K.M. GOVT. COLLEGE Narwana

LESSON-PLAN (Session 2023-2024) EVEN SEMESTER

Name of Teacher: Ms Mukesh Kumari

Designation: Assistant professor

Subject: Chemistry (Organic Chemistry)

Class: B.Sc. II (medical,non-medical), semester-IV

Months	Topics to be covered
1st week Feb 2nd week Feb 3rd week Feb 4th weel Feb	**Aldehydes and Ketones** Nomenclature and structure of the carbonyl group. Synthesis of aldehydes and ketones with particular reference to the synthesis of aldehydes from acid chlorides, advantage of oxidation of alcohols with chromium trioxide (Sarett reagent) pyridinium chlorochromate (PCC) and pyridinium dichromate. Physical properties, Comparison of reactivities of aldehydes and ketones. Mechanism of nucleophilic additions to carbonyl group with particular emphasis on benzoin, aldol, Perkin and Knoevenagel condensations. Condensation with ammonia and its derivatives. Wittig reaction. Mannich reaction.Oxidation of aldehydes, Baeyer– Villiger oxidation of ketones, Cannizzaro reaction. MPV, Clemmensen, WolffKishner, LiAlH4 and NaBH4 reduction class **test of this chapter**
1st week March 2nd week March 3rd week march	**Amines** Structure and nomenclature of amines, physical properties. Separatio n of a mixture of primary, secondary and tertiary amines. Structural features affecting basicity of amines. Preparation of alkyl and aryl amines (reduction of nitro compounds, nitriles, reductive amination of aldehydic and ketonic compounds. Gabrielphthalimide reaction, Hofmann bromamide reaction. Electrophilic aromatic substitution in aryl amines, reactions of amines with nitrous acid. **class test of this chapter and one assignment.**

3rd week march 4th week March	**Diazonium Salts** Mechanism of diazotisation, structure of benzene diazonium chloride, Replacement of diazo group by H, OH, F, Cl, Br, I, NO2 and CN groups, reduction of diazonium salts to hyrazines, coupling reaction and its synthetic application **class test of this chapter and one assignment.** **Unit test-1**
1st week April 2nd week April 3rd week April	**Infrared (IR) absorption spectroscopy** Molecular vibrations, Hooke's law, selection rules, intensity and position of IR bands, measurement of IR spectrum, fingerprint region, characteristic absorptions of various functional groups and interpretation of IR spectra of simple organic compounds. Applications of IR spectroscopy in structure elucidation of simple organic compounds **Class test of this chapter.**

Name of the Faculty : **Mrs Mukesh Kumari**

Discipline : **B.SC- II (MEDICAL)** + Non-Medical

Semester : **Semester-III**

Subject : **Organic Chemistry**

Lesson Plan duration: **From 2023-24**

Week/Month	Name of Topics
1st week August **2nd week August**	Alcohols nomenclature, methods of formation by reduction of—Monohydric alcohols aldehydes, ketones, carboxylic acids and esters. Hydrogen bonding. Acidic nature. Reactions of alcohols
3 week of august **4 week of august**	Dihydric alcohols — nomenclature, methods of formation, chemical reactions of vicinal glycols, oxidative cleavage [Pb(OAc) 4 and HIO4] and pinacol-pinacolone rearrangement. Phenols Nomenclature
1st week of September	structure and bonding. Preparation of phenols, physical properties and acidic character. Comparative ac idic strengths of alcohols and phenols
2nd week of September	resonance stabilization of phenoxide ion. Reactions of phenols — electrophilic aromatic substitution, Mechanisms of Fries rearrangement, Claisen rearrangement, Reimer-Tiemann reaction, Kolbe's reaction and Schotten and Baumann reactions.,
3rd week of September **4 week of September**	Epoxides Synthesis of epoxides. Acid and base-catalyzed ring opening of epoxides, orientation of epoxide ring opening,
2nd week of October	reactions of Grignard and organolithium reagents with epoxides Ultraviolet (UV) absorption spectroscopy Absorption laws (Beer-Lambert law),
1st &2nd week of October	molar absorptivity, presentation and analysis of UV spectra, types of electronic transitions, effect of conjugation. Concept of chromophore and auxochrome.
3rd & 4th week of October	Bathochromic, hypsochromic, hyperchromic and hypochromic shifts. UV spectra of conjugated enes and m a x of simpleλenones Woodward- Fieser rules, calculation of - unsaturated ketones.β,α,
1st & 2nd week of November	, conjugated dienes and Applications of UV Spectroscopy in structure elucidation of simpl e organic compounds. Carboxylic Acids & Acid Derivatives Nomenclature of Carboxylic acids,

3rd & 4th week of November	structure and bonding, physical properties, acidity of carboxylic acids, effects of substituents on acid strength. Preparation of carboxylic acids. Reactions of carboxylic acids. Hell-Volhard-Zelinsky reaction.
1st & 2nd week of December	Reduction of carboxylic acids. Mechanism of decarboxylation. Relative stability of acyl derivatives. Physical properties, interconversion of acid derivatives by nucleophilic acyl substitution. Mechanisms of esterification and hydrolysis (acidic and basic).
3rd week of December	Revision and Class tests.