industry, revision
24.11.2025 to 29.11.2025	Revision

Teacher Name: Sandeep
 Class B.Sc. 1st year
 Semester- 1st semester
 Session 2025-26
 Paper: Chemistry-I

Course Code: 24UN-CHE-101

Week	Topic
01.08.2025 to 09.08.2025	Atomic Structure: Introduction, Dual behaviour of matter and radiation, de Broglie's relation, Heisenberg's uncertainty principle, concept of atomic orbitals, significance of quantum numbers, Radial and angular wave functions,
11.08.2025 to 16.08.2025	Normal and orthogonal wave functions, significance of Ψ and Ψ^2
18.08.2025 to 23.08.2025	Shapes of s, p, d, f orbitals, Rules for filling electrons in various orbitals, effective nuclear charge. Slater's rules, Problems (Qs/As)
25.08.2025 to 30.08.2025	Periodic table and atomic properties: Classification of periodic table, definition of atomic and ionic radii,
01.09.2025 to 06.09.2025	Ionisation energy, trend in periodic table (in s and p-block elements), electron affinity and electronegativity, trend in periodic table (in s and p-block elements)
08.09.2025 to 13.09.2025	Pauling, Mulliken, Allred Rachow and Muliken Jaffe's electronegativity scale, Sanderson's electron density ratio. Unit Test
15.09.2025 to 20.09.2025	Structure and Bonding: Localized and delocalized chemical bond, Van der Waals interactions. Concept of resonance and its applications
22.09.2025 to 27.09.2025	Hyperconjugation, inductive effect, Electromeric effect and their comparison.
29.09.2025 to 04.10.2025	Mechanism of Organic Reactions: Curved arrow notation, homolytic and heterolytic bond fission. Types of reagents: electrophiles and nucleophiles. Types of organic reactions: Substitution, Addition, Condensation, Elimination, Rearrangement, Isomerization and Pericyclic reactions.
06.10.2025 to 11.10.2025	Mid term exam
13.10.2025 to 18.10.2025	Reactive intermediates: Carbocations, carbanions, free radicals, carbenes (structure & stability). Unit Test, Liquid State: Structure of liquids, Properties of liquids - surface tension, refractive index, viscosity, vapour pressure and optical rotation
20.10.2025 to 25.10.2025	Deepawali vacation
27.10.2025 to 01.11.2025	Solid State: Classification of solids, Law of constancy of interfacial angles, law of rational indices, Miller indices, elementary ideas of symmetry and symmetry elements, seven crystal systems and fourteen Bravais lattices
03.11.2025 to 08.11.2025	X-ray diffraction, Bragg's law, a simple account of Laue method, rotating crystal method and powder pattern method, Unit Test
10.11.2025 to 15.11.2025	Gaseous State: Kinetic theory of gases, Maxwell's distribution of velocities and energies (derivation excluded) Calculation of root mean square velocity, average velocity, and most probable velocity. Collision diameter, collision number, collision frequency and mean free path (Derivations excluded),
17.11.2025 to 22.11.2025	Deviation of Real gases from ideal behaviour, Derivation of Van (der Waal's Equation of State, its application in the calculation of Boyle's temperature (compression factor)
24.11.2025 to 29.11.2025	Critical Phenomenon: Concept of Critical temperature, critical pressure, critical volume, relationship between critical constants and Van der Waal's constants (Derivation excluded). Revision

Teacher Name: Dr. Vikas Yadav (Extension Lecturer, Chemistry)

Class B.Sc. 1st year

Semester- 1st semester

Session 2025-26

Paper: Chemistry-I

Course Code: 24UN-CHE-101

Week	Topic
01.08.2025 to 09.08.2025	Atomic Structure: Introduction, Dual behaviour of matter and radiation, de Broglie's relation, Heisenberg's uncertainty principle, concept of atomic orbitals, significance of quantum numbers, Radial and angular wave functions,
11.08.2025 to 16.08.2025	Normal and orthogonal wave functions, significance of Ψ and Ψ^2
18.08.2025 to 23.08.2025	Shapes of s, p, d, f orbitals, Rules for filling electrons in various orbitals, effective nuclear charge. Slater's rules, Problems (Qs/As)
25.08.2025 to 30.08.2025	Periodic table and atomic properties: Classification of periodic table, definition of atomic and ionic radii,
01.09.2025 to 06.09.2025	Ionisation energy, trend in periodic table (in s and p-block elements), electron affinity and electronegativity, trend in periodic table (in s and p-block elements)
08.09.2025 to 13.09.2025	Pauling, Mulliken, Allred Rachow and Mulliken Jaffe's electronegativity scale, Sanderson's electron density ratio. Unit Test
15.09.2025 to 20.09.2025	Structure and Bonding: Localized and delocalized chemical bond, Van der Waals interactions. Concept of resonance and its applications
22.09.2025 to 27.09.2025	Hyperconjugation, inductive effect, Electromeric effect and their comparison.
29.09.2025 to 04.10.2025	Mechanism of Organic Reactions: Curved arrow notation, homolytic and heterolytic bond fission. Types of reagents: electrophiles and nucleophiles. Types of organic reactions: Substitution, Addition, Condensation, Elimination, Rearrangement, Isomerization and Pericyclic reactions.
06.10.2025 to 11.10.2025	Mid term exam
13.10.2025 to 18.10.2025	Reactive intermediates: Carbocations, carbanions, free radicals, carbenes (structure & stability). Unit Test, Liquid State: Structure of liquids, Properties of liquids - surface tension, refractive index, viscosity, vapour pressure and optical rotation
20.10.2025 to 25.10.2025	Deepawali vacation
27.10.2025 to 01.11.2025	Solid State: Classification of solids, Law of constancy of interfacial angles, law of rational indices, Miller indices, elementary ideas of symmetry and symmetry elements, seven crystal systems and fourteen Bravais lattices
03.11.2025 to 08.11.2025	X-ray diffraction, Bragg's law, a simple account of Laue method, rotating crystal method and powder pattern method, Unit Test
10.11.2025 to 15.11.2025	Gaseous State: Kinetic theory of gases, Maxwell's distribution of velocities and energies (derivation excluded) Calculation of root mean square velocity, average velocity, and most probable velocity. Collision diameter, collision number, collision frequency and mean free path (Derivations excluded),
17.11.2025 to 22.11.2025	Deviation of Real gases from ideal behaviour, Derivation of Van der Waal's Equation of State, its application in the calculation of Boyle's temperature (compression factor)
24.11.2025 to 29.11.2025	Critical Phenomenon: Concept of Critical temperature, critical pressure, critical volume, relationship between critical constants and Van der Waal's constants (Derivation excluded). Unit Test and Revision

Teacher Name: Ravi Kant (Assistant Professor, Chemistry)

Class B.Sc. 1st year

Semester- 1st semester

Session 2025-26

Paper: Chemistry-I

Course Code: 24UN-CHE-101

Week	Topic
01.08.2025 to 09.08.2025	Atomic Structure: Introduction, Dual behaviour of matter and radiation, de Broglie's relation, Heisenberg's uncertainty principle, concept of atomic orbitals, significance of quantum numbers, Radial and angular wave functions,
11.08.2025 to 16.08.2025	Normal and orthogonal wave functions, significance of Ψ and Ψ^2
18.08.2025 to 23.08.2025	Shapes of s, p, d, f orbitals, Rules for filling electrons in various orbitals, effective nuclear charge. Slater's rules, Problems (Qs/As)
25.08.2025 to 30.08.2025	Periodic table and atomic properties: Classification of periodic table, definition of atomic and ionic radii,
01.09.2025 to 06.09.2025	Ionisation energy, trend in periodic table (in s and p-block elements), electron affinity and electronegativity, trend in periodic table (in s and p-block elements)
08.09.2025 to 13.09.2025	Pauling, Mulliken, Allred Rachow and Mulliken Jaffe's electronegativity scale, Sanderson's electron density ratio. Unit Test
15.09.2025 to 20.09.2025	Structure and Bonding: Localized and delocalized chemical bond, Van der Waals interactions. Concept of resonance and its applications
22.09.2025 to 27.09.2025	Hyperconjugation, inductive effect, Electromeric effect and their comparison.
29.09.2025 to 04.10.2025	Mechanism of Organic Reactions: Curved arrow notation, homolytic and heterolytic bond fission. Types of reagents: electrophiles and nucleophiles. Types of organic reactions: Substitution, Addition, Condensation, Elimination, Rearrangement, Isomerization and Pericyclic reactions.
06.10.2025 to 11.10.2025	Mid term exam
13.10.2025 to 18.10.2025	Reactive intermediates: Carbocations, carbanions, free radicals, carbenes (structure & stability). Unit Test, Liquid State: Structure of liquids, Properties of liquids - surface tension, refractive index, viscosity, vapour pressure and optical rotation
20.10.2025 to 25.10.2025	Deepawali vacation
27.10.2025 to 01.11.2025	Solid State: Classification of solids, Law of constancy of interfacial angles, law of rational indices, Miller indices, elementary ideas of symmetry and symmetry elements, seven crystal systems and fourteen Bravais lattices
03.11.2025 to 08.11.2025	X-ray diffraction, Bragg's law, a simple account of Laue method, rotating crystal method and powder pattern method, Unit Test
10.11.2025 to 15.11.2025	Gaseous State: Kinetic theory of gases, Maxwell's distribution of velocities and energies (derivation excluded) Calculation of root mean square velocity, average velocity, and most probable velocity. Collision diameter, collision number, collision frequency and mean free path (Derivations excluded),
17.11.2025 to 22.11.2025	Deviation of Real gases from ideal behaviour, Derivation of Van (der Waal's Equation of State, its application in the calculation of Boyle's temperature (compression factor)
24.11.2025 to 29.11.2025	Critical Phenomenon: Concept of Critical temperature, critical pressure, critical volume, relationship between critical constants and Van der Waal's constants (Derivation excluded). Unit Test and Revision

Teacher Name: Pankaj Devi
 Class B.Sc. : B.Sc.-2 (Medical & Computer science)
 Semester- 3rd
 Session 2025-26
 Paper- Chemistry III

Course code: 24UN-CHE-301

Week	Topic
01.08.2025 to 09.08.2025	Electrochemistry-I Electrolytic conduction, factors affecting electrolytic conduction, specific conductance, molar conductance, equivalent conductance and relation among them, their variation with concentration
11.08.2025 to 16.08.2025	Concepts of pH and pKa, Buffer solution, Buffer action, Henderson – Hazel equation, Buffer mechanism of buffer action.
18.08.2025 to 23.08.2025	Electrochemistry-II Reversible & irreversible cells, Calculation of thermodynamic quantities of cell reaction (ΔG , ΔH & K). Types of reversible electrodes – metal- metal ion, gas electrode, metal – insoluble salt- anion and redox electrodes. Nernst equation, Standard Hydrogen electrode, calomel electrodes.
25.08.2025 to 30.08.2025	Alkynes Nomenclature and its structure. Methods of formation: using Calcium carbide, dehydrohalogenation, Kolbe's electrolysis. Chemical reactions: Mechanism of electrophilic and nucleophilic addition reactions,
01.09.2025 to 09.09.2025	formation of metal acetylides, addition of bromine and alkaline KMnO ₄ , ozonolysis. Acidity of alkynes. Stereochemistry of Organic Compounds Concept of isomerism: Structural and Stereoisomerism. Symmetry elements
01.09.2025 to 06.09.2025	enantiomers, optical activity, properties of enantiomers, chiral and achiral molecules (up-to 2 asymmetric centres), diastereomers, threo- and erythro- nomenclature, meso-compounds, Relative and absolute configuration, sequence rules, R and S system of nomenclature.
08.09.2025 to 13.09.2025	Cis- Trans isomerism, E & Z system of nomenclature, Conformational analysis of ethane and n-butane, conformations of cyclohexane, axial and equatorial bonds. Newman and Sawhorse projection formulae. IV Benzene and its derivatives: Nomenclature, Aromatic nucleus and side chain, Huckels' rule of aromaticity.
15.09.2025 to 20.09.2025	Aromatic electrophilic substitution, mechanism of nitration, halogenation, sulphonation, and Friedel- Crafts reaction. Energy profile diagrams. Activating, deactivating substituents and orientation
22.09.2025 to 27.09.2025	Alkyl halides: Nomenclature, methods of formation: from alkenes and alcohol, nucleophilic substitution reactions of alkyl halides, SN ₂ and SN ₁ reactions with energy profile diagrams.
29.09.2025 to 04.10.2025	Aryl halides: Methods of formation: halogenation, Sandmeyer reaction. The addition-elimination, and the elimination- addition mechanisms of nucleophilic aromatic substitution reactions. Relative reactivities of alkyl halides vs allyl, vinyl, and aryl halides.
06.10.2025 to 11.10.2025	Mid term exam
13.10.2025 to 18.10.2025	s and p-Block Elements Salient features of hydrides, oxides, halides, hydroxides of s- block elements
20.10.2025 to 25.10.2025	Deepawali vacation
27.10.2025 to 01.11.2025	Structure, preparation and properties of Diborane and Borazine. Structure of oxides of Nitrogen and Phosphorous.
03.11.2025 to 08.11.2025	Structure of oxyacids of Nitrogen, phosphorous, sulphur and chlorine and comparison of acidic strength of oxyacids.
10.11.2025 to 15.11.2025	Low chemical reactivity of noble gases,
17.11.2025 to 22.11.2025	structure and bonding in fluorides, oxides and oxyfluorides of xenon.
24.11.2025 to 29.11.2025	Revision

Teacher Name: MONIKA MANCHANDA

Class BA 1st (MDC)

Semester- 1st

Session 2025-26

Paper: Introductory chemistry-1

Course Code: 24UN-CHE-MDC101

Week	Topic
01.08.2025 to 09.08.2025	Atomic structure and bonding- Introduction
11.08.2025 to 16.08.2025	Elementary introduction of atomic structure and chemical bonding
18.08.2025 to 23.08.2025	Representation to elements and atoms, lewis structures
25.08.2025 to 30.08.2025	Discovery of electron, proton and neutron
01.09.2025 to 06.09.2025	Electronic configuration and octet rule
08.09.2025 to 13.09.2025	Carbon and its compound- introduction
15.09.2025 to 20.09.2025	Tetra valency of carbon, allotropy
22.09.2025 to 27.09.2025	Hydrocarbons and its nomenclature , applications
29.09.2025 to 04.10.2025	Polymers- introduction
06.10.2025 to 11.10.2025	Mid term exam
13.10.2025 to 18.10.2025	Synthetic and natural rubber, homopolymer and co-polymers
20.10.2025 to 25.10.2025	Deepawali vacation
27.10.2025 to 01.11.2025	Natural rubber, PVC, PAN,TEFLON, nylon-6,6, styrene
03.11.2025 to 08.11.2025	Food preservation
10.11.2025 to 15.11.2025	Elementary idea of natural and synthetic food, rancidity
17.11.2025 to 22.11.2025	Different food preservatives, uses and properties
24.11.2025 to 29.11.2025	revision

Teacher Name: Annu Kumari

Class: B.Sc 1st year.,

Semester: 1st

Session 2025-26

Paper- Computer for Chemists

Week	Topic
01.08.2025 to 09.08.2025	Computer Fundamentals: Evolution of Computer through generation, Characteristics of Computers.
11.08.2025 to 16.08.2025	Strength and Limitation of Computers, classification of Computers, Fundamental components of Computer System, Application of Computer in various fields.
18.08.2025 to 23.08.2025	Software and Types of Software : System software, Application software, Utility software.
25.08.2025 to 30.08.2025	Shareware, Freeware, Firmware, Free software.
01.08.2025 to 09.08.2025	Hardware components of a computer system- processor, RAM, ROMs, motherboard, power supply etc.
01.09.2025 to 06.09.2025	Storage devices: Types of storage devices.
08.09.2025 to 13.09.2025	Input devices : Classification and use, keyboard, Pointing devices- mouse, touch pad and track ball.
15.09.2025 to 20.09.2025	Video digitizer, remote control, joystick, magnetic stripes.
22.09.2025 to 27.09.2025	Scanner, digital camera, microphone, sensor and MIDI instruments.
29.09.2025 to 04.10.2025	Output Devices : Monitor, Central Processing Unit(Control Unit and Arithmetic Logic Unit) printers - classification, laser, ink jet, dot matrix, plotter and speaker.
06.10.2025 to 11.10.2025	Mid term exam
13.10.2025 to 18.10.2025	Software devices: Low level and High level languages.
20.10.2025 to 25.10.2025	Deepawali vacation
27.10.2025 to 01.11.2025	Software Products(Office, chemsketch, matlab,hyperchem, etc)
03.11.2025 to 08.11.2025	Basic introduction to software (MS Office)
10.11.2025 to 15.11.2025	MS Office : Word Processor- Word(all formatting options), a spreadsheet Program Excel and Presentation Program- Power point.
17.11.2025 to 22.11.2025	(Introduction with the basic tools & Creating a master slide, inserting images, running a slide show, animation etc.)
24.11.2025 to 29.11.2025	Revision

Teacher Name: Annu Kumari

Class: B.Sc 2nd year.,

Semester: 3rd

Session 2025-26

Paper- Analytical Chemistry

Course code: 24UN-CHE-SEC301

Week	Topic
01.08.2025 to 09.08.2025	Chromatography : Definition, General introduction on chromatography.
11.08.2025 to 16.08.2025	Column chromatography, paper chromatography.
18.08.2025 to 23.08.2025	TLC&, ion-exchange chromatography.
25.08.2025 to 30.08.2025	Analysis of soil: Composition of soil, Concept of pH and pH measurement.
01.08.2025 to 09.08.2025	Complexometric titration, Chelation, Chelating agent, use of indicators.
01.09.2025 to 06.09.2025	Analysis of water: Definition of pure water, Sources responsible of contaminating water.
08.09.2025 to 13.09.2025	Water sampling methods and water purification methods.
15.09.2025 to 20.09.2025	Analysis of food products : Nutritional value of foods.
22.09.2025 to 27.09.2025	Idea about food processing and food preservation and adulteration.
29.09.2025 to 04.10.2025	1.Paper chromatographic separation of mixture of metal ion(Fe^{3+} and Al^{3+}).
06.10.2025 to 11.10.2025	Mid term exam
13.10.2025 to 18.10.2025	2.To compare samples of dyes/paints by TLC method.
20.10.2025 to 25.10.2025	Deepawali vacation
27.10.2025 to 01.11.2025	3.Identification of adulterants in some common food items like coffee powder, asafoetida, chilli powder, turmeric powder, coriander powder and pulses etc.
03.11.2025 to 08.11.2025	4.Determination of pH of soil samples.
10.11.2025 to 15.11.2025	5.Estimation of Calcium and Magnesium ions as Calcium carbonate by complexometric titration.
17.11.2025 to 22.11.2025	6.Determination of pH, acidity and alkalinity of a water.
24.11.2025 to 29.11.2025	Revision

Teacher Name: Annu Kumari

Class: B.Sc 2nd year

Semester: 3rd

Session 2025-26

Paper: Chemistry-III

Course code: 24UN-CHE-301

Week	Topic
01.08.2025 to 09.08.2025	S and p block Elements Sailent features of hydrides, oxides, halides, hydroxides of s-block elements (methods of preparation excluded)
11.08.2025 to 16.08.2025	Structure , preparation and properties of Diborane and Borazine. Catenation , carbides, fluorocarbons, silicates (structure aspects), structure of oxides of Nitrogen and Phosphorous, structure of white and red phosphorous.
18.08.2025 to 23.08.2025	Structure of oxyacids of Nitrogen, phosphorous, sulphur and chlorine and comparision of acid strength of oxyacids. Low chemical reactivity of nobel gases, chemistry of xenon, structure and bonding of fluorids, oxides and oxyfluorides of xenon.
25.08.2025 to 30.08.2025	Electrochemistry-1 Electrolytic conduction, factors affecting electrolytic conduction, specific conductance, molar conductance and equivalent conductance and relation among them, their variation with concentration.
01.08.2025 to 09.08.2025	Application of Kohlrausch's Law in calculation of conductance of weak electrolytes at infinite dilutes (Numericals) Concepts of pH and pKa, Buffer solution, Buffer action, Henderson-Hazel equation, Buffer mechanism of buffer action.
01.09.2025 to 06.09.2025	Electrochemistry-II Reversible & irreversible cells, Calculation of thermodynamic quantities of cell reaction(G, H & K).
08.09.2025 to 13.09.2025	Types of reversible of electrodes- metal- metal ion, gas electrode, metal insoluble salt-anion and redox electrodes, Nernst equation, Standard Hydrogen electrode, standard electrodes, Application of EMF measurements in solubility product and potentiometric titrations using glass electrode.
15.09.2025 to 20.09.2025	Alkynes Nomenclature and its structure, Methods of formation:Usinf calcium carbide, dehydrohalogenation, Kolbe's electrolysis.
22.09.2025 to 27.09.2025	Chemical reaction: Mechanism of electrophilic and nucleophilic addition reactions, formation of metal acetylides, addition of bromine and alkaline KMnO4. ozonolysis. Acidity of alkynes.
29.09.2025 to 04.10.2025	Stereochemistry of Organic Compounds Concepts of isomerism: Structural and Stereoisomerism, Symmetry elements, enantiomers, optical activityproperties of enantiomers, chiral and achiral molecules, Diastereomers, thero and erythro- nomenclature, meso-compounds.
06.10.2025 to 11.10.2025	Mid term exam
13.10.2025 to 18.10.2025	Relative and absolute configuration, sequence rules, R and S system of nomenclature. Cis-Trans isomerism, E & Z system of nomenclature, Conformational analysisof ethane and n-butane, conformation of cyclohexane, axial and equatorial bonds, Newman and sawhorse projection formulae.
20.10.2025 to 25.10.2025	Deepawali vacation
27.10.2025 to 01.11.2025	Benzene and its derivates Nomenclature, Aromatic nucleus and side chain, Huckel's rule of aromaticity.
03.11.2025 to 08.11.2025	Aromatic electrophilic substitution, mechanism of nitrationhalogenation, sulphonation and friedel-Crafts reaction, Energy profile diagram. Acitivating , deactivating substituents and orientation.
10.11.2025 to	Alkyl halides

15.11.2025		Nomenclature, methods of formation: from alkenes and alcohols, nucleophilic substitution reaction of alkyl halides, SN1 and SN2 reactions with energy profile diagrams.
17.11.2025 22.11.2025	to	Aryl halides Methods of formation: halogenation, Sandmeyer reaction, The addition-elimination and elimination-addition mechanisms of nucleophilic aromatic substitution reactions Relative reactivities of alkyl halides vs allyl, vinyl and aryl halides.
24.11.2025 29.11.2025	to	Revision