

Sr.No.	MONTH	TOPIC	LECTURE
1	JUNE '21	Aromatic Hydrocarbons Introduction and IUPAC nomenclature, preparation (Case-Benzene) from phenol, by decarboxylation, from acetylene, from benzene sulphonic acid. Reactions (Case Benzene) Electrophilic substitution nitration, halogenation and sulphonation. Friedel-craft's reaction (alkylation, and acylation) (up to 4 carbons on benzene). Side chain oxidation of ally benzenes	04 L
2	JULY '21	Alkyl and Aryl Halides Alkyl Halides (up to 5 Carbons) Introduction and IUPAC nomenclature, Types of Nucleophilic Substitution (SN, SN and SNI) reactions. Preparation; from alkenes and alcohols. Reactions: hydrolysis, nitrite and nitro formation, nitrile and isonitrile formation Williamson's ether synthesis: Elimination vs. substitution	06 L
3	AUG '21	Aryl Halides Intro and IUPAC nomenclature, Preparation (Chloro, bromo and iodobenzene) from phenol Sandmeyer and Gattermann reactions. Reactions (Chlorobenzene): Aromatic KNH ₂ /NH ₂ (Reactivity and Relative strength of C-Halogen bond in alkyl, allyl, benzyl, vinyl and aryl halides.)	04 L
4	SEP '21	Alcohols, Phenols and Ethers Alcohols Introduction and IUPAC nomenclature, Preparation: Preparation of 1,2 and 3 alcohols using Grignard reagent, ester hydrolysis, reduction of aldehydes, ketones, carboxylic acid and esters. Reactions with sodium, HX (Lucas test), esterification oxidation (with PCC, alc KMnO ₄ , acidic dichromate, conc. HNO ₃ .) Oppeneauer oxidation Diols: (Up to 6 Carbons) oxidation of diols. Pinnacol-Pinacolone rearrangement.	02 L
5	OCT '21	Ethers (aliphatic and aromatic) Cleavage of ethers with HI Phenols (Phenol case): Introduction and IUPAC nomenclature, Preparation: Cumene hydroperoxide method, from diazonium salts. Reactions: Electrophilic substitution: Nitration, halogenation and sulphonation Reimer-Tiemann Reaction, Gattermann-Koch Reaction, Houben-Hoesch Condensation, Schotten-Baumann Reaction	04 L
6	NOV '21	Holiday (SEMESTER – VI Second Term)	
7	DEC '21	Aldehydes and Ketones (aliphatic and aromatic) (Formaldehyde, acetaldehyde, acetone and benzaldehyde) Introduction and IUPAC nomenclature, Preparation from acid chlorides and from nitriles. Reactions-Reaction with	05 L

		HCN, ROH. NaHSO, NH-G derivatives. Iodoform test Aldol Condensation. Cannizzaro's reaction. Wittig reaction. Benzoin condensation, Clemenson reduction and Wolff Kishner reduction. Meerwein-Pondorff Verley reduction	
8	JAN-'22	Carboxylic acids and their derivatives Carboxylic acids (aliphatic and aromatic): (up to 5 carbons) Preparation Acid chlorides, Anhydrides, Esters and Amides from acids and their inter conversion. Reaction: Comparative study of nucleophilicity of acyl derivatives. Reformatsky Reaction, Perkin condensation.	05 L
9	FEB-'22	Amines and Diazonium Salts Amines (Aliphatic and Aromatic): Introduction and IUPAC nomenclature, Preparation from alkyl halides, Gabriel's Phthalimide synthesis, Hofmann Bromamide reaction. Reactions: Hofmann vs. Saytzeff elimination, Electrophilic substitution (Case Aniline): nitration, bromination, sulphonation.	04 L
10	MAR-'22	Stereochemistry of Cyclohexane Bayer's strain theory, heat of combustion of cycloalkanes, structure of cyclohexane	02 L
11	APRIL- '22	Axial and equatorial H atoms, conformations of cycloalkane, stability of conformations of cyclohexane, methyl and t-butyl monosubstituted cyclohexane, 1, 1 and 1, 2 dimethyl cyclohexane and their stability	02 L

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