

Sample Format (Lesson Plan)

Mehr Chand Mahajan DAV College for Women, Sector – 36A, Chandigarh
Monthly Teaching Plans (5th Semester)
Session – (2019-20)

Name of the Teacher/s: Ms. Sonia

Department: Chemistry

Class: B.Sc III Subject: Inorganic Chemistry Section (s): Non Med B

S.No.	Date (Monthly)		Topics to be Covered	Academic Activity Undertaken*
	From	To		
1	24-07-2019	20-08-2019	Ligand Bonding in Transition Metal Complexes Limitations of valence bond theory, an elementary idea of crystal – field theory, crystal field splitting in octahedral, tetrahedral and square planar complexes, factors affecting the crystal – field parameters, Spectro chemical Series.	Lecture Method
2	21-08-2019	30-09-2019	Thermodynamic and Kinetic Aspects of Metal Complexes A brief outline of thermodynamic and Kinetic stability of metal complexes and factors affecting the stability, substitution reactions of square planar complexes	Lecture Method
3	01-10-2019	31-10-2019	Organometallic Chemistry Definition, nomenclature and classification of organometallic compounds. Preparation, properties, bonding and applications of alkyls and aryls of Li, Al, Hg, Sn and Ti, a brief	Lecture Method, assignments and Group Discussion

			account of metal – ethylenic complexes and homogeneous hydrogenation, mononuclear carbonyls and the nature of bonding in metal carbonyls	
4	01-11-2019	16-11-2019	Bioinorganic Chemistry Essential and trace elements in biological processes, metalloporphyrins with special reference to haemoglobin and myoglobin. Biological role of alkali and alkaline earth metal ions. Nitrogen fixation	Lecture Method and Group Discussion

*Any of these – (i) Lecture Method; (ii) PPT; (iii) Online Sources; (iv) Group Discussion; (v) Case Studies etc.
Other Methods adopted by the teacher – Please write the specific teaching method

Sample Format (Lesson Plan)

Mehr Chand Mahajan DAV College for Women, Sector – 36A, Chandigarh
Monthly Teaching Plans (6th Semester)
Session – (2019-20)

Name of the Teacher/s: Ms. Sonia

Department : Chemistry

Class: B.Sc III Subject: Inorganic Chemistry Section (s): Med A, Non Med B

S.No.	Date (Monthly)		Topics to be Covered	Academic Activity Undertaken*
	From	To		
1	09-01-2020	31-01-2020	Silicones and Phosphazenes Silicones and phosphazenes as examples of inorganic polymers, nature of bonding in triphosphazenes.	Lecture Method
2	01-02-2020	29-02-2020	Hard and Soft Acids and Bases Classification of acids and bases as hard and soft Pearson's HSAB concept, acid-base strength and hardness and softness. Symbiosis, theoretical basis of hardness and softness, electronegativity and hardness and softness	Lecture Method
3	2-03-2020	31-03-2020	Electronic Spectra of Transition Metal Complexes Types of electronic transitions, L – S coupling, selection rules for d-d transitions, spectroscopic ground states, Orgel – energy level diagram for d1 and d9states, discussion of the electronic spectrum of [Ti(H ₂ O) ₆] ³⁺ complex ion	Lecture Method and Group Discussion
4	01-04-2020	18-04-2020	Magnetic Properties of Transition Metal Complexes Types of magnetic behaviour, methods of determining magnetic susceptibility, spin-only formula. Correlation of μ_s and μ_{eff} values, orbital contribution to magnetic moments, application of magnetic moment data for 3d metal complexes	Lecture Method

Lesson Plan

Mehr Chand Mahajan D.A.V. College for Women, Sector – 36A, Chandigarh
Monthly Teaching Plans (5th Semester)
Session –2019-2020

Name of Teachers: Dr. Shefali Dhiman

Department: Chemistry

Class: B. Sc. IIIrd year (5th Semester) Subject: Organic Chemistry (CH-XVIII)
Lesson Plan: Unit 1, 2, 3 and 4.

S. No.	Date (Monthly)		Topics to be Covered	Academic Activity Undertaken*
	From	To		
1.	24-07-2019	31-07-2019	Unit 1: Electromagnetic spectra: Absorption spectra UV Absorption spectroscopy: Beer Lambert Law, molar absorptivity, presentation and analysis of UV spectra.	Lecture
2.	01-08-2019	31-08-2019	Unit 1: UV Absorption spectroscopy: types of electronic transitions, Effects of conjugation, chromophore, auxochromes, bathochromic, hypsochromic, hyperchromic shifts, UV spectra of conjugated enes and enones, Woodward fisher rules and application to conjugated alkenes and carbonyl compounds Unit 2: Electromagnetic spectra: Absorption spectra IR Absorption spectroscopy: Molecular vibrations, Hooke's law, selection rules, intensity and positions of IR bands,	Lecture, group discussion
3.	02-09-2019	30-09-2019	Unit 2: IR Absorption	Lecture, group

			<p>spectroscopy: measurement of IR spectrum, finger print region, IR absorption of various functional groups, and interpretation of IR spectra of simple organic compounds.</p> <p>Unit 3: Spectroscopy Nuclear Magnetic resonance spectroscopy (NMR): ^1H NMR, nuclear shielding and deshielding, chemical shift, spin-spin coupling, coupling constants.</p>	discussion
4.	01-10-2019	31-10-2019	<p>Unit 3: Spectroscopy Nuclear Magnetic resonance spectroscopy (NMR): area of signals, interpretation of NMR spectra of simple organic molecules.</p> <p>Unit 4: Carbohydrates Classification and structure, monosaccharides, osazone formation, interconversion of glucose to fructose, chain lengthening and chain shortening of aldoses, configurations of monosaccharides, erythro and threo diastereomers.</p>	Lecture, group discussion
5.	01-11-2019	20-11-2019	<p>Unit 4: Carbohydrates Conversion of glucose to mannose, formation of glucosides, ethers and esters, determination of ring size of monosaccharides, cyclic structure of D-glucose, mechanism of mutarotation. Structure of ribose and deoxyribose. Introduction to disaccharides (maltose, sucrose, lactose) And polysaccharides (starch and cellulose)</p>	Lecture, online resources

*Any of these – (i) Lecture Method; (ii) PPT; (iii) Online Sources; (iv) Group Discussion; (v) Case Studies etc.

Lesson Plan

Mehr Chand Mahajan D.A.V. College for Women, Sector – 36A, Chandigarh
Monthly Teaching Plans (6th Semester)
Session –2019-2020

Name of Teachers: Dr. Shefali Dhiman

Department: Chemistry

Class: B. Sc. IIIrd year (6th Semester) Subject: Organic Chemistry (CH-XXII)
Lesson Plan: Unit 1, 2, 3 and 4.

S. No.	Date (Monthly)		Topics to be Covered	Academic Activity Undertaken*
	From	To		
1.	09-01-2020	31-01-2020	Unit 1: Amino acids, Peptides, Proteins and Nucleic acids Classification, structure, stereochemistry of amino acids, acid-base behavior, isoelectric point, electrophoresis, preparation and reactions of amino acids. Structure and nomenclature, classification of peptides, proteins. Peptide structure determination, end group analysis, selective hydrolysis of peptides.	Lecture
2.	01-02-2020	29-02-2020	Unit 1: Classical and solid-phase peptide synthesis, Levels of protein structure, protein denaturation/renaturation. Introduction to nucleic acids, ribonucleosides and ribonucleotides, double helical structure of DNA. Unit 2: Synthetic polymers Addition or chain growth polymerization, free radical and	Lecture, group discussion

			ionic vinyl polymerization, Ziegler-Natta Polymerization, vinyl polymers, Condensation Polymerization,	
3.	02-03-2020	31-03-2020	<p>Unit 2: Polyesters, polyamides, phenol formaldehyde resins, epoxy resins, urea formaldehyde resins, polyurethanes, Natural and synthetic rubbers.</p> <p>Unit 3: Organic synthesis via enolates Acidity of α-hydrogens, alkylation of diethyl malonate and ethyl acetoacetate. Synthesis of ethyl acetoacetate: Claisen condensation, Keto-enol Tautomerism of ethyl acetoacetate. Alkylation and acylation of enamines.</p>	Lecture, group discussion
4.	01-04-2020	20-04-2020	<p>Unit 4: Organometallic Compounds Organomagnesium compounds: Grignard reagents- Synthesis, structure and chemical reactions. Organozinc Compounds: Synthesis and chemical reactions. Organolithium Compounds: Synthesis and chemical reactions.</p>	Lecture, group discussion and seminar

*Any of these – (i) Lecture Method; (ii) PPT; (iii) Online Sources; (iv) Group Discussion; (v) Case Studies etc.
Other Methods adopted by the teacher – Please write the specific teaching method

Lesson Plan

Mehr Chand Mahajan DAV College for Women, Sector – 36A, Chandigarh
Monthly Teaching Plans (5th Semester)
Session – (2019-2020)

Name of the Teacher: Dr. Dhanya James

Department : P.G. Department of Chemistry

Class: B.Sc III

Subject: Physical Chemistry

S.No.	Date (Monthly)		Topics to be Covered	Academic Activity Undertaken*
	From	To		
1.	24-07-2019	31-07-2019	Elementary Quantum Mechanics-I: Black-body radiation, Planck's radiation law, photoelectric effect, heat capacity of solids, Bohr's model of hydrogen atom (no derivation) and its defects, Compton effect. De Broglie hypothesis, the Heisenberg's uncertainty principle, Sinusoidal wave equation, Hamiltonian operator, Schrodinger wave equation and its importance.	Lecture Method and Group Discussion
2.	01-08-2019	31-08-2019	Physical interpretation of the wave function, postulates of quantum mechanics, particle in a one dimensional box. Schrodinger wave equation for H-atom, separation into three equations (without derivation), quantum numbers and their importance, hydrogen like wave functions, radial wave functions, angular wave functions.	Lecture Method and Group Discussion
3.	02-09-2019	30-09-2019	Elementary Quantum Mechanics-II: Molecular orbital theory, basic ideas – criteria for forming M.O. from A.O., construction of M.O.'s by LCAO-H ²⁺ ion. Calculation of energy levels from wave functions, physical picture of	Lecture Method and Group Discussion

			<p>bonding and antibonding wave functions, concept of σ, σ^*, π, π^* orbitals and their characteristics. Hybrid orbitals – sp, sp^2, sp^3; calculation of coefficients of A.O.'s used in these hybrid orbitals.</p> <p>Introduction to valence bond model of H_2, comparison of M.O. and V.B. models.</p>	
4.	01-10-2019	31-10-2019	<p>Photochemistry-I: Interaction of radiation with matter, difference between thermal and photochemical processes. Laws of Photochemistry: Grothus – Drapper law, Stark – Einstein law, Jablonski diagram depicting various processes occurring in the excited state.</p>	Lecture Method and Group Discussion
5.	1-11-2019	30-11-2019	<p>Photochemistry-II: Qualitative description of fluorescence, phosphorescence, non-radiative processes (internal conversion, intersystem crossing), quantum yield, photosensitized reactions – energy transfer processes (simple examples) Photochemistry of carbonyl compounds and alkenes</p>	Lecture Method and Group Discussion
6.	2-12-2019	7-12-2019	Revision and Solution of previous years' question papers	Group Discussion

*Any of these – (i) Lecture Method; (ii) PPT; (iii) Online Sources; (iv) Group Discussion; (v) Case Studies etc.
Other Methods adopted by the teacher – Please write the specific teaching method ed by the teacher – Please write the specific teaching method

Sample Format (Lesson Plan)

Mehr Chand Mahajan DAV College for Women, Sector – 36A, Chandigarh
Monthly Teaching Plans (6th Semester)
Session – (2019-2020)

Name of the Teacher: Dr. Dhanya James

Department : P.G. Department of Chemistry

Class: B.Sc III

Subject: Physical Chemistry

S.No.	Date (Monthly)		Topics to be Covered	Academic Activity Undertaken*
	From	To		
1.	09-01-2020	31-01-2020	Spectroscopy : Introduction : Electromagnetic radiation, regions of the spectrum, basic features of different spectrometers, statement of the Born-Oppenheimer approximation, degrees of freedom.	
2.	01-02-2020	29-02-2020	Rotational Spectrum: Diatomic molecules. Energy levels of a rigid rotor (semi – classical principles), selection rules, spectral intensity, determination of bond length, qualitative description of non-rigid rotor, isotope effect.	
3.	02-03-2020	31-03-2020	Solid State-I: Definition of space lattice, unit cell and Miller Indices Laws of Crystallography – (i) Law of Constancy of Interfacial Angles, (ii) Law of Rationality of Indices, (iii) Law of Symmetry. Symmetry elements in crystals.	
4.	01-04-2020	18-4-2020	Solid State-II: X-ray diffraction by crystals. Derivation of Bragg equation. Determination of crystal structure of NaCl, KCl and CsCl	

			(Laue's method and powder method). Applications of Powder diffraction for structure determination, Thermal and photochemical reaction in solid state	
--	--	--	--	--

***Any of these** – (i) Lecture Method; (ii) PPT; (iii) Online Sources; (iv) Group Discussion; (v) Case Studies etc.
 Other Methods adopted by the teacher – Please write the specific teaching method