

BRS GOVT COLLEGE DUJANA**Lesson Plan (Chemistry-B.Sc-Pass Course)**

16th January 2023 to 16th May 2023[B.Sc 6thSemester Organic Chemistry]	
Week 1 16th January –21st January	Heterocyclic Compounds-I Introduction: Molecular orbital picture and aromatic characteristics of pyrrole, furan, thiophene and pyridine.
22ndJanuary	SUNDAY
Week 2 23rdJanuary – 28th January	Methods of synthesis and chemical reactions with particular emphasis on the mechanism of electrophilic substitution.
29thJanuary	SUNDAY
Week 3 30th January - 04th February	Mechanism of nucleophilic substitution reactions in pyridine derivatives. Comparison of basicity of pyridine, piperidine and pyrrole
05thFebruary	SUNDAY
Week 4 06th February- 11th February	Revision, Assignment and Test
12th February	SUNDAY
Week 5 13thFebruary – 18thFebruary	Introduction to condensed five and six- membered heterocycles. Preparation and reactions of indole, quinoline and isoquinoline
19th February	SUNDAY
Week 6 20th February – 25thFebruary	Fisher indole synthesis, Skraup synthesis and Bischler-Napieralski synthesis.
26th February	SUNDAY
Week 7 27thFebruary–04th March	Mechanism of electrophilic substitution reactions of, quinoline and isoquinoline. Revision, Assignment and Test
05thMarch	SUNDAY
Week 8 06th March–11th March	Organo sulphur Compounds Nomenclature, structural features, Methods of formation
12^h March	SUNDAY
Week 9 13th March–18th March	Chemical reactions of thiols, thioethers, sulphonic acids, sulphonamides and sulphaguanidine.
19th March	SUNDAY
Week 10 20th March– 25th March	Organic Synthesis via Enolates Acidity of -hydrogens, alkylation of diethyl malonate and ethyl acetoacetate.
26th March	SUNDAY

Week 11 27th March – 01st April	Synthesis of ethyl acetoacetate: the Claisen condensation. Keto-enol tautomerism of ethyl acetoacetate.
02nd April	SUNDAY
Week 12 03rd April – 08th April	Revision, Assignment and Test
09th April	SUNDAY
Week 13 10th April – 15th April	Addition or chain-growth polymerization. Free radical vinyl polymerization, ionic vinyl polymerization, Ziegler-Natta polymerization and vinyl polymers
16th April	SUNDAY
Week 14 17th April – 22nd April	Condensation or step growth polymerization. Polyesters, polyamides, phenol formaldehyde resins, urea formaldehyde resins, epoxy resins and polyurethanes. Natural and synthetic rubbers.
23rd April	SUNDAY
Week 15 24th April – 29th April	Revision, Assignment and Test
30th April	SUNDAY
Week 16 01st May – 06th May	Classification, of amino acids. Acid-base behavior, isoelectric point and electrophoresis. Preparation of α -amino acids. Structure and nomenclature of peptides and proteins.
07th May	SUNDAY
Week 17 08th May – 13th May	Classification of proteins. Peptide structure determination, end group analysis, selective hydrolysis of peptides. Classical peptide synthesis, solid-phase peptide synthesis. Structures of peptides and proteins: Primary & Secondary str
14th May	SUNDAY
Week 18 15th May – 16th May	Revision, Assignment and Test

16th January 2023 to 16th May 2023[B.Sc 4thSemester Organic Chemistry]	
Week 1 16th January –21st January	Molecular vibrations, Hooke's law, selection rules, intensity and position of IR bands
22nd January	SUNDAY
Week 2 23rd January – 28th January	Measurement of IR spectrum, fingerprint region, characteristic absorptions of various functional groups and interpretation of IR spectra of simple organic compounds.
29th January	SUNDAY
Week 3 30th January - 04th February	Applications of IR spectroscopy in structure elucidation of simple organic compounds.
05th February	SUNDAY
Week 4 06th February- 11th February	Revision, Assignment and Test
12th February	SUNDAY
Week 5 13th February – 18th February	Structure and nomenclature of amines, physical properties. Separation of a mixture of primary, secondary and tertiary amines. Structural features affecting basicity of amines.
19th February	SUNDAY
Week 6 20th February – 25th February	Preparation of alkyl and aryl amines (reduction of nitro compounds, nitriles, reductive amination of aldehydic and ketonic compounds. Gabrielphthalimide reaction, Hofmann bromamide reaction.
26th February	SUNDAY
Week 7 27th February–04th March	electrophilic aromatic substitution in aryl amines, reactions of amines with nitrous acid..
05th March	Revision, Assignment and Test
Week 8 06th March–11th March	Mechanism of diazotisation, structure of benzene diazonium chloride, Replacement of diazo group by H, OH, F, Cl, Br, I, NO ₂ and CN groups,
12^h March	SUNDAY
Week 9 13th March–18th March	Preparation of nitro alkanes and nitro arenes and their chemical reactions. Mechanism of electrophilic substitution reactions in nitro arenes and their reductions in acidic, neutral and alkaline medium.
19th March	SUNDAY
Week 10 20th March– 25th March	Nomenclature and structure of the carbonyl group. Synthesis of aldehydes and ketones with particular reference to the synthesis of aldehydes from acid chlorides,
26th March	SUNDAY
Week 11 27th March – 01st April	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

02nd April	SUNDAY
Week 12 03rd April – 08th April	Revision, Assignment and Test
09th April	SUNDAY
Week 13 10th April – 15th April	Benzoin, aldol, Perkin and Knoevenagel condensations.
16th April	SUNDAY
Week 14 17th April – 22nd April	Condensation with ammonia and its derivatives. Wittig reaction. Mannich reaction.
23rd April	SUNDAY
Week 15 24th April – 29th April	Revision, Assignment and Test
30th April	SUNDAY
Week 16 01st May – 06th May	Cannizzaro reaction. Oxidation of aldehydes, Baeyer–Villiger oxidation of ketones,
07th May	SUNDAY
Week 17 08th May – 13th May	MPV, Clemmensen, Wolff-Kishner, LiAlH ₄ and NaBH ₄ reductions.
14th May	SUNDAY
Week 18 15th May – 16th May	Revision, Assignment and Test

16th January 2023 to 16th May 2023 [B.Sc 2nd Semester Organic Chemistry]

Week 1 16th January –21st January	Nomenclature of alkenes, , mechanisms of dehydration of alcohols and dehydrohalogenation of alkyl halides,. The Saytzeff rule, Hofmann elimination,
22nd January	SUNDAY
Week 2 23rd January – 28th January	physical p roperties and relative stabilities of alkenes. Chemical reactions of alkenes mechanisms involved in hydrogenation, electrophilic and free radical additions
29th January	SUNDAY
Week 3 30th January - 04th February	Markownikoff's rule, hydroboration–oxidation, oxymercurationreduction, ozonolysis, hydration, hydroxylation and oxidation with KMnO ₄ ,
05th February	SUNDAY
Week 4 06th February- 11th February	Revision, Assignment and Test
12th February	SUNDAY
Week 5 13th February – 18th February	Nomenclature of benzene deriva tives:. Aromatic nucleus and side chain. Aromaticity: the Huckel rule, aromatic ions, annulenes up to 10 carbon atoms, aromatic, anti - aromatic and non – aromatic compounds.
19th February	SUNDAY
Week 6 20th February – 25th February	Aromatic electrophilic substitution general pattern of the mechanism, mechansim of nitration, halogenation, sulphonation, and Friedel-Crafts reaction
26th February	SUNDAY
Week 7 27th February–04th March	Energy profile diagrams. Activating , deactivating subs tituents and orientation.
05th March	SUNDAY
Week 8 06th March–11th March	Arrhenius theory of ionization, Ostwald's Dilution Law. Debye- Huckel – Onsager's equation for strong electrolytes (elementary treatment only)
12^h March	SUNDAY
Week 9 13th March–18th March	Nomenclature and classification of dienes: isolated, conjugated and cumulated dienes. Structure of butadiene,. Chemical reactions 1,2 and 1,4 additions (Electrophilic & free radical mechanism), Diels-Alder reaction,
19th March	SUNDAY
Week 10 20th March– 25th March	Nomenclature, structure and bonding in alkynes. Methods of formation. Chemical reactions of alkynes, acidity of alkynes.
26th March	SUNDAY
Week 11 27th March – 01st April	Mechanism of electrophilic and nucleophilic addition reactions, hydroboration- oxidation of alkynes
02nd April	SUNDAY
Week 12	Revision, Assignment and Test

03rd April – 08th April	
09th April	SUNDAY
Week 13 10th April – 15th April	Nomenclature and classes of alkyl halides, methods of formation, chemical reactions. Mechanisms and stereochemistry of nucleophilic substitution reactions of alkyl halides, SN2 and SN1 reactions with energy profile diagrams
16th April	SUNDAY
Week 14 17th April – 22nd April	s. Methods of formation and reactions of aryl halides, The addition-elimination and the elimination-addition mechanisms of nucleophilic aromatic substitution reactions.
23rd April	SUNDAY
Week 15 24th April – 29th April	Revision, Assignment and Test
30th April	SUNDAY
Week 16 01st May – 06th May	Relative reactivities of alkyl halides vs allyl, vinyl and aryl halides.
07th May	SUNDAY
Week 17 08th May – 13th May	Revision, Assignment and Test
14th May	SUNDAY
Week 18 15th May – 16th May	Revision, Assignment and Test