Hukum Singh Bora Government PG College
Someshwar, (Almora)

Chemistry Department

Course Outcome

B. Sc. Ist SEM PAPER: Inorganic Chemistry-1

After Completing the Paper Students are able to understand:

CO1 Significance of ψ and ψ^2

CO2 Radial angular wave function

CO3 Rules of the filling of the orbitals according to the energy levels in the atom like Aufbau principle/Hund's rule.

CO4 Effective nuclear charge, Shielding effect, Slatter's rules, variation of nuclear charge in periodic table.

CO5 Atomic, Ionic, Crystal and Covalent radii.

CO6 Electronegativity, Ionisation energy and enthalpy.

CO7 Variation of electronegativity with bond order**.**

B. Sc. Ist SEM PAPER: Organic Chemistry-1

After Completing the Paper Students are able to understand:

CO1 Types of hybridization sp, sp^2, sp^3 with examples.

CO2 Types of isomerisation and conditions.

CO3 Curve arrow notation and types of organic reactions.

CO4 I.U.P.A.C., R- S-, E and Z Nomenclature with properties of alkanes and cycloalkanes

CO5 Chiral and Achiral molecule and conformational isomerism.

B. Sc. Ist SEM PAPER: Physical Chemistry-1

After Completing the Paper Students are able to understand:

CO1 Preparation, stability, shape and size of colloids

CO2 Colloidal dispersion, Emulsion and Gel

CO3 Equation of state and kinetic theory of gases

CO4 Types of molecular velocities and Maxwell distribution

CO5 Deviation of gases from ideal behaviour

CO6 Definitions and terminology of crystals

CO7 Laws of crystallography

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B. Sc. IInd SEM PAPER: Inorganic Chemistry-2

After Completing the Paper Students are able to understand:

CO1 MO diagrams and bond order of diatomic molecules

CO2 Fajan's rule

CO3 Metallic-bond –electron pool

CO4 Periodic properties of s and p block elements

CO5 Diagonal relationship

CO6 Basics of metallurgy

B. Sc. IInd SEM PAPER: Organic Chemistry-2

After Completing the Paper Students are able to understand:

CO1 Nomenclature of alkenes, benzene, alkynes

CO2 Aromaticity

CO3 Nomenclature and classification of diene

CO4 Nomenclature of alkyl halides

CO5 Mechanism of different types of reactions.

CO6 Ortho/para orientation

B. Sc. IInd SEM PAPER: Physical Chemistry-2

After Completing the Paper Students are able to understand:

CO1 Catalysis

CO2 Order and molecularity of reactions

CO3 Activation energy

CO4 Thermodynamical coordinates

CO5 Concept of heat and work.

CO6 Hess's law of constant heat summation

B. Sc. IIIrd SEM PAPER: Inorganic Chemistry-3

After Completing the Paper Students are able to understand:

CO1 The meaning of the terms used in coordination chemistry

CO2 Acid and base concept

CO3 Characteristic properties of transition elements, co-ordination number and magnetic properties

CO4 Second and third transition series

CO5 Constitution of colouring compounds

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B. Sc. IIIrd SEM PAPER: Organic Chemistry-3

After Completing the Paper Students are able to understand:

CO1 Difference between alcohols and phenols
CO2 Difference between aldehydes and ketones
CO3 Characteristic reactions of functional group of alcoholic, phenolic and carbonyl
CO4 Laws of photochemistry
CO5 Types of electromagnetic radiations and absorption spectroscopy
CO6 Characteristics of functional groups in absorption
CO7 Concept of fingerprint region, intensity and position of IR band
CO8 Grignard's reagent and epoxides

B. Sc. IIIrd SEM PAPER: Physical Chemistry-3

After Completing the Paper Students are able to understand:

CO1 Concept of engine
CO2 Different statements of second law of thermodynamics
CO3 Carnot Theorem and Carnot cycle
CO4 Concept of different types of processes and path
CO5 Criteria of spontaneity and different thermodynamic functions
CO6 Meaning of the phase, components and degree of freedom
CO7 Expression of phase rule
CO8 Phase equilibrium of one and two component system
CO9 Raoult's and Henry law
CO10 Non ideal systems and liquid mixtures
CO11 Nernst's distribution law

B. Sc. IVth SEM PAPER: Inorganic Chemistry-4

After Completing the Paper Students are able to understand:

CO1 Electrode potential
CO2 Electrochemical series
CO3 Properties of Lanthanides and actinides
CO4 Classification of solvents and their characteristics
CO5 Theories and concept of corrosion.

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B. Sc. IVth SEM PAPER: Organic Chemistry-4

After Completing the Paper Students are able to understand:

CO1 Nomenclature and properties of carboxylic acids and their derivatives
CO2 Organic synthesis via enolates
CO3 Chemical reaction of nitrogen containing compounds
CO4 Nomenclature of alkyl halides
CO5 Mechanism of esterification and saponification.
CO6 Azo coupling

B. Sc. IVth SEM PAPER: Physical Chemistry-4

After Completing the Paper Students are able to

understand:CO1 Electrical conduction and

electrolysis
CO2 Types of electrolytes
CO3 Transport of ions
CO4 Debye –Huckel Theory
CO5 Types of electrodes and cells.
CO6 Types of adsorption isotherm**.**

B. Sc. Vth SEM PAPER: Inorganic Chemistry-5

After Completing the Paper Students are able to understand:

CO1 Stability of metal complexes and co-ordination compounds
CO2 Crystal field theory
CO3 Crystal field splitting in Tetrahedral, Octahedral and Square planner complexes
CO4 Magnetic and spectroscopic properties of transition metal complexes.

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B. Sc. Vth SEM PAPER: Organic Chemistry-5

After Completing the Paper Students are able to understand:

CO1 Principles of NMR spectroscopy, magnetic and nonmagnetic nuclei
CO2 Nuclear resonance, chemical shift, shielding and deshielding
CO3 Measurement of chemical shift
CO4 Characteristics of carbohydrates
CO5 Characteristics of organo-sulphur and organometallic compounds

B. Sc. Vth SEM PAPER: Physical Chemistry-5

After Completing the Paper Students are able to understand:

CO1 Introduction of electromagnetic radiation with molecule
CO2 Born –Oppenheimer approximation
CO3 Regions of the spectrum
CO4 Black body radiation, uncertainty principle
CO5 Concepts of operators

B. Sc. VIth SEM PAPER: Inorganic Chemistry-6

After Completing the Paper Students are able to understand:

CO1 Acid base classification
CO2 Hard and soft acid and bases
CO3 Nomenclature and classification of organometallic compounds
CO4 Role of trace elements in biological systems
CO5 Silicones and polymer of phosphorous
CO6 Cement and fertilizers.

B. Sc. VIth SEM PAPER: Organic Chemistry-6

After Completing the Paper Students are able to understand:

CO1 Chemistry of terpenoids
CO2 Types of polymers
CO3 Classification of amino acids, proteins and peptides with their properties
CO4 Soap and detergents
CO5 Colour and constitution
CO6 Synthesis and use of dyes**.**

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B. Sc. VIth SEM PAPER: Physical Chemistry-6
After Completing the Paper Students are able to understand: **CO1** Molecular structure in relation to optical rotation **CO2** Dipole moments **CO3** Laws of photochemistry **CO4** Ideal and non ideal solutions **CO5** Third law of thermodynamics