

**K.L MEHTA DAYANAND COLLEGE, FARIDABAD**

**Lesson Plan**

**Name of the Assistant Professor: Dr. Vinita Gupta**

**Class and Section: M.Sc. Chemistry Ist Sem**

**Subject: Inorganic Chemistry Theory**

Week	Date	Topics
	01-Aug-18	VSEPR theory
	02-Aug-18	d $\pi$ -p $\pi$ bonds
	03-Aug-18	Bent rule
	04-Aug-18	energetic of hybridization
	05-Aug-18	<b>Sunday</b>
4	06-Aug-18	Stepwise and overall formation constants and their interactions
	07-Aug-18	Contd.
	08-Aug-18	Contd.
	09-Aug-18	trends in stepwise constants
	10-Aug-18	factors affecting stability of metal complexes with reference to the nature of metal ion and ligand
	11-Aug-18	Contd.
	12-Aug-18	<b>Sunday</b>
5	13-Aug-18	Contd.
	14-Aug-18	Class test and Assignment given
	15-Aug-18	<b>Independence Day</b>
	16-Aug-18	chelate effect and its thermodynamic origin
	17-Aug-18	Contd.
	18-Aug-18	determination of binary formation constants by pH-metry and spectrophotometry
	19-Aug-18	<b>Sunday</b>
6	20-Aug-18	Contd.
	21-Aug-18	Class test and Presentation
	22-Aug-18	<b>Id-Ul-Zuha (Bakrid)</b>
	23-Aug-18	Inert and labile complexes
	24-Aug-18	Contd.
	25-Aug-18	Contd.
	26-Aug-18	<b>Sunday (Raksha Bandhan)</b>
7	27-Aug-18	Mechanisms for ligand replacement reactions
	28-Aug-18	Contd.
	29-Aug-18	Formation of complexes from aquo ions
	30-Aug-18	Contd.
	31-Aug-18	Ligand displacement reactions in octahedral complexesacid hydrolysis
	01-Sep-18	Contd.
	02-Sep-18	<b>Sunday</b>

8	03-Sep-18	<b>Janamashatmi</b>
	04-Sep-18	Base hydrolysis
	05-Sep-18	Contd.
	06-Sep-18	Class test
	07-Sep-18	racemization of tris chelate complexes
	08-Sep-18	Contd.
	09-Sep-18	<b>Sunday</b>
9	10-Sep-18	Presentation
	11-Sep-18	electrophilic attack on ligands
	12-Sep-18	Contd.
	13-Sep-18	Class test and Assignment given
	14-Sep-18	Mechanism of ligand, displacement reactions in square planar complexes
	15-Sep-18	Contd.
	16-Sep-18	<b>Sunday</b>
10	17-Sep-18	Contd.
	18-Sep-18	trans effect
	19-Sep-18	theories of trans effect
	20-Sep-18	Contd.
	21-Sep-18	Contd.
	22-Sep-18	mechanism of electron transfer reactions
	23-Sep-18	<b>Sunday (Haryana Heroes' Martyrdom Day)</b>
11	24-Sep-18	Class test and Presentation
	25-Sep-18	types; outer sphere electron transfer mechanism and inner sphere electron transfer mechanism
	26-Sep-18	Contd.
	27-Sep-18	Contd.
	28-Sep-18	electron exchange
	29-Sep-18	Revision
	30-Sep-18	<b>Sunday</b>
12	01-Oct-18	Class test
	02-Oct-18	<b>Mahatama Gandhi Jayanti</b>
	03-Oct-18	Presentation and Assignment given
	04-Oct-18	Isopoly and Heteropoly Acids and Salts Isopoly and Heteropoly acids and salts of Mo and W
	05-Oct-18	Contd.
	06-Oct-18	Contd.
	07-Oct-18	<b>Sunday</b>
13	08-Oct-18	Presentation
	09-Oct-18	Structures of isopoly and heteropoly anions
	10-Oct-18	<b>Maharaja Agrasen Jayanti</b>

	11-Oct-18	Contd.
	12-Oct-18	Contd.
	13-Oct-18	Class test
	14-Oct-18	<b>Sunday</b>
14	15-Oct-18	Presentation
	16-Oct-18	Crystal Structures Structures of some binary and ternary compounds such as fluorite
	17-Oct-18	Contd.
	18-Oct-18	<b>Dussehra</b>
	19-Oct-18	Contd.
	20-Oct-18	antifluorite
	21-Oct-18	<b>Sunday</b>
15	22-Oct-18	Presentation
	23-Oct-18	rutile
	24-Oct-18	<b>Maharishi Valmiki's Birthday</b>
	25-Oct-18	antirutile
	26-Oct-18	crystalite
	27-Oct-18	layer lattices- Cd I2
	28-Oct-18	<b>Sunday</b>
16	29-Oct-18	Presentation
	30-Oct-18	Bi I3
	31-Oct-18	Re O3, Mn2O3
	01-Nov-18	<b>Haryana Day</b>
	02-Nov-18	corundum, pervoskite
	03-Nov-18	Ilmenite and Calcite
	04-Nov-18	<b>Sunday</b>
17	05-Nov-18	Class test and Assignment given
	06 NOV TO 13 NOV	Diwali Break
	14 Nov To 21 Nov	<b>REVISION+MOCK TEST</b>

**K.L MEHTA DAYANAND COLLEGE, FARIDABAD**

**Lesson Plan**

**Name of the Assistant Professor: Ms. Manisha**

**Class and Section: M.Sc. Chemistry Ist Sem**

**Subject: Physical Chemistry Theory**

Week	Date	Topics
1	16-Jul-18	<b>Orientation of the students</b>
	17-Jul-18	<b>Orientation of the students</b>
	18-Jul-18	

	19-Jul-18	
	20-Jul-18	
	21-Jul-18	
	22-Jul-18	<b>Sunday</b>
2	23-Jul-18	
	24-Jul-18	
	25-Jul-18	
	26-Jul-18	
	27-Jul-18	
	28-Jul-18	
	29-Jul-18	<b>Sunday</b>
3	30-Jul-18	
	31-Jul-18	<b>Shaheed Udham Singh's Martyrdom Day</b>
	01-Aug-18	Thermodynamics basic terms
	02-Aug-18	Basis, need, terms used in thermodynamics
	03-Aug-18	Importance of thermodynamics
	04-Aug-18	Use of thermodynamics
	05-Aug-18	<b>Sunday</b>
4	06-Aug-18	Limitation of thermodynamics
	07-Aug-18	First law of thermodynamics
	08-Aug-18	Mathematical derivation of first law of thermodynamics
	09-Aug-18	Derivations derived from first law
	10-Aug-18	Application of First law
	11-Aug-18	Limitation of first law and need of II <sup>nd</sup> law
	12-Aug-18	<b>Sunday</b>
5	13-Aug-18	Brief description of II <sup>nd</sup> law
	14-Aug-18	Entropy definition, spontaneous process, non spontaneous process
	15-Aug-18	<b>Independence Day</b>
	16-Aug-18	Entropy change in reversible and irreversible process
	17-Aug-18	Variation of entropy with temperature and pressure
	18-Aug-18	Test, Assignment and presentation
	19-Aug-18	<b>Sunday</b>
6	20-Aug-18	Variation of entropy with volume
	21-Aug-18	Entropy concept as a measure of unavailable energy
	22-Aug-18	<b>Id-Ul-Zuha (Bakrid)</b>
	23-Aug-18	Maxwells thermodynamic relation
	24-Aug-18	Contd.
	25-Aug-18	Entropy as a Criteria of Spontaneity of reaction, free energy, enthalpy function, and their significance
	26-Aug-18	<b>Sunday (Raksha Bandhan)</b>
7	27-Aug-18	Criteria for spontaneity of process

	28-Aug-18	Partial molar quantities(free energy,volume,heat concept)
	29-Aug-18	Gibb'sDuhem equation
	30-Aug-18	Chemical kinetics basis
	31-Aug-18	Effect of temperature on rate of reaction
	01-Sep-18	Rate law for opposing reaction of 1st order
	02-Sep-18	<b>Sunday</b>
8	03-Sep-18	<b>Janamashatmi</b>
	04-Sep-18	Test of thermodynamics
	05-Sep-18	Rate law for opposing reaction of 2nd order
	06-Sep-18	Rate law for consecutive reaction of 1st order
	07-Sep-18	Rate law for parallel reaction of 1st order
	08-Sep-18	Collision theory of reaction rates and its limitation
	09-Sep-18	<b>Sunday</b>
9	10-Sep-18	Continue
	11-Sep-18	Steric factor
	12-Sep-18	Presentation and Assignment given
	13-Sep-18	Activated complex theory
	14-Sep-18	Continue
	15-Sep-18	Ionic reaction ;single and double sphere model
	16-Sep-18	<b>Sunday</b>
10	17-Sep-18	Contd.
	18-Sep-18	Influence of solvent and ionic strength
	19-Sep-18	Contd.
	20-Sep-18	Comparison of collision and activated complex theory
	21-Sep-18	Class test
	22-Sep-18	Basis of electrochemistry
	23-Sep-18	<b>Sunday (Haryana Heroes' Martyrdom Day)</b>
11	24-Sep-18	Ion-Ion interactions:The Debye-Huckel theory of ion-ion interactions
	25-Sep-18	Contd.
	26-Sep-18	Assignment and presentation
	27-Sep-18	Potential and excess charge density as a function of distance from central ion
	28-Sep-18	Debye Huckel length
	29-Sep-18	Ionic cloud and its contribution to the potential
	30-Sep-18	<b>Sunday</b>
12	01-Oct-18	Debye Huckel Limiting law of activity coefficient and its limitation
	02-Oct-18	<b>Mahatama Gandhi Jayanti</b>
	03-Oct-18	Ion size effect on potential
	04-Oct-18	Ion size parameter and theoretical mean activity coefficient in case of ionic clouds with finite sized ions

	05-Oct-18	Test given topic
	06-Oct-18	Assignment and presentation
	07-Oct-18	<b>Sunday</b>
13	08-Oct-18	Debye Huckel Onsagar treatment for Aqueous solutions and its limitations
	09-Oct-18	Contd.
	10-Oct-18	<b>Maharaja Agrasen Jayanti</b>
	11-Oct-18	Presentation
	12-Oct-18	Presentation
	13-Oct-18	Assignment
	14-Oct-18	<b>Sunday</b>
14	15-Oct-18	
	16-Oct-18	Class test and Assignment given
	17-Oct-18	Debye Huckel Onsagar treatment for Aqueous solutions and its limitations
	18-Oct-18	<b>Dussehra</b>
	19-Oct-18	Contd.
	20-Oct-18	Onsagar theory for non aqueous solutions
	21-Oct-18	<b>Sunday</b>
15	22-Oct-18	Solvent effect on mobility at infinite dilution equivalent conductivity and concentration $c^{1/2}$ as function of solvent
	23-Oct-18	Contd.
	24-Oct-18	<b>Maharishi Valmiki's Birthday</b>
	25-Oct-18	Class test and Presentation
	26-Oct-18	Effect of ion association upon conductivity(Debye huckel-Bjerrum equation)
	27-Oct-18	Postulates of Quantum mechanics,partical in one D box
	28-Oct-18	<b>Sunday</b>
16	29-Oct-18	Max born interpretation of wave function and Heisenberg's uncertainty Principle(x,p;E&t)
	30-Oct-18	Hermitian operator and other operators
	31-Oct-18	Evaluation of average value of position and momentum ,Average value of square of Hermitian operator
	01-Nov-18	<b>Haryana Day</b>
	02-Nov-18	Pictorial representation of the wave equation of partical in 1-D box and its influence on the kinetic energy of partical in each successive quantum level,lowest energy of the partical
	03-Nov-18	Quantum mechanical operator for linear and angular momentum,
	04-Nov-18	<b>Sunday</b>
17	05-Nov-18	Class test and Assignment given
	06 NOV TO 13 NOV	Diwali Break
	14 Nov To 21 Nov	<b>REVISION+MOCK TEST</b>

**K.L MEHTA DAYANAND COLLEGE, FARIDABAD**

**Lesson Plan**

**Name of the Assistant Professor: Ms. Rajni**

**Class and Section: M.Sc. Chemistry Ist Sem**

**Subject: Organic Chemistry Theory**

Week	Date	Topics
1	16-Jul-18	Orientation of the students
	17-Jul-18	Orientation of the students
	18-Jul-18	
	19-Jul-18	
	20-Jul-18	
	21-Jul-18	
	22-Jul-18	<b>Sunday</b>
2	23-Jul-18	
	24-Jul-18	
	25-Jul-18	
	26-Jul-18	
	27-Jul-18	
	28-Jul-18	
	29-Jul-18	<b>Sunday</b>
3	30-Jul-18	
	31-Jul-18	<b>Shaheed Udham Singh's Martyrdom Day</b>
	01-Aug-18	Delocalized chemical bonding –conjugation
	02-Aug-18	cross conjugation, resonance
	03-Aug-18	hyperconjugation
	04-Aug-18	tautomerism
	05-Aug-18	<b>Sunday</b>
4	06-Aug-18	Aromaticity in benzenoid and non-benzenoid compounds
	07-Aug-18	Contd.
	08-Aug-18	alternant and non-alternant hydrocarbons
	09-Aug-18	Huckel's rule
	10-Aug-18	energy level of S-molecular orbitals
	11-Aug-18	annulenes
	12-Aug-18	<b>Sunday</b>
5	13-Aug-18	antiaromaticity, homo-aromaticity
	14-Aug-18	Bonds weaker than covalent, addition compounds
	15-Aug-18	<b>Independence Day</b>
	16-Aug-18	Class test and Presentation
	17-Aug-18	crown ether complexes and cryptands
	18-Aug-18	inclusion compounds
	19-Aug-18	<b>Sunday</b>
6	20-Aug-18	catenanes and rotaxanes

	21-Aug-18	cyclodextrins
	22-Aug-18	<b>Id-Ul-Zuha (Bakrid)</b>
	23-Aug-18	PMO approach
	24-Aug-18	Contd.
	25-Aug-18	Class test and Assignment unit
	26-Aug-18	<b>Sunday (Raksha Bandhan)</b>
7	27-Aug-18	Chirality, elements of symmetry
	28-Aug-18	molecules with more than one chiral centre
	29-Aug-18	diastereomerism
	30-Aug-18	Determination of relative and absolute configuration (octant rule excluded) with special reference to lactic acid
	31-Aug-18	aniline & mandelic acid
	01-Sep-18	Methods of resolution
	02-Sep-18	<b>Sunday</b>
8	03-Sep-18	<b>Janamashatmi</b>
	04-Sep-18	optical purity, prochirality
	05-Sep-18	enantiotopic and diastereotopic atoms, groups and faces
	06-Sep-18	Contd. And Class test
	07-Sep-18	asymmetric synthesis
	08-Sep-18	cram's rule and its modifications
	09-Sep-18	<b>Sunday</b>
9	10-Sep-18	prelog's rule
	11-Sep-18	conformational analysis of cycloalkanes (upto six membered rings)
	12-Sep-18	Presentation and Assignment given
	13-Sep-18	decalins
	14-Sep-18	conformations of sugars
	15-Sep-18	optical activity in absence of chiral carbon (biphenyls, allenes and spiranes)
	16-Sep-18	<b>Sunday</b>
10	17-Sep-18	Contd.
	18-Sep-18	chirality due to helical shape
	19-Sep-18	geometrical isomerism in alkenes and oximes
	20-Sep-18	methods of determining the configuration
	21-Sep-18	Class test
	22-Sep-18	Types of mechanisms, types of reactions
	23-Sep-18	<b>Sunday (Haryana Heroes' Martyrdom Day)</b>
11	24-Sep-18	thermodynamic and kinetic requirements
	25-Sep-18	kinetic and thermodynamic control
	26-Sep-18	Hammond's postulate, Potential energy diagrams
	27-Sep-18	Curtin-Hammett principle, transition states and intermediates
	28-Sep-18	methods of determining mechanisms
	29-Sep-18	isotope effects
	30-Sep-18	<b>Sunday</b>



12	01-Oct-18	Hard and soft acids and bases
	02-Oct-18	<b>Mahatama Gandhi Jayanti</b>
	03-Oct-18	Generation, structure, stability and reactivity of carbocations
	04-Oct-18	Generation, structure, stability and reactivity of carbanion
	05-Oct-18	free radicals
	06-Oct-18	carbenes and nitrenes
	07-Oct-18	<b>Sunday</b>
13	08-Oct-18	Effect of structure on reactivity
	09-Oct-18	The Hammett equation and linear free energy relationship
	10-Oct-18	<b>Maharaja Agrasen Jayanti</b>
	11-Oct-18	Presentation
	12-Oct-18	Presentation
	13-Oct-18	substituent and reaction constants
	14-Oct-18	<b>Sunday</b>
14	15-Oct-18	Taft equation
	16-Oct-18	Class test and Assignment given
	17-Oct-18	Types of naturally occurring sugars. Deoxy sugars, amino sugars, branched chain sugars
	18-Oct-18	<b>Dussehra</b>
	19-Oct-18	Contd.
	20-Oct-18	General methods of determination of str.and ring size of sugars with particular refrence to Maltose, Lactose, Sucrose
	21-Oct-18	<b>Sunday</b>
15	22-Oct-18	Contd.
	23-Oct-18	Contd.
	24-Oct-18	<b>Maharishi Valmiki's Birthday</b>
	25-Oct-18	Class test and Presentation
	26-Oct-18	Starch and Cellulose
	27-Oct-18	Contd.
	28-Oct-18	<b>Sunday</b>
16	29-Oct-18	Presentation and Assignment given
	30-Oct-18	Various classes of synthetic dyes including Heterocyclic dyes, Interaction between dyes and fibres
	31-Oct-18	Contd.
	01-Nov-18	<b>Haryana Day</b>
	02-Nov-18	Structure elucidation of Indigo and Alizarin
	03-Nov-18	Contd.
	04-Nov-18	<b>Sunday</b>
17	05-Nov-18	Class test and Assignment given
	06 NOV TO 13 NOV	Diwali Break
	14 Nov To 21 Nov	<b>REVISION+MOCK TEST</b>

**K.L. MEHTA DAYANAND COLLEGE FOR WOMEN, FARIDABAD**

**LESSON PLAN**

**Name of Assistant Professor:** Dr. Annu Kalra

**Class:** M.Sc (F) Chemistry, 3<sup>rd</sup> Semester

**Subject:** Nuclear and Radiochemistry (Inorganic Special II), Paper: XVII (a), 17CHE23GA2

<b>WEEK</b>	<b>DATE</b>	<b>TOPIC</b>
<b>2</b>	23 JULY 18	(a) Introduction to water quality parameters: Analytical method for measuring dissolved oxygen (b) Nuclear Binding energy: justification and applications
	24 JULY 18	(a) Analytical method for measuring Biochemical oxygen demand (b) Applications (continued)
	25 JULY 18	Nuclear stability rules
	26 JULY 18	Stability rules (continued)
	27 JULY 18	Decay of Unstable nuclei
	28 JULY 18	Unstable nuclei (continued)
	29 JULY 18	<b>SUNDAY</b>
<b>3</b>	30 JULY 18	(a) Analytical method for measuring Chemical oxygen demand (b) Test of the above topics
	31 JULY 18	<b>SHAHEED UDHAM SINGH'S MARTYRDOM DAY</b>
	01 AUGUST 18	Introduction to Nuclear forces
	02 AUGUST 18	Liquid Drop Model
	03 AUGUST 18	LDM (continued)
	04 AUGUST 18	Shell Model
	05 AUGUST 18	<b>SUNDAY</b>

<b>4</b>	06 AUGUST 18	(a) Analytical method for measuring fluoride ion content (b) Shell Model (continued)
	07 AUGUST 18	(a) Analytical method for measuring oils and grease (b) Collective Model
	08 AUGUST 18	Collective Model (continued)
	09 AUGUST 18	Class Discussion and Doubts
	10 AUGUST 18	Test of the above three models
	11 AUGUST 18	Interaction of radiation with matter : physical effects
	12 AUGUST 18	<b>SUNDAY</b>
<b>5</b>	13 AUGUST 18	(a) Analytical methods for measuring arsenic metal content (b) Physical effects (continued)
	14 AUGUST 18	(a) Analytical methods for measuring cadmium metal content (b) Chemical effects of radiation with matter : photoelectric effect
	15 AUGUST 18	<b>INDEPENDENCE DAY</b>
	16 AUGUST 18	Photoelectric effect (continued)
	17 AUGUST 18	Compton effect
	18 AUGUST 18	Compton effect (continued)
	19 AUGUST 18	<b>SUNDAY</b>
<b>6</b>	20 AUGUST 18	(a) Analytical methods for measuring mercury content (b) Pair production
	21 AUGUST 18	(a) Analytical methods for measuring lead content (b) Pair production (continued)
	22 AUGUST 18	<b>ID-UI-ZUHA(BAKRID)</b>
	23 AUGUST 18	Class discussion and doubts
	24 AUGUST 18	Test of physical and chemical effects
	25 AUGUST 18	Introduction to radiochemical techniques : NAA and its

		principle
	26 AUGUST 18	<b>SUNDAY (RAKSHA BANDHAN)</b>
<b>7</b>	27 AUGUST 18	(a) Analytical methods for measuring zinc content (b) Applications and limitations of NAA
	28 AUGUST 18	(a) Analytical methods for measuring copper content (b) IDA and its principle and applications
	29 AUGUST 18	Applications (continued) and limitations of IDA
	30 AUGUST 18	Radiometric Titrations
	31 AUGUST 18	Radiometric titrations (continued)
	01 SEPTEMBER 18	Class discussion and doubts
	02 SEPTEMBER 18	<b>SUNDAY</b>
<b>8</b>	03 SEPTEMBER 18	<b>JANAMASHATAMI</b>
	04 SEPTEMBER 18	(a) Analytical methods for measuring chromium content (b) Test of radiometric titrations
	05 SEPTEMBER 18	Introduction to detection of nuclear radiations
	06 SEPTEMBER 18	Various methods for detecting nuclear radiations
	07 SEPTEMBER 18	Introduction to gas filled counters
	08 SEPTEMBER 18	Gas filled counters (continued)
	09 SEPTEMBER 18	<b>SUNDAY</b>
<b>9</b>	10 SEPTEMBER 18	(a) Test from various analytical methods for water quality parameters (b) Ionization chamber and its set up
	11 SEPTEMBER 18	(a) Biochemical effects of arsenic (b) Ionization chamber (continued)
	12 SEPTEMBER 18	Proportional counter
	13 SEPTEMBER 18	Proportional counter (continued)

	14 SEPTEMBER 18	Geiger muller counters
	15 SEPTEMBER 18	GM counters (continued)
	16 SEPTEMBER 18	<b>SUNDAY</b>
<b>10</b>	17 SEPTEMBER 18	(a) Biochemical effects of cadmium (b) Introduction to Scintillation detectors
	18 SEPTEMBER 18	(a) Biochemical effects of mercury (b) Scintillation detectors (continued)
	19 SEPTEMBER 18	Solid state detectors
	20 SEPTEMBER 18	Solid state detectors (continued)
	21 SEPTEMBER 18	Class discussion and doubts
	22 SEPTEMBER 18	Test of Ionization chamber, proportional counter and GM counters
	23 SEPTEMBER 18	<b>SUNDAY(HARYANA HEROES' MARTYRDOM DAY)</b>
<b>11</b>	24 SEPTEMBER 18	(a) Biochemical effects of lead (b) Test of Scintillation detectors and solid state detectors
	25 SEPTEMBER 18	(a) Biochemical effects of chromium (b) Introduction to Energetics of Nuclear Reactions
	26 SEPTEMBER 18	Energetics (continued)
	27 SEPTEMBER 18	Introduction to various types of nuclear reactions : photonuclear reactions
	28 SEPTEMBER 18	Photonuclear reactions (continued)
	29 SEPTEMBER 18	Thermonuclear reactions
	30 SEPTEMBER 18	<b>SUNDAY</b>
<b>12</b>	01 OCTOBER 18	(a) Biochemical effects of cyanides (b) arsenic Thermonuclear reactions (continued)
	02 OCTOBER 18	<b>MAHATAMA GANDHI JAYANTI</b>
	03 OCTOBER 18	Spallation reactions

	04 OCTOBER 18	Spallation reactions (continued)
	05 OCTOBER 18	Mechanism of nuclear reaction by compound nucleus model
	06 OCTOBER 18	Compound nucleus model (continued)
	07 OCTOBER 18	<b>SUNDAY</b>
<b>13</b>	08 OCTOBER 18	(a) Biochemical effects of pesticides (b) Class discussion and doubts
	09 OCTOBER 18	(a) Class discussion and doubts from biochemical effects (b) Test of various nuclear reactions
	10 OCTOBER 18	<b>MAHARAJA AGRASEN JAYANTI</b>
	11 OCTOBER 18	Introduction to Nuclear fission and fission probability
	12 OCTOBER 18	Fission probability (continued)
	13 OCTOBER 18	Introduction to energy release
	14 OCTOBER 18	<b>SUNDAY</b>
<b>14</b>	15 OCTOBER 18	(a) Test from biochemical effects of metals and metalloids (b) Energy release (continued)
	16 OCTOBER 18	(a) Introduction to lithosphere and soil composition (b) Theories of fission
	17 OCTOBER 18	Theories of fission (continued)
	18 OCTOBER 18	<b>DUSSHERA</b>
	19 OCTOBER 18	Class discussion and doubts
	20 OCTOBER 18	Test of fission probability and theories of fission
	21 OCTOBER 18	<b>SUNDAY</b>
<b>15</b>	22 OCTOBER 18	(a) Micronutrients in soil (b) Introduction to nuclear fusion: idea about breeder reactors
	23 OCTOBER 18	(a) Macronutrients in soil (b) Breeder reactors (continued)

	24 OCTOBER 18	<b>MAHARISHI VALMIKI'S JAYANTI</b>
	25 OCTOBER 18	Accelerators and its description
	26 OCTOBER 18	Accelerators (continued)
	27 OCTOBER 18	Cyclotron and its description
	28 OCTOBER 18	<b>SUNDAY</b>
<b>16</b>	29 OCTOBER 18	(a) Soil pollution and fertilizers (b) Cyclotron (continued)
	30 OCTOBER 18	(a) Soil pollution and pesticides (b) Test of breeder reactors, accelerators and cyclotron
	31 OCTOBER 18	Presentations from students (Group 1)
	01 NOVEMBER 18	<b>HARYANA DAY</b>
	02 NOVEMBER 18	Presentations from students (Group 2)
	03 NOVEMBER 18	Doubts from Section A and B
	04 NOVEMBER 18	<b>SUNDAY</b>
<b>17</b>	05 NOVEMBER 18	(a) Revision from Unit 1 of Environmental chemistry (b) Doubts from Section C and D
	06 NOV TO 13 NOV	Diwali Break
	14 Nov To 21 Nov	<b>REVISION+MOCK TEST</b>

**K.L. MEHTA DAYANAND COLLEGE FOR WOMEN, FARIDABAD**

**LESSON PLAN**

**Name of Assistant Professor:** Ms. SHWETA CHATURVEDI

**Class:** M.Sc (F) Chemistry, 3<sup>rd</sup> Semester

**Subject:** Bio-Inorganic Chemistry and Environmental Chemistry (Inorganic Special III), Paper: XVIII (a), CY (H)-303(a)

<b>WEEK</b>	<b>DATE</b>	<b>TOPIC</b>
<b>2</b>	23 JULY 18	General survey of essential and trace metals.
	24 JULY 18	General survey of metals (continued)
	25 JULY 18	(a) Cement Industry (b) Disturbing factors (Toxicity) in metabolic process.
	26 JULY 18	(a) Cement Industry (continued) (b) Disturbing factors (continued)
	27 JULY 18	Causes of diseases
	28 JULY 18	Causes of diseases (continued)
	29 JULY 18	<b>SUNDAY</b>
<b>3</b>	30 JULY 18	Test of the topic- General survey of essential and trace metals
	31 JULY 18	<b>SHAHEED UDHAM SINGH'S MARTYRDOM DAY</b>
	01AUGUST 18	(a) Paper and Pulp Industry (b) Different classes of drugs
	02 AUGUST 18	(a) Paper and Pulp Industry (continued) (b) Different classes of drugs (continued)
	03 AUGUST 18	Ionophores
	04 AUGUST 18	Active transport of cations across membranes
	05 AUGUST 18	<b>SUNDAY</b>
<b>4</b>	06 AUGUST 18	Sodium pump
	07 AUGUST 18	Sodium pump (continued)
	08 AUGUST 18	(a) Drug Industry (b) Calcium pump
	09 AUGUST 18	(a) Drug Industry (continued) (b) Calcium pump (continued)
	10 AUGUST 18	Calcium carriers



	11 AUGUST 18	Role of carriers in muscle contraction
	12 AUGUST 18	<b>SUNDAY</b>
<b>5</b>	13 AUGUST 18	Role of carriers in blood clotting and hormones
	14 AUGUST 18	Metals ions in nucleotide systems
	15 AUGUST 18	<b>INDEPENDENCE DAY</b>
	16 AUGUST 18	(a) Thermal power plants (b) Metals ions in nucleotide systems (continued)
	17 AUGUST 18	Effects of metal ions on nucleic acids
	18 AUGUST 18	Effects of metal ions on nucleic acids (continued)
	19 AUGUST 18	<b>SUNDAY</b>
<b>6</b>	20 AUGUST 18	Oxygen carriers : Porphyrins and Metalloporphyrins
	21 AUGUST 18	Hemoprotiens: structure and functions of hemoglobin
	22 AUGUST 18	<b>ID-UI-ZUHA(BAKRID)</b>
	23AUGUST 18	(a) Thermal power plants (continued) (b) Hemoprotiens: structure and functions of myoglobin
	24 AUGUST 18	Synthetic model of oxygen carrier model systems
	25 AUGUST 18	Synthetic model of oxygen carrier model systems (continued)
	26 AUGUST 18	<b>SUNDAY (RAKSHA BANDHAN)</b>
<b>7</b>	27 AUGUST 18	(b) Biological nitrogen fixation
	28 AUGUST 18	Nitrogenase enzyme and its model
	29 AUGUST 18	(a) Nuclear power plants (b) Metal-nitrogen complexes
	30 UGUST 18	(a) Nuclear power plants (continued) (b) Photosynthesis
	31 AUGUST 18	Test from Hemoprotiens: structure and functions of

		hemoglobin and myoglobin
	01 SEPTEMBER 18	Chlorophyll
	02 SEPTEMBER 18	<b>SUNDAY</b>
<b>8</b>	03 SEPTEMBER 18	<b>JANAMASHATAMI</b>
	04 SEPTEMBER 18	Metal transport and storage: Transferrin
	05 SEPTEMBER 18	(a) Metallurgy (b) Transferrin (continued)
	06 SEPTEMBER 18	(a) Metallurgy (continued) (b) Ferritin
	07 SEPTEMBER 18	Ferritin (continued)
	08 SEPTEMBER 18	Siderophores
	09 SEPTEMBER 18	<b>SUNDAY</b>
<b>9</b>	10 SEPTEMBER 18	Siderophores (continued)
	11 SEPTEMBER 18	Discussion class on Nitrogen Fixation
	12 SEPTEMBER 18	(a) Polymers (b) Metalloenzymes: Zinc enzymes- Carboxypeptidase
	13 SEPTEMBER 18	(a) Polymers (continued) (b) Carboxypeptidase (continued)
	14 SEPTEMBER 18	Carbonic anhydrase
	15 SEPTEMBER 18	Carbonic anhydrase (continued)
	16 SEPTEMBER 18	<b>SUNDAY</b>
<b>10</b>	17 SEPTEMBER 18	Doubt class on Nitrogen Fixation
	18 SEPTEMBER 18	Test of the topic: Nitrogen Fixation
	19 SEPTEMBER 18	(a) Radionuclide analysis (b) Iron enzymes- catalase
	20 SEPTEMBER 18	(a) Radionuclide analysis (continued) (b) Iron enzymes- catalase (continued)
	21 SEPTEMBER 18	Peroxidase enzyme
	22 SEPTEMBER 18	Peroxidase enzyme (continued)
	23 SEPTEMBER 18	<b>SUNDAY(HARYANA HEROES' MARTYRDOM</b>

		<b>DAY)</b>
	24SEPTEMBER 18	Cytochrome P-450
	25 SEPTEMBER 18	Cytochrome P-450 (continued)
	26 SEPTEMBER 18	(a) Radionuclide analysis (continued) (b) Cytochrome P-450 (continued)
	27 SEPTEMBER 18	(a) Discussion and doubt class (b) Revision class- Iron enzymes
	28 SEPTEMBER 18	Copper enzymes- Superoxide dismutase
	29 SEPTEMBER 18	Superoxide dismutase (continued)
	30 SEPTEMBER 18	<b>SUNDAY</b>
<b>12</b>	01 OCTOBER 18	Blue copper proteins
	02 OCTOBER 18	<b>MAHATAMA GANDHI JAYANTI</b>
	03 OCTOBER 18	(a) Test on cement and sugar industry (b) Blue copper proteins (continued)
	04 OCTOBER 18	(a) Disposal of wastes (b) Blue copper proteins (continued)
	05 OCTOBER 18	Coenzymes- vitamin B12
	06 OCTOBER 18	Coenzymes- vitamin B12 (continued)
	07 OCTOBER 18	<b>SUNDAY</b>
<b>13</b>	08 OCTOBER 18	Atmosphere: Chemical composition of atmosphere and atmospheric structure
	09 OCTOBER 18	Earth's radiation balance
	10 OCTOBER 18	<b>MAHARAJA AGRASEN JAYANTI</b>
	11 OCTOBER 18	(a) Wastes management (b) Oxides of N,C,S
	12 OCTOBER 18	(a) Wastes management (continued) (b) Effects of oxides of N,C,S
	13 OCTOBER 18	Green house effect and acid

		rain
	14 OCTOBER 18	<b>SUNDAY</b>
<b>14</b>	15 OCTOBER 18	Photochemical smog
	16 OCTOBER 18	Air quality standards
	17 OCTOBER 18	(a) Test of disposal of wastes and their management (b) Class discussion and doubts
	18 OCTOBER 18	<b>DUSSHERA</b>
	19 OCTOBER 18	Presentations from students (Group 1) on Depletion of ozone and particulate matter in air
	20 OCTOBER 18	Presentations from students (Group 2) on mechanism of aerosol formation in air , Noise pollution and health hazards
	21 OCTOBER 18	<b>SUNDAY</b>
<b>15</b>	22 OCTOBER 18	Doubts of copper enzymes
	23 OCTOBER 18	Test of copper enzymes
	24 OCTOBER 18	<b>MAHARISHI VALMIKI'S JAYANTI</b>
	25 OCTOBER 18	(a) Class discussion and doubts (b) Doubts of coenzymes
	26 OCTOBER 18	Test of coenzymes
	27 OCTOBER 18	Class discussion and doubts
	28 OCTOBER 18	<b>SUNDAY</b>
<b>16</b>	29 OCTOBER 18	Revision from Unit 4
	30 OCTOBER 18	Revision from Unit 4
	31 OCTOBER 18	(a) Presentations from students (Group 1) (b) Presentation (continued)
	01 NOVEMBER 18	<b>HARYANA DAY</b>
	02 NOVEMBER 18	Presentations from students (Group 2)
	03 NOVEMBER 18	Doubts from Section A and B
	04 NOVEMBER 18	<b>SUNDAY</b>
<b>17</b>	05NOVEMBER 18	Doubts from Section C and D
	06 NOV TO 13 NOV	Diwali Break

	14 Nov To 21 Nov	<b>REVISION+MOCK TEST</b>
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**K.L MEHTA DAYANAND COLLEGE, FARIDABAD**

**Lesson Plan**

**Name of the Assistant Professor: SONIA CHOUDHARY**

**Class and Section: M.Sc(F)**

**Subject: INSTRUMENTAL TECHNIQUES**

Week	Date	Topics
1	16-Jul-18	<b>Orientation of the students</b>
	17-Jul-18	<b>Orientation of the students</b>
	18-Jul-18	
	19-Jul-18	
	20-Jul-18	
	21-Jul-18	
	22-Jul-18	<b>Sunday</b>
2	23-Jul-18	Vibrational spectroscopy: symmetry and shapes of AB <sub>2</sub> , AB <sub>3</sub>
	24-Jul-18	Continue with symmetry of above molecules
	25-Jul-18	Problems related with AB <sub>2</sub> , AB <sub>3</sub>
	26-Jul-18	Symmetry and shapes of AB <sub>4</sub> , AB <sub>5</sub> , AB <sub>6</sub>
	27-Jul-18	A-Continue with symmetry of the above molecule. B-importance and principle of green chemistry.
	28-Jul-18	A-Problems related with AB <sub>4</sub> , AB <sub>5</sub> , AB <sub>6</sub> B-thrust areas and applications of non conventional techniques in organic synthesis. ultrasonic.....
	29-Jul-18	<b>Sunday</b>
3	30-Jul-18	Test and discussion.
	31-Jul-18	<b>Shaheed Udham Singh's Martyrdom Day</b>
	01-Aug-18	Modes of bonding of ambidentate ligands, ethylenediamine and diketonate complexes.
	02-Aug-18	Modes of bonding continued.
	03-Aug-18	A-Discussion of the problems. B-applications continued: microwave and grinding.
	04-Aug-18	A-Application of resonance raman spectroscopy particularly for the study of active sites of metalloprotein as myoglobin. B-solid state synthesis
	05-Aug-18	<b>Sunday</b>
4	06-Aug-18	Applications continued and revision
	07-Aug-18	Test and discussion
	08-Aug-18	Application of resonance raman spectroscopy particularly for the study of active sites of metalloprotein as haemoglobin.
	09-Aug-18	Application continued and problems discussion

	10-Aug-18	A-ESR Spectroscopy: introduction and principle. B-solid state synthesis continued
	11-Aug-18	A-presentation of the spectrum and hyperfine coupling B-synthesis under solvent free conditions.
	12-Aug-18	<b>Sunday</b>
5	13-Aug-18	Hyperfine coupling continued and discussion
	14-Aug-18	Test and discussion of the test
	15-Aug-18	<b>Independence Day</b>
	16-Aug-18	Splitting in various structures. Factors affecting magnitude of g
	17-Aug-18	A-Problem related with splitting B-synthesis under solvent free conditions continued.
	18-Aug-18	A-Zero field splitting and kramer's degeneracy B-use of ionic liquids
	19-Aug-18	<b>Sunday</b>
6	20-Aug-18	Applications to transition metal complexes having one unpaired electron.
	21-Aug-18	Applications continued.
	22-Aug-18	<b>Id-Ul-Zuha (Bakrid)</b>
	23-Aug-18	Applications to transition metal complexes having more than one unpaired electron
	24-Aug-18	A-Applications continued. B-use of ionic liquid continued.
	25-Aug-18	A-discussions of problems B-Persistent organic pollutants:aldrin
	26-Aug-18	<b>Sunday (Raksha Bandhan)</b>
7	27-Aug-18	Test and discussion
	28-Aug-18	Applications to inorganic free radicals
	29-Aug-18	Applications continued.
	30-Aug-18	Study of electron exchange reactions and discussion.
	31-Aug-18	A-Mossbauer spectroscopy:basic principles B-aldrin continued
	01-Sep-18	A-spectral display in Mossbauer spectroscopy. B-chlordane
	02-Sep-18	<b>Sunday</b>
8	03-Sep-18	<b>Janamashatmi</b>
	04-Sep-18	Test and discussion
	05-Sep-18	Isomer shift Factors affecting the magnitude of isomer shift
	06-Sep-18	Quadrupole and magnetic hyperfine interaction
	07-Sep-18	A-Hyper fine interaction in compounds. B-chlordane continued
	08-Sep-18	A-Discussion of the problems. B-dieldrin
	09-Sep-18	<b>Sunday</b>
9	10-Sep-18	Test and discussion
	11-Sep-18	Applications of technique to the study of bonding and structure of Fe <sup>2+</sup> and Fe <sup>3+</sup>

		compounds
	12-Sep-18	Applications continued
	13-Sep-18	Problems based on Fe <sup>2+</sup> and Fe <sup>3+</sup> compounds
	14-Sep-18	A-Applications of technique to the study of bonding and structure of Sn <sup>2+</sup> and Sn <sup>4+</sup> compounds B-dieldrin continued
	15-Sep-18	A-Applications continued B-dioxins
	16-Sep-18	<b>Sunday</b>
10	17-Sep-18	Problems based on Sn <sup>2+</sup> and Sn <sup>4+</sup> compounds.
	18-Sep-18	Study of electron exchange reaction and revision
	19-Sep-18	Test and discussion.
	20-Sep-18	Mass spectroscopy: principle and representation of mass spectroscopy
	21-Sep-18	A-Interaction of molecule with high electrons. B-dioxins continued.
	22-Sep-18	A-Interpretation of mass spectrum B-DDT
	23-Sep-18	<b>Sunday (Haryana Heroes' Martyrdom Day)</b>
11	24-Sep-18	Effect of isotopes on appearance of mass spectrum
	25-Sep-18	Problems based on isotopes appearance
	26-Sep-18	Applications – finger print application, molecular weight determination
	27-Sep-18	Applications- evaluation of heat of sublimation of high melting point.
	28-Sep-18	A-Applications continued B-DDT continued
	29-Sep-18	A-Problems based on applications B-Endrins
	30-Sep-18	<b>Sunday</b>
12	01-Oct-18	Test and discussion
	02-Oct-18	<b>Mahatama Gandhi Jayanti</b>
	03-Oct-18	NMR spectroscopy: introduction to F <sup>19</sup> and P <sup>31</sup> NMR spectra
	04-Oct-18	F <sup>19</sup> spectra of fluoroacetone , 1bromo-1fluoroethane, (continue)
	05-Oct-18	A-Dimethyl phosphoroustrifluoride and bromine penta fluoride B-furans
	06-Oct-18	A-F <sup>19</sup> spectra continued. B-Helptachlor
	07-Oct-18	<b>Sunday</b>
13	08-Oct-18	P <sup>31</sup> spectra of HPF <sub>2</sub> , HPO(OH) <sub>2</sub> , H <sub>2</sub> PO(OH) and cis Pt(Pet <sub>3</sub> ) <sub>2</sub> Cl <sub>2</sub>
	09-Oct-18	P <sup>31</sup> spectra continued.
	10-Oct-18	<b>Maharaja Agrasen Jayanti</b>
	11-Oct-18	Problem based questions.
	12-Oct-18	A-Test and discussion B-Helptachlor continued
	13-Oct-18	A-Pseudo contact shift, diamagnetic complexes B-Hexachlorobenzene

	14-Oct-18	<b>Sunday</b>
14	15-Oct-18	Spectra of free radicals, lanthanide shift reagent
	16-Oct-18	Spectra of lanthanide reagent continued.
	17-Oct-18	Magnetic susceptibility measurement. Solid state NMR-wide line NMR
	18-Oct-18	<b>Dussehra</b>
	19-Oct-18	A-Discussions of problems and revision B-hexachlorobenzene continued
	20-Oct-18	A-Test and discussion B-Mirex
	21-Oct-18	<b>Sunday</b>
15	22-Oct-18	Magnetic angle spinning and applications magnetic resonance imaging.
	23-Oct-18	Applications continued
	24-Oct-18	<b>Maharishi Valmiki's Birthday</b>
	25-Oct-18	Nuclear quadrupole resonance spectroscopy: introduction and nuclear quadrupole moment
	26-Oct-18	A-Electric field gradient and asymmetry parameter. Nuclear quadrupole transitions: axillary symmetric B-Mirex continued
	27-Oct-18	A-Nuclear quadrupole continued. B-polychlorinated biphenyls
	28-Oct-18	<b>Sunday</b>
16	29-Oct-18	Test and discussion.
	30-Oct-18	Nuclear quadrupole Continued and discussion of problems
	31-Oct-18	Nuclear quadrupole transitions :non-symmetric molecules. Effect of an external magnetic field.
	01-Nov-18	<b>Haryana Day</b>
	02-Nov-18	A-Application: (i)chemical bonding and structure (ii)solid state effects(iii) hydrogen bonding B-polychlorinated biphenyls continued
	03-Nov-18	A-Experimental aspects B-Toxaphene
	04-Nov-18	<b>Sunday</b>
17	05-Nov-18	<b>Revision and test</b>
	06 NOV TO 13 NOV	Diwali Break
	14 Nov To 21 Nov	<b>REVISION+MOCK TEST</b>