KVA DAV College for Women, Karnal

Lesson plan for the odd semester
(October, 2021 to February, 2022)

Name of the Teacher – Ms. Manju
Subject- Chemistry
Paper- Inorganic Chemistry
Class- B.Sc Ist sem

October, 2021 2rd Week **11 Oct-16 Oct**	Introduction
15 Oct, 2021 **17 Oct, 2021**	**(Dussehra)** **Sunday**
3th Week **18 Oct-23 Oct**	Atomic Structure- Idea of de Broglie matter waves, Heisenberg uncertainty principle, atomic orbitals, quantum numbers.
20 Oct, 2021 **24 Oct, 2021**	**Maharishi Valmiki Jayanti** **Sunday**
May, 2021 4th Week **25 Oct-30 Oct**	Radial and angular wave functions and probability distribution curves, shapes of s, p, d orbitals
31 Oct, 2021	**Sunday**
November, 2021 1st Week **1 Nov-7 Nov**	**(Haryana Day)** **Diwali Holidays** Aufbau and Pauli exclusion principles, Hund's multiplicity rule. Electronic configurations of the elements
2nd Week **8 Nov-13 Nov**	ASSIGNMENT-1,PROBLEMS
14 Nov, 2021	**Sunday**
3rdWeek **15 Nov-20 Nov**	Effective nuclear charge, Slater's rules.
21 Nov, 2021	**Sunday**
4thWeek **22 Nov-27**	Periodic Properties Atomic and ionic radii, ionization energy, electron affinity

KVA DAV College for Women, Karnal

Lesson plan for the odd semester
(October, 2021 to February, 2022)

Name of the Teacher – Ms. Manju
Subject- Chemistry
Paper- Inorganic Chemistry
Class- B.Sc Ist sem

28 Nov, 2021	**Sunday**
Dec, 2021 1st Week **29 Nov-04 Dec**	Electronegativity –definition methods of determination or evaluation, trends in periodic table (in s &p block elements).
05 Dec, 2021	**Sunday**
2nd Week **06 Dec -11 Dec**	ASSIGNMENT-2, Covalent Bond Valence bond theory and its limitations,directional characteristics of covalent bond.
12 Dec,2021	**Sunday**
3rd week **13 Dec -18 Dec**	Various types of hybridization and shapes of simple inorganic molecules and ions (BeF_2 , BF_3 , CH_4 , PF_5 , SF_6, IF_7,$SO4^{2-}$, $ClO4^-$)
19 Dec,2021	**Sunday**
4th Week **20 Dec-24 Dec**	Valence shell electron pair repulsion (VSEPR) theory to NH_3 , H_3O^+ , SF_4 , CIF_3 , ICI_2- and H_2
25 Dec,2021 **26 Dec,2021**	**Christmas** **Sunday**
5th Week **27 Dec -01 Jan**	MO theory of heteronuclear (CO and NO) diatomic. Molecules Bond strength and bond energy percentage ionic character from dipole moment and electronegativity difference
2 Jan ,2022	**Sunday**
Jan ,2022 1st week **3 Jan – 8 Jan**	Ionic Solids Ionic structures (NaCl,CsCl, ZnS(Zinc Blende), CaF 2) radius ratio effect and coordination number, limitation of radius ratio rule
9 Jan ,2022	**Sunday(Sh. Guru Gobind Singh's Birthday)**
2nd Week **10 Jan – 15 Jan**	**SESSIONAL**
16 Jan ,2022	**Sunday**

KVA DAV College for Women, Karnal

Lesson plan for the odd semester
(October, 2021 to February, 2022)

Name of the Teacher – Ms. Manju
Subject- Chemistry
Paper- Inorganic Chemistry
Class- B.Sc Ist sem

3rd week **17 Jan – 22 Jan**	Lattice defects, semiconductors
23 Jan ,2022	**Sunday**
4th Week **24 Jan – 29 Jan**	lattice energy (mathematical derivation excluded) and Born-Haber cycle
26 Jan, 2022 **30 Jan ,2022**	**Republic Day** **Sunday**
Feb, 2021 1st week **31 Feb-4 Feb**	solvation energy and its relation with solubility of ionic solids
5 Feb, 2022 **6 Feb ,2022**	**Vasant Panchmi** **Sunday**
2nd week **7 Feb- 12 Feb**	polarizing power and polarisability of ions, Fajan's rule.
13 Feb ,2022	**Sunday**
3rd week **14 Feb- 19 Feb**	REVISION

KVA DAV College for Women, Karnal

Lesson plan for the odd semester
(October, 2021 to February, 2022)

Name of the Teacher – Ms.Manju
Subject- Chemistry
Paper- Inorganic Chemistry
Class- B.Sc 3rd sem

October, 2021 2rd Week **11 Oct-16 Oct**	**BASIC-INDRODUCTION** **Chemistry of d-Block elements** Definition of transition elements
15 Oct, 2021 **17 Oct, 2021**	**(Dussehra)** **Sunday**
3th Week **18 Oct-23 Oct**	Position in the periodic table, General characteristic properties of d-Block elements
20 Oct, 2021 **24 Oct, 2021**	**Maharishi Valmiki Jayanti** **Sunday**
May, 2021 4th Week **25 Oct-30 Oct**	Comparison of properties of 3d elements with 4d and 5d elements with reference only to ionic radii, oxidation state
31 Oct, 2021	**Sunday**
November, 2021 1st Week **1 Nov-7 Nov**	**(Haryana Day)** **Diwali Holidays**
2nd Week **8 Nov-13 Nov**	Magnetic and spectral properties and stereo chemistry.
14 Nov, 2021	**Sunday**
3rdWeek **15 Nov-20 Nov**	Stability of various oxidation states and e.m.f (Latimer and Frost diagrams)
21 Nov, 2021	**Sunday**
4thWeek **22 Nov-27**	Structure and properties of some compounds of transition elements- TiO2, VOCl2, FeCl3, CuCl2 and Ni(CO)4 and Assignment 1

KVA DAV College for Women, Karnal

Lesson plan for the odd semester
(October, 2021 to February, 2022)

Name of the Teacher – Ms.Manju
Subject- Chemistry
Paper-Inorganic Chemistry
Class- B.Sc 3rd sem

28 Nov, 2021	**Sunday**
Dec, 2021 1st Week **29 Nov-04 Dec**	Coordination Compounds Werner's theory of coordination compounds
05 Dec, 2021	**Sunday**
2nd Week **06 Dec -11 Dec**	Effective atomic number, Chelates
12 Dec,2021	**Sunday**
3rd week **13 Dec -18 Dec**	Nomenclature of coordination compounds, Isomerism in coordination compounds and Test
19 Dec,2021	**Sunday**
4th Week **20 Dec-24 Dec**	Valence bond theory of transition metal complexes and problem discussion.
25 Dec,2021 **26 Dec,2021**	**Christmas** **Sunday**
5th Week **27 Dec -01 Jan**	Non-aqueous solvents Physical properties of solvents and assignment-2
2 Jan ,2022	**Sunday**
Jan ,2022 1st week **3 Jan – 8 Jan**	Types of solvents and Test
9 Jan ,2022	**Sunday(Sh. Guru Gobind Singh's Birthday)**
2nd Week **10 Jan – 15 Jan**	**SESSIONAL**
16 Jan ,2022	**Sunday**

KVA DAV College for Women, Karnal

Lesson plan for the odd semester
(October, 2021 to February, 2022)

Name of the Teacher – Ms.Manju
Subject-Chemistry
Paper- Inorganic Chemistry
Class- B.Sc 3rd sem

3rd week **17 Jan – 22 Jan**	General characteristics of solvent.
23 Jan ,2022	**Sunday**
4th Week **24 Jan – 29 Jan**	**Reactions of liquid NH3.+Test**
26 Jan, 2022 **30 Jan ,2022**	**Republic Day** **Sunday**
Feb, 2021 1st week **31 Feb-4 Feb**	Reactions in non aqueous solvents with reference to liquid SO2
5 Feb, 2022 **6 Feb ,2022**	**Vasant Panchmi** **Sunday**
2nd week **7 Feb- 12 Feb**	Reactions of liquid SO2
13 Feb ,2022	**Sunday**
3rd week **14 Feb- 19 Feb**	**Revision**

KVA DAV College for Women, Karnal

Lesson plan for the odd semester
(October, 2021 to February, 2022)

Name of the Teacher – Ms. Manju
Subject- Chemistry
Paper- Inorganic Chemistry
Class- B.Sc Vth sem

October, 2021 2rd Week **11 Oct-16 Oct**	**Basic-Indroduction**
15 Oct, 2021 **17 Oct, 2021**	**(Dussehra)** **Sunday**
3th Week **18 Oct-23 Oct**	Metal- Ligand Bonding in Transition Metal complexes Limitations of valence bond theory, an elementary idea of crystal field theory,
20 Oct, 2021 **24 Oct, 2021**	**Maharishi Valmiki Jayanti** **Sunday**
May, 2021 4th Week **25 Oct-30 Oct**	Crystal field splitting in octahedral, tetrahedral and square planer complexes, factors affecting the crystal field parameters
31 Oct, 2021	**Sunday**
November, 2021 1st Week **1 Nov-7 Nov**	**(Haryana Day)** **Diwali Holidays**
2nd Week **8 Nov-13 Nov**	Thermodynamics and Kinetic Aspects of metal complexes -A brief outline of thermodynamic stability of metal complexes and factors affecting the stability, Irving William Series,
14 Nov, 2021	**Sunday**
3rdWeek **15 Nov-20 Nov**	Assignment 1+ substitution reactions of square planer complexes of Pt[II], Trans effect.
21 Nov, 2021	**Sunday**
4thWeek **22 Nov-27**	Discussion+ Magnetic properties of Transition metal complexes Types of magnetic materials, magnetic susceptibility, method of determining magnetic susceptibility

KVA DAV College for Women, Karnal

Lesson plan for the odd semester
(October, 2021 to February, 2022)

Name of the Teacher – Ms. Manju
Subject- Chemistry
Paper- Inorganic Chemistry
Class- B.Sc Vth sem

28 Nov, 2021	**Sunday**
Dec, 2021 1st Week **29 Nov-04 Dec**	Method of determining magnetic susceptibility,spin only formula, L-S coupling,
05 Dec, 2021	**Sunday**
2nd Week **06 Dec -11 Dec**	Correlation of μs and μeff values, orbital contribution to magnetic moments
12 Dec,2021	**Sunday**
3rd week **13 Dec -18 Dec**	Assignment 2+ application of magnetic moment data for 3d metal complexes.
19 Dec,2021	**Sunday**
4th Week **20 Dec-24 Dec**	Test+ Numericals
25 Dec,2021 **26 Dec,2021**	**Christmas** **Sunday**
5th Week **27 Dec -01 Jan**	Electronic spectra of Transition metal complexes-Selection rules for d-d transition, spectroscopic ground states
2 Jan ,2022	**Sunday**
Jan ,2022 1st week **3 Jan – 8 Jan**	Electronic spectra of Transition metal complexes-Selection rules for d-d transition
9 Jan ,2022	**Sunday(Sh. Guru Gobind Singh's Birthday)**
2nd Week **10 Jan – 15 Jan**	Sessional
16 Jan ,2022	**Sunday**

KVA DAV College for Women, Karnal

Lesson plan for the odd semester
(October, 2021 to February, 2022)

Name of the Teacher – Ms. Manju
Subject-Chemistry
Paper- Inorganic Chemistry
Class- B.Sc Vth sem

3rd week **17 Jan – 22 Jan**	Spectroscopic ground states
23 Jan ,2022	**Sunday**
4th Week **24 Jan – 29 Jan**	Spectro chemical series, orgel energy level diagram for d1 and d9 states
26 Jan, 2022 **30 Jan ,2022**	**Republic Day** **Sunday**
Feb, 2021 1st week **31 Feb-4 Feb**	Discussion+, Continue spectro chemical series, orgel energy level diagram for d1 and d9 states
5 Feb, 2022 **6 Feb ,2022**	**Vasant Panchmi** **Sunday**
2nd week **7 Feb- 12 Feb**	Discussion of electronic spectrum of [Ti(H2O)6]+3 complex ion.
13 Feb ,2022	**Sunday**
3rd week **14 Feb- 19 Feb**	**Revision**

KVA DAV College for Women, Karnal

Lesson plan for the odd semester
(October, 2021 to February, 2022)

Name of the Teacher – Ms. Latika
Subject- Chemistry
Paper- Organic Chemistry
Class- B.Sc 1st sem

October, 2021 2rd Week **11 Oct-16 Oct**	Introduction of some basic concepts of Organic
15 Oct, 2021 **17 Oct, 2021**	**(Dussehra)** **Sunday**
3th Week **18 Oct-23 Oct**	**Structure and Bonding** Localized and delocalized chemical bond, Vander Waals interactions, resonance: conditions, resonance effect and its applications
20 Oct, 2021 **24 Oct, 2021**	**Maharishi Valmiki Jayanti** **Sunday**
May, 2021 4th Week **25 Oct-30 Oct**	Hyperconjugation, inductive effect, Electromeric effect & their comparison.
31 Oct, 2021	**Sunday**
November, 2021 1st Week **1 Nov-7 Nov**	**(Haryana Day)** **Diwali Holidays**
2nd Week **8 Nov-13 Nov**	**Stereochemistry of Organic Compounds** Concept of isomerism. Types of isomerism. Optical isomerism — elements of symmetry, molecular chirality,
14 Nov, 2021	**Sunday**
3rdWeek **15 Nov-20 Nov**	**Assignment-1** + stereogenic centre, optical activity, properties of enantiomers, chiral and achiral molecules with two stereogenic centres.
21 Nov, 2021	**Sunday**
4thWeek **22 Nov-27**	Diastereomers, threo and erythro diastereomers, meso Compounds resolution of enantiomers, inversion, retention and racemization.

KVA DAV College for Women, Karnal

Lesson plan for the odd semester
(October, 2021 to February, 2022)

Name of the Teacher – Ms. Latika
Subject- Chemistry
Paper- Organic Chemistry
Class- B.Sc 1st sem

28 Nov, 2021	**Sunday**
Dec, 2021 1st Week **29 Nov-04 Dec**	Relative and absolute configuration, sequence rules, R & S systems of nomenclature. Geometric isomerism — determination of configuration of geometric isomers
05 Dec, 2021	**Sunday**
2nd Week **06 Dec -11 Dec**	E & Z system of nomenclature, Conformational isomerism — conformational analysis of ethane and n-butane, conformations of cyclohexane, axial and equatorial bonds,
12 Dec,2021	**Sunday**
3rd week **13 Dec -18 Dec**	**Assignment-2** + Newman projection and Sawhorse formulae, Difference between configuration and conformation.
19 Dec,2021	**Sunday**
4th Week **20 Dec-24 Dec**	**Mechanism of Organic Reactions** Curved arrow notation, drawing electron movements with arrows, half-headed and double-headed arrows. homolytic and heterolytic bond breaking. Types of reagent electrophiles and nucleophiles.
25 Dec,2021 **26 Dec,2021**	**Christmas** **Sunday**
5th Week **27 Dec -01 Jan**	Types of organic reactions. Energy considerations. Reactive intermediates — carbocations, carbanions, free radicals carbenes,(formation, structure & stability).
2 Jan ,2022	**Sunday**
Jan ,2022 1st week **3 Jan – 8 Jan**	**Alkanes and Cycloalkanes** IUPAC nomenclature of branched and unbranched alkanes, the alkyl group + TEST
9 Jan ,2022	**Sunday(Sh. Guru Gobind Singh's Birthday)**
2nd Week **10 Jan – 15 Jan**	**Sessional**
16 Jan ,2022	**Sunday**

KVA DAV College for Women, Karnal

Lesson plan for the odd semester
(October, 2021 to February, 2022)

Name of the Teacher – Ms. Latika
Subject- Chemistry
Paper-Organic Chemistry
Class- B.Sc 1st sem

3rd week **17 Jan – 22 Jan**	Classification of carbon atoms in alkanes. Isomerism in alkanes, sources. Methods of formation (with special reference to Wurtz reaction, Kolbe reaction
23 Jan ,2022	**Sunday**
4th Week **24 Jan – 29 Jan**	Corey-House reaction and decarboxylation of carboxylic acids), physical properties. Mechanism of free radical halogenation of alkanes: reactivity and selectivity.
26 Jan, 2022 **30 Jan ,2022**	**Republic Day** **Sunday**
Feb, 2021 1st week **31 Feb-4 Feb**	Cycloalkanes — nomenclature, synthesis of cycloalkanes and their derivatives
5 Feb, 2022 **6 Feb ,2022**	**Vasant Panchmi** **Sunday**
2nd week **7 Feb- 12 Feb**	photochemical (2+2) cycloaddition reactions, dehalogenation of α,ω-dihalides, pyrolysis of calcium or barium salts of dicarboxylic acids, Baeyer's strain theory and its limitations., theory of strainless rings.
13 Feb ,2022	**Sunday**
3rd week **14 Feb- 19 Feb**	**Revision**

KVA DAV College for Women, Karnal

Lesson plan for the odd semester
(October, 2021 to February, 2022)

Name of the Teacher – Ms. Rajni
Subject- Chemistry
Paper- Organic Chemistry
Class-B.Sc 3rd sem

October, 2021 2rd Week **11 Oct-16 Oct**	Basic Introduction of alcohols
15 Oct, 2021 **17 Oct, 2021**	**(Dussehra)** **Sunday**
3th Week **18 Oct-23 Oct**	**Alcohols** - Monohydric alcohols :nomenclature, methods of formation by reduction of aldehydes, ketones, carboxylic acids and esters
20 Oct, 2021 **24 Oct, 2021**	**Maharishi Valmiki Jayanti** **Sunday**
May, 2021 4th Week **25 Oct-30 Oct**	Hydrogen bonding. Acidic nature. Reactions of alcohols. Dihydric alcohols — nomenclature, methods of formation, chemical reactions of vicinal glycols
31 Oct, 2021	**Sunday**
November, 2021 1st Week **1 Nov-7 Nov**	**(Haryana Day)** **Diwali Holidays**
2nd Week **8 Nov-13 Nov**	oxidative cleavage [Pb(OAc)4 and HIO4] and pinacol-pinacolone rearrangement **Phenols-** Nomenclature
14 Nov, 2021	**Sunday**
3rdWeek **15 Nov-20 Nov**	Assignment 1+, structure and bonding. Preparation of phenols
21 Nov, 2021	**Sunday**
4thWeek **22 Nov-27**	Physical properties and acidic character. Comparative acidic strengths of alcohols and phenols

KVA DAV College for Women, Karnal

Lesson plan for the odd semester
(October, 2021 to February, 2022)

Name of the Teacher – Ms. Rajni
Subject- Chemistry
Paper-Organic Chemistry
Class- B.Sc 3rd sem

28 Nov, 2021	**Sunday**
Dec, 2021 1st Week **29 Nov-04 Dec**	**Test+** resonance stabilization of phenoxide ion. Reactions of phenols — electrophilic aromatic substitution
05 Dec, 2021	**Sunday**
2nd Week **06 Dec -11 Dec**	Mechanisms of Fries rearrangement, Claisen rearrangement, Reimer-Tiemann reaction Kolbe's reaction and Schotten and Baumann reactions.
12 Dec,2021	**Sunday**
3rd week **13 Dec -18 Dec**	Assignment2 + **Epoxide-** Synthesis of epoxides. Acid and base-catalyzed ring opening of epoxides, orientation of epoxide ring opening
19 Dec,2021	**Sunday**
4th Week **20 Dec-24 Dec**	reactions of Grignard and organo lithium reagents with epoxides.+ **Ultraviolet (UV) absorption spectroscopy** Absorption laws (Beer-Lambert law), molar absorptivity, presentation and analysis of UV spectra,
25 Dec,2021 **26 Dec,2021**	**Christmas** **Sunday**
5th Week **27 Dec -01 Jan**	**Discussion+** types of electronic transitions, effect of conjugation. Concept of chromophore and auxochrome. Bathochromic, hypsochromic, hyperchromic and hypochromic shifts.
2 Jan ,2022	**Sunday**
Jan ,2022 1st week **3 Jan – 8 Jan**	UV spectra of conjugated enes and enones, Woodward- Fieser rules
9 Jan ,2022	**Sunday** **(Sh. Guru Gobind Singh's Birthday)**
2nd Week **10 Jan – 15 Jan**	**SESSIONAL**
16 Jan ,2022	**Sunday**

KVA DAV College for Women, Karnal

Lesson plan for the odd semester
(October, 2021 to February, 2022)

Name of the Teacher – Ms. Rajni
Subject- Chemistry
Paper- Organic Chemistry
Class-B.Sc 3rd sem

3rd week **17 Jan – 22 Jan**	Calculation of max of simple conjugated dienes and-unsaturated ketones.b Applications of UV Spectroscopy in structure elucidation of simple organic compounds.
23 Jan ,2022	**Sunday**
4th Week **24 Jan – 29 Jan**	**Carboxylic Acids & Acid Derivatives** structure and bonding, physical properties, acidity of carboxylic acids, effects of substituents on acid strength.
26 Jan, 2022 **30 Jan ,2022**	**Republic Day** **Sunday**
Feb, 2021 1st week **31 Feb-4 Feb**	Reactions of carboxylic acids. Hell-Volhard-Zelinsky reaction. Reduction of carboxylic acids. Mechanism of decarboxylation. Relative stability of acyl derivatives
5 Feb, 2022 **6 Feb ,2022**	**Vasant Panchmi** **Sunday**
2nd week **7 Feb- 12 Feb**	Physical properties, inter conversion of acid derivatives by nucleophilic acyl substitution. Mechanisms of esterification and hydrolysis (acidic and basic).
13 Feb ,2022	**Sunday**
3rd week **14 Feb- 19 Feb**	**Revision**

KVA DAV College for Women, Karnal

Lesson plan for the odd semester
(October, 2021 to February, 2022)

Name of the Teacher – Ms. Rajni
Subject- Chemistry
Paper- Organic Chemistry
Class- B.Sc 5th sem

October, 2021 2rd Week **11 Oct-16 Oct**	Basic Introduction of NMR Spectroscopy
15 Oct, 2021 **17 Oct, 2021**	**(Dussehra)** **Sunday**
3th Week **18 Oct-23 Oct**	**NMR Spectroscopy** Principle of nuclear magnetic resonance, the PMR spectrum, number of signals, peak areas.
20 Oct, 2021 **24 Oct, 2021**	**Maharishi Valmiki Jayanti** **Sunday**
May, 2021 4th Week **25 Oct-30 Oct**	Equivalent and non-equivalent protons. Positions of signals and chemical shift, shielding and deshielding of protons.
31 Oct, 2021	**Sunday**
November, 2021 1st Week **1 Nov-7 Nov**	**(Haryana Day)** **Diwali Holidays**
2nd Week **8 Nov-13 Nov**	Proton counting, splitting of signals and coupling constant. Magnetic equivalence of protons.
14 Nov, 2021	**Sunday**
3rdWeek **15 Nov-20 Nov**	Assignment-1 + Discussion of PMR spectra of the molecules: ethyl bromide
21 Nov, 2021	**Sunday**
4thWeek **22 Nov-27**	n-propyl bromide, isopropyl bromide, 1,1-dibromoethane.

KVA DAV College for Women, Karnal

Lesson plan for the odd semester
(October, 2021 to February, 2022)

Name of the Teacher – Ms. Rajni
Subject- Chemistry
Paper- Organic Chemistry
Class- B.Sc 5th sem

28 Nov, 2021	**Sunday**
Dec, 2021 1st Week **29 Nov-04 Dec**	1,1,2-tribromoethane, ethanol, acetaldehyde, ethyl acetate Toluene, benzaldehyde and acetophenone. +TEST
05 Dec, 2021	**Sunday**
2nd Week **06 Dec -11 Dec**	**Carbohydrates** Classification and nomenclature. Monosaccharides, mechanism of osazone formation.
12 Dec,2021	**Sunday**
3rd week **13 Dec -18 Dec**	Assignment-2+Simple problems on PMR spectroscopy for structure determination of organic compounds.+
19 Dec,2021	**Sunday**
4th Week **20 Dec-24 Dec**	Inter conversion of glucose and fructose, chain lengthening and chain shortening of aldoses.
25 Dec,2021 **26 Dec,2021**	**Christmas** **Sunday**
5th Week **27 Dec -01 Jan**	Configuration of monosaccharides. Erythro and threo diastereomers. Conversion of glucose into mannose. Formation of glycosides
2 Jan ,2022	**Sunday**
Jan ,2022 1st week **3 Jan – 8 Jan**	Ethers and esters. Determination of ring size of glucose and fructose. Open chain and cyclic structure of D (+)-glucose & D (-) fructose.
9 Jan ,2022	**Sunday(Sh. Guru Gobind Singh's Birthday)**
2nd Week **10 Jan – 15 Jan**	**Sessional**
16 Jan ,2022	**Sunday**

KVA DAV College for Women, Karnal

Lesson plan for the odd semester
(October, 2021 to February, 2022)

Name of the Teacher – Ms. Rajni
Subject-Chemistry
Paper-Organic Chemistry
Class- B.Sc 5th sem

3rd week **17 Jan – 22 Jan**	Mechanism of mutarotation.Structures of ribose and deoxyribose.An introduction to disaccharides maltose.
23 Jan ,2022	**Sunday**
4th Week **24 Jan – 29 Jan**	sucrose and lactose polysaccharides (starch and cellulose) without involving structure determination + Test
26 Jan, 2022 **30 Jan ,2022**	**Republic Day** **Sunday**
Feb, 2021 1st week **31 Feb-4 Feb**	**Organometallic Compounds** Organomagnesium compounds: the Grignard reagents-formation, structure and chemical reactions.
5 Feb, 2022 **6 Feb ,2022**	**Vasant Panchmi** **Sunday**
2nd week **7 Feb- 12 Feb**	Organozinc compounds: formation and chemical reactions.Organolithium compounds: formation and chemical reactions.
13 Feb ,2022	**Sunday**
3rd week **14 Feb- 19 Feb**	**Revision**

KVA DAV College for Women, Karnal

Lesson plan for the odd semester
(October, 2021 to February, 2022)

Name of the Teacher – Ms. Latika
Subject- Chemistry
Paper- Physical Chemistry
Class- B.Sc 1st Sem

October, 2021 2rd Week **11 Oct-16 Oct**	Introduction to States of Matter,
15 Oct, 2021 **17 Oct, 2021**	**(Dussehra)** **Sunday**
3th Week **18 Oct-23 Oct**	Maxwell's distribution of velocities and energies (derivation excluded) Calculation of root mean square velocity
20 Oct, 2021 **24 Oct, 2021**	**Maharishi Valmiki Jayanti** **Sunday**
4th Week **25 Oct-30 Oct**	Average velocity and most probable velocity. Collision diameter, collision number, collision frequency and mean free path.
31 Oct, 2021	**Sunday**
November, 2021 1st Week **1 Nov-7 Nov**	**(Haryana Day)** **Diwali Holidays**
2nd Week **8 Nov-13 Nov**	Deviation of Real gases from ideal behaviour. Derivation of Vander Waal's Equation of State
14 Nov, 2021	**Sunday**
3rdWeek **15 Nov-20 Nov**	Assignment-1, Its application in the calculation of Boyle's temperature (Compression factor).
21 Nov, 2021	**Sunday**
4thWeek **22 Nov-27**	Explanation of behaviour of real gases using Vander Waal's equation and Numerical practice.

KVA DAV College for Women, Karnal

Lesson plan for the odd semester
(October, 2021 to February, 2022)

Name of the Teacher – Ms. Latika
Subject- Chemistry
Paper- Physical Chemistry
Class- B.Sc 1st Sem

28 Nov, 2021	**Sunday**
Dec, 2021 1st Week **29 Nov-04 Dec**	**Critical Phenomenon:** Critical temperature, Critical pressure, Critical volume and their determination
05 Dec, 2021	**Sunday**
2nd Week **06 Dec -11 Dec**	PV isotherms of real gases, continuity of states, the isotherms of Vander Waal'sequation.
12 Dec,2021	**Sunday**
3rd week **13 Dec -18 Dec**	Assignment-2, relationship between critical constants and Vander Waal"s constants
19 Dec,2021	**Sunday**
4th Week **20 Dec-24 Dec**	Critical compressibility factor. The Law of corresponding states. Liquefaction of gases. Numericals
25 Dec,2021 **26 Dec,2021**	**Christmas** **Sunday**
5th Week **27 Dec -01 Jan**	**Liquid States** Structure of liquids. Properties of liquids – surface tension, Viscosity vapour pressure
2 Jan ,2022	**Sunday**
Jan ,2022 1st week **3 Jan – 8 Jan**	Optical rotations and their determination. Numericals.
9 Jan ,2022	**Sunday(Sh. Guru Gobind Singh's Birthday)**

KVA DAV College for Women, Karnal

Lesson plan for the odd semester
(October, 2021 to February, 2022)

Name of the Teacher – Ms. Latika
Subject- Chemistry
Paper- Physical Chemistry
Class- B.Sc 1st Sem

2nd week **10 Jan – 15 Jan**	SESSIONAL
16 Jan ,2022	**Sunday**
3rdweek **17 Jan – 22 Jan**	**Solid State** Classification of solids, Laws of crystallography – (i) Law of constancy of interfacial angles
23 Jan ,2022	**Sunday**
4th Week **24 Jan – 29 Jan**	(ii) Law of rationality of indices (iii) Law of symmetry. Symmetry elements of crystals.
26 Jan, 2022 **30 Jan ,2022**	**Republic Day** **Sunday**
Feb, 2021 1st week **1 Feb-4 Feb**	Definition of unit cell & space lattice. Bravais lattices, crystal system X-ray diffraction by crystals. Derivation of Bragg equation. Determination of crystal structure of NaCl, KCl
5 Feb, 2022 **6 Feb ,2022**	**Vasant Panchmi** **Sunday**
2nd week **7 Feb- 12 Feb**	Liquid crystals: Difference between solids, liquids and liquid crystals,types of liquid crystals. Applications of liquid crystals.
13 Feb ,2022	**Sunday**
3rd week **14 Feb- 19 Feb**	Revision

KVA DAV College for Women, Karnal

Lesson plan for the odd semester
(October, 2021 to February, 2022)

Name of the Teacher – Dr. Manju Singh
Subject- Chemistry
Paper- Physical Chemistry
Class- B.Sc 3rd Sem

October, 2021 2rd Week **11 Oct-16 Oct**	**BASIC INTRODUCTION**
15 Oct, 2021 **17 Oct, 2021**	**(Dussehra)** **Sunday**
3th Week **18 Oct-23 Oct**	**Thermodynamics**-Definition of thermodynamic terms: system, surrounding etc. Types of systems, intensive and extensive properties
20 Oct, 2021 **24 Oct, 2021**	**Maharishi Valmiki Jayanti** **Sunday**
4th Week **25 Oct-30 Oct**	State and path functions and their differentials. Thermodynamic process. Thermodynamic equilibrium, Concept of heat and work.
31 Oct, 2021	**Sunday**
November, 2021 1st Week **1 Nov-7 Nov**	**(Haryana Day)** **Diwali Holidays**
2nd Week **8 Nov-13 Nov**	Thermodynamic process. Thermodynamic equilibrium, Concept of heat and work.
14 Nov, 2021	**Sunday**
3rdWeek **15 Nov-20 Nov**	Assignment 1+ First law of thermodynamics: statement, concepts of internal energy and enthalpy
21 Nov, 2021	**Sunday**
4thWeek **22 Nov-27**	Numericals+ Heat capacity, heat capacities at constant volume and pressure and their relationship

KVA DAV College for Women, Karnal

Lesson plan for the odd semester
(October, 2021 to February, 2022)

Name of the Teacher – Dr. Manju Singh
Subject- Chemistry
Paper- Physical Chemistry
Class- B.Sc 3rd Sem

28 Nov, 2021	**Sunday**
Dec, 2021 1st Week **29 Nov-04 Dec**	Joule–Thomson coefficient for ideal gas and real gas and inversion temperature+ Test
05 Dec, 2021	**Sunday**
2nd Week **06 Dec -11 Dec**	Calculation of w,q, dU&dH for the expansion of ideal gases under isothermal + Numerical
12 Dec,2021	**Sunday**
3rd week **13 Dec -18 Dec**	Calculation of w,q, dU&dH for the expansion of ideal gases under isothermal adiabatic conditions for reversible process. + Assignment 2
19 Dec,2021	**Sunday**
4th Week **20 Dec-24 Dec**	Chemical Equilibrium Equilibrium constant and free energy
25 Dec,2021 **26 Dec,2021**	**Christmas** **Sunday**
5th Week **27 Dec -01 Jan**	Concept of chemical potential, Thermodynamic derivation of law of chemical equilibrium
2 Jan ,2022	**Sunday**
Jan ,2022 1st week **3 Jan – 8 Jan**	Temperature dependence of equilibrium constant + Numerical
9 Jan ,2022	**Sunday(Sh. Guru Gobind Singh's Birthday)**

KVA DAV College for Women, Karnal

Lesson plan for the odd semester
(October, 2021 to February, 2022)

Name of the Teacher – Dr. Manju Singh
Subject- Chemistry
Paper- Physical Chemistry
Class- B.Sc 3rd Sem

2nd week **10 Jan – 15 Jan**	Sessional
16 Jan ,2022	**Sunday**
3rdweek **17 Jan – 22 Jan**	Clausius–Clapeyron equation and its applications+discussion
23 Jan ,2022	**Sunday**
4th Week **24 Jan – 29 Jan**	Distributioln Law Nernst distribution law – its thermodynamic derivation, Applications of distribution law: (i) Determination of degree of hydrolysis and hydrolysis constant of aniline hydrochloride
26 Jan, 2022 **30 Jan ,2022**	**Republic Day** **Sunday**
Feb, 2021 1st week **1 Feb-4 Feb**	(ii) Determination of equilibrium constant of potassium tri-iodide complex + Numerical
5 Feb, 2022 **6 Feb ,2022**	**Vasant Panchmi** **Sunday**
2nd week **7 Feb- 12 Feb**	(iii) Process of extraction. More stress on numerical problems
13 Feb ,2022	**Sunday**
3rd week **14 Feb- 19 Feb**	**Revision**

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Lesson plan for the odd semester
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Name of the Teacher – Dr. Manju Singh
Subject- Chemistry
Paper- Physical Chemistry
Class- B.Sc 5th Sem

October, 2021 2rd Week **11 Oct-16 Oct**	**BASIC-INDRODUCTION**
15 Oct, 2021 **17 Oct, 2021**	**(Dussehra)** **Sunday**
3th Week **18 Oct-23 Oct**	Quantum Mechanics-1 Black-body radiation, Plank's radiation law, photoelectric effect, postulates of quantum mechanics, quantum mechanical operators, commutation relations
20 Oct, 2021 **24 Oct, 2021**	**Maharishi Valmiki Jayanti** **Sunday**
4th Week **25 Oct-30 Oct**	Hamiltonian operator, Hermitian operator, average value of square of Hermitian as a positive quantity, Role of operators in quantum mechanics
31 Oct, 2021	**Sunday**
November, 2021 1st Week **1 Nov-7 Nov**	**(Haryana Day)** **Diwali Holidays**
2nd Week **8 Nov-13 Nov**	To show quantum mechanically that position and momentum cannot be predicated simultaneously, Determination of wave function & energy of a particle in one dimensional box.
14 Nov, 2021	**Sunday**
3rdWeek **15 Nov-20 Nov**	Assignment 1+ Physical Properties and Molecular Structure Optical activity, polarization (Clausius – Mossotti equation- derivation excluded). Orientation of dipoles in an electric field, dipole moment, induced dipole moment, measurement of dipole moment- temperature method
21 Nov, 2021	**Sunday**
4thWeek **22 Nov-27**	Numerical+ refractivity method, dipole moment and structure of molecules, Magnetic permeability, magnetic susceptibility and its determination

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28 Nov, 2021	**Sunday**
Dec, 2021 1st Week **29 Nov-04 Dec**	Test+ Application of magnetic susceptibility, magnetic properties – paramagnetism, diamagnetism and ferromagnetism
05 Dec, 2021	**Sunday**
2nd Week **06 Dec -11 Dec**	Spectroscopy Introduction: Electromagnetic radiation, regions of spectrum, basic features of spectroscopy, statement of Born-oppenheimer approximation, Degrees of freedom.
12 Dec,2021	**Sunday**
3rd week **13 Dec -18 Dec**	Assignment 2+ Rotational Spectrum : Selection rules, Energy levels of rigid rotator (semi-classical principles),
19 Dec,2021	**Sunday**
4th Week **20 Dec-24 Dec**	Discussion+ rotational spectra of diatomic molecules , spectral intensity distribution using population distribution (Maxwell-Boltzmann distribution)
25 Dec,2021 **26 Dec,2021**	**Christmas** **Sunday**
5th Week **27 Dec -01 Jan**	Determination of bond length and isotopic effect.
2 Jan ,2022	**Sunday**
Jan ,2022 1st week **3 Jan – 8 Jan**	Vibrational spectrum: Selection rules, Energy levels of simple harmonic oscillator
9 Jan ,2022	**Sunday(Sh. Guru Gobind Singh's Birthday)**

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Lesson plan for the odd semester
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Name of the Teacher – Dr. Manju Singh
Subject- Chemistry
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2nd week **10 Jan – 15 Jan**	**Sessional**
16 Jan ,2022	**Sunday**
3rdweek **17 Jan – 22 Jan**	Numericals+ pure vibrational spectrum of diatomic molecules, determination of force constant and qualitative relation of force constant and bond energy
23 Jan ,2022	**Sunday**
4th Week **24 Jan – 29 Jan**	Idea of vibrational frequencies of different functional groups. Raman Spectrum- Concept of polarizibility
26 Jan, 2022 **30 Jan ,2022**	**Republic Day** **Sunday**
Feb, 2021 1st week **1 Feb-4 Feb**	pure rotational and pure vibrational Raman spectra of diatomic molecules, selection rules
5 Feb, 2022 **6 Feb ,2022**	**Vasant Panchmi** **Sunday**
2nd week **7 Feb- 12 Feb**	Quantum theory of Raman spectra+ Numerical problems of all spectroscopy
13 Feb ,2022	**Sunday**
3rd week **14 Feb- 19 Feb**	**Revision**