Summary of Lesson Plan of College Faculty

Name of College: Govt college Badli, Jhajjar
Name - Dr. Vemila
Class: B.Sc. 4th Sem
Name of Subject: Organic Chemistry

01st April 2022 to 30th June 2022	**[B.Sc. 4th Semester Chemistry Hons.]**
Week 1 **01st April – 02th April**	**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., * synthesis of aldehydes and ketones using 1,3-dithianes, *Gatterman aldehyde synthesis , *Gatterman Koch reaction, *synthesis of ketones from nitriles and from carboxylic acids.
03rd April	**SUNDAY**
Week 2 **04th April – 09th April**	**Aldehydes and Ketones** 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.
10th April	**SUNDAY**
Week 3 **11th April – 16th April**	**Aldehydes and Ketones** Wittig reaction. Mannich reaction, *Michael reaction. * Use of acetals as protecting group. Oxidation of aldehydes, Baeyer–Villiger oxidation of ketones, Cannizzaro reaction. MPV, Clemmensen, Wolff-Kishner, LiAlH4 and NaBH4 reductions. * Halogenation of enolizable ketones. *An introduction to α, β-unsaturated aldehydes and ketones.
17th April	**SUNDAY**
Week 4 **18th April – 23th April**	**Revision, Assignment and Test**
24th April	**SUNDAY**
Week 5 **25th April –30th April**	**Amines** Structure and nomenclatu re of amines, physical properties. Stereochemistry of amines. Separation of a mixture of primary, secondary and tertiary amines. Structural featu res affecting basicity of amines. *Amine salts as phase-transfer catalysts.
01st May	**SUNDAY**
Week 6 **02th May – 07th May**	**Amines** Prepa ration 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.
08th May	**SUNDAY**
Week 7 **th May – 14th May**	**Nitro Compounds** 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. *Picric acid. Halonitroarenes: reactivity
5th May	**SUNDAY**
eek 8 **th May – 21st May**	**Revision, Assignment and test** **Nitro Compounds** Preparation of nitro alkanes and nitro arenes

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me of Subject: Organic Chemistry

22th May	SUNDAY
Week 9 23rd May – 28th May	**Nitro Compounds** chemical reactions. Mechanism of electrophilic substitution reactions in nitro arenes and their reductions in acidic, neutral and alkaline medium. *Picric acid. Halonitroarenes: reactivity
29th May	SUNDAY
Week 10 30th May– 6th June	**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. * Preparation and reactions of cyanides, and isocyanides, urea and diazomethane.
05th April	SUNDAY
Week 12 16th June – 21st June	**Infrared (IR) absorption spectroscopy** Molecular vibrations, Hooke's law, selection rules, intensity and position of IR bands, measurement of IR spectrum, fingerprint region,
12th June	SUNDAY
Week 14 13th June - 18th June	**Infrared (IR) absorption spectroscopy** characteristic absorptions of various functional groups and interpretation of IR spectra of simple organic compounds. *Hydrocarbons (saturated and unsaturated), hydroxy compounds, aldehydes, ketones, esters, anhydrides, amides, amines and nitrocompounds.
19th June	SUNDAY
Week 15 20th June – 25th June	**Infrared (IR) absorption spectroscopy** Applications of IR spectroscopy in structure elucidation of simple organic compounds.
26th June	SUNDAY
Week 16 27th June – 30th April	**Revision, Assignment and test**

Summary of Lesson Plan of College Faculty

Name of College: Govt. College Badli, Jhajjar
Name of Asstt./Ass. Prof.- Dr. Pemila
Class B.Sc 2nd Sem

Name of Subject: Chemistry
Paper- Physical Chemistry

01 April,2022 to -30June, 2022	
Month (April)	
Week 1 (1-2April)	**Chemical Kinetics** Chemical kinetics and its scope, Rate of reaction, factors influencing the rate of reaction. Concentration, temperature, pressure, solvent, light, catalyst, concentration dependence of rates. Pseudo uni molecular reactions.
3 April	**SUNDAY**
Week 2 (4April-9April)	Mathematical characteristics of simple chemical reactions Differential method, method of integration. Method of half-life period and isolation method. molecularity and order of reaction. Zero order kinetics.
10 April	**SUNDAY**
Week 3 (11April-16April)	Ist order ,second order kinetics.
17th April	**SUNDAY**
Week 4 (18April-23April)	Third order & nth order reactions and their mathematical derivations for their rate constants.
Month (April- May)	
24 April	**SUNDAY**
Week 5 25April-30April	Half life period, average life period, determination of order reaction.
1May	**SUNDAY**
Week 6 (2May-7May)	**Electrochemistry-I** Electrical transport conduction in metal and in electrolyte solutions, specific conductance and equivalent conductance.
8 May	**SUNDAY**
Week 7 9May-14May	Measurement of equivalent conductance. Variation of equivalent conductance and specific conductance with dilution, migration of ions,
15May	**SUNDAY**
Week 8 16May-21May	Kohlrausch's law, Arhenious theory of electrolyte dissolution and its limitations.
Month (May-June)	
22 May	**SUNDAY**
Week 9 23 May-28May	Weak and strong electrolytes. Ostwald's dilution law and its uses and limitation.
29th May	**SUNDAY**
Week 10 30May–4 June	**Electrochemistry-II** Debye-Huckel onsager equation for strong electrolytes (elementary treatment only),transport number Application of conductivity measurements.
5June	**SUNDAY**
Week 11 6June – 11June	Hittorf and moving boundary method.
12June	**SUNDAY**
Week 12 13 June– 18 June	Determination of solubility product of sparingly soluble salts. Determination of degree of

	dissolution ,Ka for weak acids.
29June	**SUNDAY**
	Month (June)
Week 13 **(20 June-30 June)**	Submission of assignments and Queries will be taken.

Name of College: Govt College Badli, Jhajjar
Name of Asstt./A - Dr. Urmila
Class: B.Sc 6th Sem.

Name of Subject: Chemistry
Paper- Physical Chemistry

01 April,2022 to -30June, 2022	
Month (April)	
Week 1 (1-2 April)	**Electronic Spectrum** Concept of potential energy curves for bonding and antibonding molecular orbitals,
3 April	**SUNDAY**
Week 2 (4April-9April)	qualitative description of selection rules and Franck- Condon principle. Qualitative description of sigma and pie and n molecular orbital (MO) their energy level and respective transitions.
10 April	**SUNDAY**
Week 3 (11April-16April)	**Photochemistry** Interaction of radiation with matter, difference between thermal and photochemical processes. Laws of photochemistry: Grotthus-Drapper law, Stark- Einstein law (law of photochemical equivalence)
17th April	**SUNDAY**
Week 4 (18April-23April)	Jablonski diagram depiciting various processes occurring in the excited state, qualitative description of fluorescence, phosphorescence, non-radiative processes (internal conversion, intersystem crossing).
Month (April- May)	
24 April	**SUNDAY**
Week 5 25 April-30 April	Quantum yield, photosensitized reactions-energy transfer processes (simple examples).
1May	**SUNDAY**
Week 6 (2May-7May)	**Solutions: Dilute Solutions and Colligative Properties** Ideal and non-ideal solutions, methods of expressing concentrations of solutions, activity and activity coefficient.
8 May	**SUNDAY**
Week 7 9May-14May	Dilute solution,Colligative properties, Raolut's law, relative lowering of vapour pressure, molelcular weight determination, Osmosis law of osmotic pressure and its measurement, determination of molecular weight from osmotic pressure.
15May	**SUNDAY**
Week 8 16May-21May	Elevation of boiling point and depression of freezing point, Thermodynamic derivation of relation between molecular weight and elevation in boiling point and depression in freezing point.
Month (May-June)	
22 May	**SUNDAY**
Week 9 23 May-28May	Experimental methods for determining various colligative properties. Abnormal molar mass, degree of dissociation and association of solutes.
29th May	**SUNDAY**
Week 10 30May–4 June	**Phase Equillibrium** Statement and meaning of the terms – phase component and degree of freedom, thermodynamic derivation of Gibbs phase rule,
5June	**SUNDAY**
Week 11 6June – 11June	Phase equilibria of one component system –Example – water and Sulpher systems.
12June	**SUNDAY**
Week 12 13 June– 18 June	Phase equilibria of two component systems solid-liquid equilibria, simple eutectic Example Pb-Ag system, desilerisation of lead
19June	**SUNDAY**
Month (June)	

Week 13 (20 June-30 June)	Submission of assignments and Queries will be taken.