Summary of Lesson Plan of College Faculty

Name of College:Government College,Badli Academic Session 2022-23 **Semester: Even**

Name of Asstt./Ass. Prof : Mr. Ravinder

Class: B.Sc. 2nd Semester (Chem. Hons.)

Name of Subject: Organic Chemistry

01st Feb 2023 to 15thMay 2023	**[B.Sc. 2nd Semester Chemistry Hons.]**
Week 1 **01st Feb – 04th Feb**	**Alkenes** Nomenclature of alkenes, mechanisms of dehydration of alcohols and dehydrohalogenation of alkyl halides,. *Regioselectivity in alcohol dehydration. The Saytzeff rule, Hofmann elimination, physical p roperties and relative stabilities of alkenes.
05th Feb	**SUNDAY**
Week 2 **06th Feb – 11th Feb**	**Alkenes** Chemical reactions of alkenes, mechanisms involved in hydrogenation, electrophilic and free radical additions, Markownikoff's rule, hydroboration–oxidation, oxymercuration, reduction, *Epoxidation, ozonolysis, hydration, hydroxylation and oxidation with KMnO4, *polymerization of alkenes, substitution at the allylic and vinylic positions of alkenes. *Industrial applications of ethylene and propene.
12th Feb	**SUNDAY**
Week 3 **13rd Feb – 18th Feb**	***Coal, petroleum and petrochemicals:** Coal tar distillation and coal tar chemicals, petroleum origin, fractionation cracking, reforming and aromatisation, petrochemicals, synthetic fuels, octane and cetane numbers, antiknock additives.
19th Feb	**SUNDAY**
Week 4 **20th Feb – 25th Feb**	**Revision, Assignment and Test**
26th Feb	**SUNDAY**
Week 5 **27th Feb –4th March**	**Arenes and Aromaticity** Nomenclature of benzene derivatives:. The Aryl group. Aromatic nucleus and side chain. *Structure of benzene: molecular formula and Kekule structure. *Stability and carbon-carbon bond lengths of benzene, resonance structure, MO picture.
05th March-12th March	**SUNDAY & Holi Break**
Week 6 **13rd March – 18th March**	**Arenes and Aromaticity** Aromaticity: the Huckel rule, aromatic ions, annulenes up to 10 carbon atoms, aromatic, anti - aromatic and non – aromatic compounds. Aromatic electrophilic substitution, general pattern of the mechanism, * role of sigma and pia-complexes, mechansim of nitration, halogenation, sulphonation, and Friedel-Crafts reaction. Energy profile diagrams.
19th March	**SUNDAY**
Week 7 **20th March – 25th March**	**Arenes and Aromaticity** Activating , deactivating subs tituents and orientation and *ortho/para ratio. *Side chain reactions of benzene derivatives, *Birch reduction. * Methods of formation and chemical reactions of alkylbenzenes, alkynylbenzenes and biphenyl.
26th March	**SUNDAY**
Week 8 **27th March – 1st April**	**Revision, Assignment and Test**
2nd April	**SUNDAY**

Summary of Lesson Plan of College Faculty

Name of College:Government College,Badli Academic Session 2022-23 **Semester: Even**

Name of Asstt./Ass. Prof : Mr. Ravinder

Class: B.Sc. 2nd Semester (Chem. Hons.)

Name of Subject: Organic Chemistry

Week 9 **3rd April – 8th April**	**Dienes and Alkynes** Nomenclature and classification of dienes: isolated, conjugated and cumulated dienes. Structure of *Allenes and butadiene,. *Methods of formation, polymerization.Chemical reactions: 1,2 and 1,4 additions (Electrophilic & free radical mechanism), Diels-Alder reaction, Nomenclature, structure and bonding in alkynes. Methods of formation.
9th April	**SUNDAY**
Week 10 **10th April – 15th April**	**Dienes and Alkynes** Chemical reactions of alkynes, acidity of alkynes. Mechanism of electrophilic and nucleophilic addition reactions, hydroboration-oxidation of alkynes, *metal-ammonia reductions, *oxidation and *polymerization. ***Cycloalkenes:** Methods of formation, conformation and chemical reactions of cycloalkenes.
16th April	**SUNDAY**
Week 12 **17th April – 22nd April**	***Poly Nuclear Hydrocarbons** Haworth synthesis of naphthalene and phenanthene, pschorr synthesis of phenanthrene, synthesis of anthracene involving Friedal crafts acylation of benzene with phthalic anhydride and Diels Alder reaction between 1,3-butadiene and 1,4-naphthaquinone, reaction of naphthalene, anthracene and phenanthrene, relative reactivities at different positions and mechanism of electrophilic substitution reactions in naphthalene, anthracene, and phenanthrene.
23rd April	**SUNDAY**
Week 14 **24th April - 29th April**	**Alkyl and Aryl Halides** 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. * Study of elimination reactions in alkyl halides, *E_1. and E_2 mechanism, *substitution vs. elimination, *factors affecting substitution/elimination.
30th April	**SUNDAY**
Week 15 **1st May – 6th May**	**Alkyl and Aryl Halides** Methods of formation, Reactions of aryl halides, The addition elimination and the elimination-addition mechanisms of nucleophilic aromatic substitution reactions. Relative reactivities of alkyl halides vs allyl, vinyl and aryl halides.
7th May	**SUNDAY**
Week 16 **8th June – 13th May**	**Alkyl and Aryl Halides** *** Polyhalogen compounds**: chloroform, carbon tetrachloride. Synthesis and uses of DDT and BHC

Lesson Plan

Name of College : Government College, Badli
Academic Session 2022-23 Semester: Even
Name of Asstt./Ass. Prof.: Mr.Ravinder
Class: B.Sc. Pass: 2nd Sem
Name of Subject: ORGANIC CHEMISTRY

01st Feb 2023 to 15thMay 2023	
Week 1 **01st Feb – 04th Feb**	Alkenes Nomenclature of alkenes, , mechanisms of dehydration of alcohols
05th Feb	**SUNDAY**
Week 2 **06th Feb – 11th Feb**	dehydrohalogenation of alkyl halides,. . The Saytzeff rule, Hofmann elimination physical p roperties and relative stabilities of alkenes. Chemical reactions of alkenes
12th Feb	**SUNDAY**
Week 3 **13rd Feb – 18th Feb**	. mechanisms involved in hydrogenation, electrophilic and free radical additions, Markownikoff's rule, hydroboration–oxidation, oxymercurationreduction, ozonolysis, hydration, hydroxylation and oxidation with KMnO4
19th Feb	**SUNDAY**
Week 4 **20th Feb – 25th Feb**	.Arenes and Aromaticity Nomenclatu re of benzene deriva tives:. Aromatic nucleus and side chain. Aromaticity: the Huckel rule, aromatic ions, annulenes up to 10 carbon atoms
26th Feb	**SUNDAY**
Week 5 **27th Feb –4th March**	aromatic, anti - aromatic and non – aromatic compounds. Aromatic electrophilic substitution general pattern of the mechanism, mechansim of nitration, halogenation, sulphonation, a Friedel-Crafts reaction. Energy profile diagrams. Activating , deactivating subs tituents and orientation.
05th March-12th March	**SUNDAY & Holi Break**
Week 6 **13rd March – 18th March**	. Dienes and Alkynes 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 7 **20th March – 25th March**	Nomenclature, structure and bonding in alkynes. Methods of formation. Chemical reactions of alkynes, acidity of alkynes. Mechanism of electrophilic and nucleophilic addition reactions, hydroboration-oxidation of alkyne
26th March	**SUNDAY**
Week 8 **27th March – 1st April**	Alkyl and Aryl Halides Nomenclatu re and classes of alkyl halides, methods of formation, chemical reactions. Mechanisms
2nd April	**SUNDAY**
Week 9 **3rd April – 8th April**	stereochemistry of nucleophilic substitution reactions of alkyl halides , SN2 and SN1reactions with energy profile diagrams.Methods of formation and reactions of aryl halides,

Lesson Plan

Name of College : Government College, Badli
Academic Session 2022-23 Semester: Even
Name of Asstt./Ass. Prof.: Mr.Ravinder
Class: B.Sc. Pass: 2nd Sem
Name of Subject: ORGANIC CHEMISTRY

9th April	**SUNDAY**
Week 10 **10th April – 15th April**	The additionelimination and the elimination-addition mechanisms of nucleophilic aromatic substitution reactions
16th April	**SUNDAY**
Week 12 **17th April – 22nd April**	Relative reactivities of alkyl halides vs allyl, vinyl and aryl halides
23rd April	**SUNDAY**
Week 14 **24th April - 29th April**	Revision and Test
30th April	**SUNDAY**
Week 15 **1st May – 6th May**	Assignment

Lesson Plan

Name of College: Government College, Badli

Academic Session 2021-22 Semester: IV

Name of Asstt./Ass. Prof.:Ravinder Gill Class: B.Sc. 4TH SEM

Name of Subject: PHYSICAL CHEMISTRY

01st Feb 2023 to 15thMay 2023	
Week 1 **01st Feb – 04th Feb**	Thermodynamics-III Second law of thermodynamics, need for the law, different statements of the law, Carnot's cycles and its efficiency
05th Feb	SUNDAY
Week 2 **06th Feb – 11th Feb**	Thermodynamics scale of temperature. Concept of entropy – entropy as a state function, entropy as a function of V & T,
12th Feb	SUNDAY
Week 3 **13rd Feb – 18th Feb**	entropy as a function of P & T, entropy change in physica l change, entropy as a criteria of spontaneity and equilibrium.
19th Feb	SUNDAY
Week 4 **20th Feb – 25th Feb**	. Entropy change in ideal gases and mixing of gases.
26th Feb	SUNDAY
Week 5 **27th Feb –4th March**	Thermodynamics-IV Third law of thermodynamics: Nernst heat theorem, statement of concept of residual entropy
05th March-12th March	SUNDAY & Holi
Week 6 **13rdMarch-** **18thMarch**	evaluation of absolute entropy from heat capacity data. Gibbs and Helmholtz functions;
19th March	SUNDAY
Week 7 **20th March – 25th March**	Gibbs function (G) and Helmholtz function (A) as thermodynamic quantities, A & G as criteria for thermodynamic equilibrium and spontaneity, their advantage over entropy change.
26th March	SUNDAY
Week 8 **27th March – 1st April**	Variation of G and A with P, V and T.
2nd April	SUNDAY

Lesson Plan

Name of College: Government College, Badli

Academic Session 2021-22 Semester: IV

Name of Asstt./Ass. Prof.:Ravinder Gill Class: B.Sc. 4TH SEM

Name of Subject: PHYSICAL CHEMISTRY

Week 9 **3rd April – 8th April**	Electrochemistry-III Electrolytic and Galvanic cells – reversible & Irreversible cells , conventional representation of electrochemical cells. EMF of cell and its measurement, Wes ton standard cell, activity and activity coefficients.
9th April	SUNDAY
Week 10 **10th April – 15th April**	Calculation of thermodynamic quantities of cell reaction (G, H & K). Types of reversible electrodes – metal- metal ion gas electrode, metal –insoluble salt- anion and redox electrodes.
16th April	SUNDAY
Week 12 **17th April – 22nd April**	Electrodereactions, Nernst equations, derivation of cell EMF and single electrode potential. Standard Hydrogen electrode, reference electrodes, standard electrodes potential, sign conventions, electrochemical se ries and its applications.
23rd April	SUNDAY
Week 14 **24th April - 29th April**	Electrochemistry-IV Concentration cells with and without transference, liquid junction potential, application of EMF measurement
30th April	SUNDAY
Week 15 **1st May – 6th May**	potentiometric titration (acid- base and redox). Determination of pH using Hydrogen electrode, Quinhydrone electrode and glass electrode by potentiometric methods.
7th May	SUNDAY
Week 16 **8th June – 13th May**	Assignment 1,2,3

Name of College: Government College,Badli

Academic Session 2021-22 Semester: VI

Name of Asstt./Ass. Prof : Ravinder

Class: B.Sc. 6TH Semester

Name of Subject: Organic Chemistry

Week 1 **01st Feb – 04th Feb**	Heterocyclic Compounds-I Introduction: Molecular orbital p icture and aromatic characteristics of pyrrole,.
05th Feb	SUNDAY
Week 2 **06th Feb – 11th Feb** Week 3 (4April	Introduction: Molecular orbital p icture and aromatic characteristics of furan,
12th Feb	SUNDAY
Week 3 **13rd Feb – 18th Feb**	Introduction: Molecular orbital p icture and aromatic characteristics of thiophene
19th Feb	SUNDAY
Week 4 **20th Feb – 25th Feb**	Introduction: Molecular orbital p icture and aromatic characteristics of pyridine
26th Feb	SUNDAY
Week 5 **27th Feb –4th March**	Methods of synthesis and chemical reactions with particular emphasis on the mechanism of electrophilic substitution pyrrole,
05th March-12th March	SUNDAY & Holi
Week 6 **13rdMarch-** **18thMarch**	Methods of synthesis and chemical reactions with particular emphasis on the mechanism of electrophilic substitution furan
19th March	SUNDAY
Week 7 **20th March – 25th March**	Methods of synthesis and chemical reactions with particular emphasis on the mechanism of electrophilic substitution thophene
26th March	SUNDAY

Week 8 **27th March – 1st April**	Mechanism of nucleophilic substitution reactions in pyridine derivatives.
2nd April	SUNDAY
Week 9 **3rd April – 8th April**	Comparison of basicity of pyridine, piperidine and pyrrole
9th April	SUNDAY
Week 10 **10th April – 15th April**	Heterocyclic Compounds-II Introduction to condensed five and six-membered heterocycles Mechanism of electrophilic substitution reactions of, quinoline and isoquinoline
16th April	SUNDAY
Week 12 **17th April – 22nd April**	Prepration and reactions of indole, quinoline and isoquinoline with special reference to Fisher indole synthesis, . Organosulphur Compounds Nomenclature, structural features
23rd April	SUNDAY
Week 14 **24th April - 29th April**	Prepration and reactions of indole, quinoline and isoquinoline with special reference to Skraup synthesis Prepration and reactions of indole, quinoline and isoquinoline with special reference to, Skraup synthesis
30th April	SUNDAY
Week 15 **1st May – 6th May**	Assignment 1,2,3