

Lesson Plan of Darsh model degree college, 2017-2018
Name of the Assistant / Associate Professor: M.A. Rakhi
Class and Semester: B.Sc 1st yr 2nd semester
Subject Name :- Chemistry

Week 1, Day 1, Date: 1-1-18	Inorganic Chemistry I Ch-I Hydrogen Bonding
Week 1, Day 2, Date: 2-1-18	Brief discussion of Vander Waals forces.
Week 1, Day 3, Date: 3-1-18	Ch-II Metallic Bond & Semiconductors
Week 1, Day 4, Date: 4-1-18	Ch-II Semiconductors - Introduction, types, applications
Week 1, Day 5, Date: 5-1-18	- Doubts and discussion
Week 1, Day 6, Date: 6-1-18	Section-B Ch-III s-Block elements
Week 2, Day 1, Date: 8-1-18	s-Block elements
Week 2, Day 2, Date: 9-1-18	s-Block elements.
Week 2, Day 3, Date: 10-1-18	Chemistry of noble gases
Week 2, Day 4, Date: 11-1-18	Chemistry of noble gases
Week 2, Day 5, Date: 12-1-18	Chemistry of noble gases.
Week 2, Day 6, Date: 13-1-18	- Discussion of unit II topics.

Lesson Plan of

Name of the Assistant /Associate Professor:-.....

Class and Semester.....

Subject Name :-.....

Week 3, Day 1, Date: 15-1-18 Test of unit - I
Week 3, Day 2, Date: 16-1-18 Section-C p-Block elements
Week 3, Day 3, Date: 17-1-18 p-Block elements
Week 3, Day 4, Date: 18-1-18 Boron family - 13th gp.
Week 3, Day 5, Date: 19-1-18 13th gp. elements
Week 3, Day 6, Date: 20-1-18 13th gp elements.
Week 4, Day 1, Date: 22-1-18 Carbon family (14th gp)
Week 4, Day 2, Date: 23-1-18 Carbon family
Week 4, Day 3, Date: 24-1-18 - Discussion of unit - III
Week 4, Day 4, Date: 25-1-18 Section-D Nitrogen family (15th gp)
Week 4, Day 5, Date: 26-1-18 - Nitrogen family (15th gp)
Week 4, Day 6, Date: 27-1-18 Oxygen family (16th gp)

Lesson Plan of

Name of the Assistant / Associate Professor:

Class and Semester

Subject Name :-

Week 5, Day 1, Date: 29-1-18 Halogen family
Week 5, Day 2, Date: 30-1-18 Halogen family
Week 5, Day 3, Date: 31-1-18 Test for unit - II
Week 5, Day 4, Date: 1-2-18 Discussion of whole syllabus of Inorganic chem.
Week 5, Day 5, Date: 2-2-18 Organic Chem. Section - A Alkenes - Nomenclature, mechanism of dehydration of alcohols.
Week 5, Day 6, Date: 3-2-18 - mechanism of dehydrohalogenation of alkyl halides
Week 6, Day 1, Date: 5-2-18 The Saytzeff rule, Hofmann elimination physical properties, relative stabilities of alkenes.
Week 6, Day 2, Date: 6-2-18 Chemical reactions of alkenes - mechanisms for hydrogenation.
Week 6, Day 3, Date: 7-2-18 mechanism for electrophilic and free radical additions.
Week 6, Day 4, Date: 8-2-18 Markownikoff's rule, hydroboration-oxidation oxymercuration - reduction
Week 6, Day 5, Date: 9-2-18 ozonolysis, hydration, hydroxylation and oxidation with KMnO_4
Week 6, Day 6, Date: 10-2-18 Section - B Arenes and aromaticity Nomenclature of Benzene derivatives

Lesson Plan of

Name of the Assistant / Associate Professor:

Class and Semester

Subject Name :

Week 7, Day 1, Date: 12 Feb 2018	Test for inorganic unit - III
Week 7, Day 2, Date: 13 Feb 2018	Aromaticity
Week 7, Day 3, Date: 14-2-18	aromatic, anti-aromatic & non-aromatic compounds.
Week 7, Day 4, Date: 15-2-18	Aromatic electrophilic substitution - general mechanism.
Week 7, Day 5, Date: 16-2-18	mechanism of nitration, halogenation sulphonation
Week 7, Day 6, Date: 17-2-18	Friedel-Crafts reaction, Energy profile diagrams, substituents & orientations
Week 8, Day 1, Date: 19-2-18	Test of inorganic unit - IV
Week 8, Day 2, Date: 20-2-18	Discussion of previous unit & imp ^Q questions.
Week 8, Day 3, Date: 21-2-18	Section-C Dienes and Alkynes - Nomenclature classification. Str ^o of Butadiene.
Week 8, Day 4, Date: 22-2-18	Chemical reactions - 1,2 and 1,4 addition
Week 8, Day 5, Date: 23-2-18	Diels-Alder reaction
Week 8, Day 6, Date: 24-2-18	alkynes - Nomenclature, str, bonding, method of formation

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Week 9, Day 1, Date: 26 Feb 2018 Test of unit-I (organic)
Week 9, Day 2, Date: 27 Feb 2018 acidity of alkynes chemical reactions of alkynes
Week 9, Day 3, Date: 28 Feb 2018 mechanism of electrophilic & nucleophilic addition
Week 9, Day 4, Date: 01 Mar 2018 -
Week 9, Day 5, Date: 02 Mar 2018 -
Week 9, Day 6, Date: 03 Mar 2018 -
Week 10, Day 1, Date: 05 Mar 2018 Test of unit - II & III (organic)
Week 10, Day 2, Date: 06 Mar 2018 hydroboration - oxidation of alkynes
Week 10, Day 3, Date: 07 Mar 2018 Discussion & practice of dienes and alkynes
Week 10, Day 4, Date: 08 Mar 2018 Section-O alkyl halides - Nomenclature & classes of alkyl halides, preparation
Week 10, Day 5, Date: 09 Mar 2018 chemical reactions. Mechanisms and stereochemistry of nucleophilic substitution rxns.
Week 10, Day 6, Date: 10 Mar 2018 S _N 2 & S _N 1 reactions with energy profile diagrams.

Lesson Plan of

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Subject Name :.....

Week 11, Day 1, Date: 12 May 2018	aryl halides - method of formation and reaction of aryl halides.
Week 11, Day 2, Date: 13 May 2018	The addition - elimination and elimination - addition mechanisms.
Week 11, Day 3, Date: 14 May 2018	Relative reactivities of alkyl halides of allyl, vinyl and aryl halides.
Week 11, Day 4, Date: 15 May 2018	Discussion and practice of reactions of alkyl and aryl halides.
Week 11, Day 5, Date: 16 May 2018	Physical Chem Section-A Kinetics-I Rate of reaction, rate equation
Week 11, Day 6, Date: 17 May 2018	factors affecting rate of reaction - conc., temp., pressure, solvent, light catalyst.
Week 12, Day 1, Date: 19 May 2018	Test of organic Unit IV
Week 12, Day 2, Date: 20 May 2018	Order of a reaction, integrated rate expression for zero order.
Week 12, Day 3, Date: 21 May 2018	rate expression for 1st, 2nd & 3rd order reaction
Week 12, Day 4, Date: 22 May 2018	Half life period of a reaction
Week 12, Day 5, Date: 23 May 2018	methods of determination of order of reaction
Week 12, Day 6, Date: 24 May 2018	Discussion & class practice of physical unit I.

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Week 13, Day 1, Date: 26-3-18	Kinetics - II effect of temp on the rate of reaction - Arrhenius equation.
Week 13, Day 2, Date: 27-3-18	Theories of reaction rate - Simple collision theory for unimolecular collision
Week 13, Day 3, Date: 28-3-18	Simple collision theory for bimolecular collision
Week 13, Day 4, Date: 29-3-18	Transition state theory of Bimolecular reactions.
Week 13, Day 5, Date: 30-3-18	Discussion and practice of Kinetics-II
Week 13, Day 6, Date: 31-3-18	Section-C Electrochemistry-I Electrolytic conduction, factors affecting electrolytic conduction.
Week 14, Day 1, Date: 2-4-18	Test of unit -I
Week 14, Day 2, Date: 3-April-18	Specific, molar & equivalent conductance and relation b/w them
Week 14, Day 3, Date: 4-4-18	Variation of conductance with conc.
Week 14, Day 4, Date: 5-4-18	Arrhenius theory of ionization, Ostwald's Dilution law.
Week 14, Day 5, Date: 6-4-18	Debye-Huckel-Onsager's equation for strong electrolytes.
Week 14, Day 6, Date: 7-4-18	Transport no; definition & determination by Hittorff's methods.

Lesson Plan of

Name of the Assistant / Associate Professor:-.....

Class and Semester.....

Subject Name :-.....

Week 15, Day 1, Date: 9-4-18

Test of physical unit - II

Week 15, Day 2, Date: 10-4-18

Electrochemistry - II
Kohlrausch's law, calculation of molar ionic conductance and effect of temp

Week 15, Day 3, Date: 11-4-18

effect of pressure. Applications of Kohlrausch's law for calculation of conductance

Week 15, Day 4, Date: 12-4-18

Applications of conductivity measurements - determination of degree of dissociation

Week 15, Day 5, Date: 13-4-18

Determination of K_a of acids determination of solubility product of sparingly soluble salts.

Week 15, Day 6, Date: 14-4-18

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Week 16, Day 1, Date: 16-4-18

Test of physical unit - III

Week 16, Day 2, Date: 17-4-18

conductometric titrations. Definition of pK_a & pH

Week 16, Day 3, Date: 18-4-18

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Week 16, Day 4, Date: 19-4-18

Test of Inorganic Chemistry

Week 16, Day 5, Date: 20-4-18

Buffer solution, Buffer action

Week 16, Day 6, Date: 21-4-18

Henderson - Hazel equation.

Lesson Plan of

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Class and Semester.....

Subject Name :-.....

Week 17, Day 1, Date: 23-4-18

Test of Organic Chemistry

Week 17, Day 2, Date: 24-4-18

Buffer mechanism of buffer action

Week 17, Day 3, Date: 25-4-18

Doubts class.

Week 17, Day 4, Date: 26-4-18

Doubts and discussion of whole syllabus.

Week 17, Day 5, Date: 27-4-18

Test of Physical Chemistry.

Week 17, Day 6, Date: 28-4-18

Week 18, Day 1, Date:

Week 18, Day 2, Date:

Week 18, Day 3, Date:

Week 18, Day 4, Date:

Week 18, Day 5, Date:

Week 18, Day 6, Date:

Lesson Plan of Ranchi model Degree College, 2017-2018

Name of the Assistant / Associate Professor: Ms Rakhi

Class and Semester: B.Sc 2nd yr ch 12th semester

Subject Name: Chemistry

Week 1, Day 1, Date: <u>1 Jan 2018</u>	<u>Inorganic Chemistry</u> <u>Section-A</u> <u>Chemistry of f block elements.</u> <u>electronic configuration / structure</u>
Week 1, Day 2, Date: <u>2-1-18</u>	<u>Oxidation states & ionic radii, lanthanide contraction</u>
Week 1, Day 3, Date: <u>3-1-18</u>	<u>complex formation, occurrence & isolation</u>
Week 1, Day 4, Date: <u>4-1-18</u>	<u>lanthanide compounds.</u>
Week 1, Day 5, Date: <u>5-1-18</u>	<u>-</u>
Week 1, Day 6, Date: <u>6-1-18</u>	<u>discussion and questions on f-block elements. - lanthanides.</u>
Week 2, Day 1, Date: <u>8-1-18</u>	<u>Section-B</u> <u>Chemistry of f-block elements</u> <u>Actinides. - General features & chemistry</u>
Week 2, Day 2, Date: <u>9-1-18</u>	<u>chemistry of separation of Np, Pu & Am from U.</u>
Week 2, Day 3, Date: <u>10-1-18</u>	<u>previous topic</u>
Week 2, Day 4, Date: <u>11-1-18</u>	<u>comparison of properties of lanthanides & actinides with transition elements.</u>
Week 2, Day 5, Date: <u>12-1-18</u>	<u>Discussion of all f-block elements.</u>
Week 2, Day 6, Date: <u>13-1-18</u>	<u>-</u>

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Subject Name :-.....

Week 3, Day 1, Date: 15-1-18	Test of Lanthanides
Week 3, Day 2, Date: 16-1-18	Organic Chemistry. Section-B Amines. - Str. and nomenclature, physical properties.
Week 3, Day 3, Date: 17-1-18	Separation of a mixture of primary, secondary and 3° amines, Structural features affecting basicity.
Week 3, Day 4, Date: 18-1-18	Preparation of alkyl & aryl amines
Week 3, Day 5, Date: 19-1-18	Reduction of nitro compounds, nitriles. reductive amination of aldehydic & ketonic comp ^s .
Week 3, Day 6, Date: 20-1-18	Gabriel-phthalimide reaction, Hofmann bromamide reaction
Week 4, Day 1, Date: 22-1-18	• electrophilic aromatic substitution in aryl amines, reactions of amines with nitrous acid.
Week 4, Day 2, Date: 23-1-18	Section-C 1) Diazonium salts - mechanism of diazotisation str. of benzene diazonium chloride.
Week 4, Day 3, Date: 24-1-18	—
Week 4, Day 4, Date: 25-1-18	str. of replacement of diazo gp by H, OH, F, Cl, Br, I, NO ₂ & CN gp.
Week 4, Day 5, Date: 26-1-18	—
Week 4, Day 6, Date: 27-1-18	Test for inorganic section - B (actinides).

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Week 5, Day 1, Date: 29-1-18	reduction of diazonium salts to hydrazines
Week 5, Day 2, Date: 30-1-18	coupling reaction & its synthetic application
Week 5, Day 3, Date: 31-1-18	reduction of diazonium salts to hydrazines
Week 5, Day 4, Date: 1-Feb 2018	2.) Nitro Compounds:- Preparation of nitro alkanes and nitro arenes, chemical reactions.
Week 5, Day 5, Date: 2-2-18	Mechanism of electrophilic substitution reactions in nitro arenes.
Week 5, Day 6, Date: 3-2-18	-
Week 6, Day 1, Date: 5-2-18	Test of Amines
Week 6, Day 2, Date: 6-2-18	Reduction of nitro arenes in acidic, neutral and alkaline medium.
Week 6, Day 3, Date: 7-2-18	Physical Chemistry Section-A - Thermodynamics-III 2nd law of thermodynamics, need for the law, diff ^t statements of the law.
Week 6, Day 4, Date: 8-2-18	Carnot's cycles and its efficiency, Carnot's theorem, thermodynamics scale of temperature
Week 6, Day 5, Date: 9-2-18	Concept of entropy - entropy as a state function
Week 6, Day 6, Date: 10-2-18	• entropy as a function of V & T, entropy as a function of P & T

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Week 7, Day 1, Date: 12-2-18	entropy change in physical change, entropy as a criteria of spontaneity and eq ^o .
Week 7, Day 2, Date: 13-2-18	Entropy change in ideal gases and mixing of gases.
Week 7, Day 3, Date: 14-2-18	Section-8 Thermodynamics-III Third law of Thermodynamics: Nernst heat theorem, statement of concept of residual entropy
Week 7, Day 4, Date: 15-2-18	evaluation of absolute entropy from heat capacity data.
Week 7, Day 5, Date: 16-2-18	Gibbs & Helmholtz functions, Gibbs function (G) & Helmholtz function (A) as thermodynamic quality.
Week 7, Day 6, Date: 17-2-18	A & G as Criteria for thermodynamic eq ^o and spontaneity.
Week 8, Day 1, Date: 19-2-18	Test of Diazonium salts & nitro compounds
Week 8, Day 2, Date: 20-2-18	Advantage A & G over entropy change.
Week 8, Day 3, Date: 21-2-18	Variation of G and A with P, V & T.
Week 8, Day 4, Date: 22-2-18	Inorganic Chemistry Section-C Theory of Qualitative & Quantitative Inorganic Analysis-I → Chemistry of analysis
Week 8, Day 5, Date: 23-2-18	Chemistry of identification of acid radicals in typical combinations
Week 8, Day 6, Date: 24-2-18	Chemistry of interference of acid radicals including removal in analysis of basic rad.

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Week 9, Day 1, Date: 26-2-18

Test of Thermodynamics - III

Week 9, Day 2, Date: 27-2-18

Quantitative analysis topics.

Week 9, Day 3, Date: 28-2-18 Section-D

Theory of Qualitative & Quantitative Inorganic Analysis - II - Chemistry of analysis of various ^{gases}

Week 9, Day 4, Date: 1 March 2018

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Week 9, Day 5, Date: 2-3-18

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Week 9, Day 6, Date: 3-3-18

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Week 10, Day 1, Date: 5-3-18

Test of Thermodynamics - IV

Week 10, Day 2, Date: 6-3-18

Theory of precipitation

Week 10, Day 3, Date: 7-3-18

Theory of co-precipitation, post precipitation

Week 10, Day 4, Date: 8-3-18

purification of precipitates.

Week 10, Day 5, Date: 9-3-18 Organic Chemistry Section-D

Aldehydes & ketones - Nomenclature & str. of carbonyl ^{gases}, synthesis of aldehydes & ketones.

Week 10, Day 6, Date: 10-3-18

advantage of oxidation of alcohols with chromium trioxide (Sarett reagent) PCC

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Week 11, Day 1, Date: 12-3-18

Physical properties, comparison of reactivities of aldehydes & ketones.

Week 11, Day 2, Date: 13-3-18

mechanism of nucleophilic addition to carbonyl group with emphasis on benzoin, aldol, Perkin condensation.

Week 11, Day 3, Date: 14-3-18

condensation with ammonia and its derivatives
Wittig reaction.

Week 11, Day 4, Date: 15-3-18

Mannich reaction, Oxidation of aldehydes,
Baeyer-Villiger oxidation of ketones

Week 11, Day 5, Date: 16-3-18

Cannizzaro reaction, MPV, Clemmensen reductions

Week 11, Day 6, Date: 17-3-18

Wolff-Kishner, LiAlH_4 & NaBH_4 reductions

Week 12, Day 1, Date: 19-3-18

Test of Quantitative & Qualitative analysis I

Week 12, Day 2, Date: 20-3-18 Section-A

Infrared (IR) absorption spectroscopy - molecular vibrations, Hooke's law, selection rules.

Week 12, Day 3, Date: 21-3-18

Intensity and position of IR bands,
measurement of IR spectrum.

Week 12, Day 4, Date: 22-3-18

fingerprint region, characteristic absorptions of various functional groups

Week 12, Day 5, Date: 23-3-18

interpretation of IR spectra of simple organic compounds.

Week 12, Day 6, Date: 24-3-18

Applications of IR spectroscopy

Lesson Plan of

Name of the Assistant / Associate Professor:

Class and Semester

Subject Name :-

Week 13, Day 1, Date: 26-3-18

Test of aldehydes and ketones.

Week 13, Day 2, Date: 27-3-18

Discussion and doubts of whole organic Chemistry.

Week 13, Day 3, Date: 28-3-18

Section-C Physical Chemistry
Electrochemistry-III
Electrolytic and Galvanic cells - reversible & Irreversible cells.

Week 13, Day 4, Date: 29-3-18

conventional representation of electrochemical cells.

Week 13, Day 5, Date: 30-3-18

EMF of cell and its measurement, Weston standard cell.

Week 13, Day 6, Date: 31-3-18

activity and activity co-efficients.

Week 14, Day 1, Date: 2-April 2018

calculation Test of IR spectroscopy

Week 14, Day 2, Date: 3-4-18

calculation of Thermodynamic quantities of cell reaction (ΔG , ΔH & K)

Week 14, Day 3, Date: 4-4-18

Types of reversible electrodes.

Week 14, Day 4, Date: 5-4-18

Electrode reactions, Nernst equations.

Week 14, Day 5, Date: 6-4-18

derivation of cell EMF and single electrode potential.

Week 14, Day 6, Date: 7-4-18

Standard hydrogen electrode, reference electrode potential

Lesson Plan of

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Week 15, Day 1, Date: 9-4-18	Sign conventions, electrochemical series & its applications.
Week 15, Day 2, Date: 10-4-18	Section-D Electrochemistry-IV concentration cells with & without transference.
Week 15, Day 3, Date: 11-4-18	Liquid junction potential,
Week 15, Day 4, Date: 12-4-18	application of EMF measurement i.e. valency of ions.
Week 15, Day 5, Date: 13-4-18	solubility product activity coefficient,
Week 15, Day 6, Date: 14-4-18	-
Week 16, Day 1, Date: 16-4-18	Test of inorganic chemistry - III
Week 16, Day 2, Date: 17-4-18	potentiometric titration (acid-base and redox)
Week 16, Day 3, Date: 18-4-18	-
Week 16, Day 4, Date: 19-4-18	Test of electrochemistry - III
Week 16, Day 5, Date: 20-4-18	Determination of pH using Hydrogen electrode.
Week 16, Day 6, Date: 21-4-18	Quinhydrone electrode & glass electrode by potentiometric methods

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Week 17, Day 1, Date: 23-4-18

Test of organic chemistry Paper III

Week 17, Day 2, Date: 24-4-18

Quinhydrone electrode and glass electrode
by potentiometric methods.

Week 17, Day 3, Date: 25-4-18

Doubts and discussion

Week 17, Day 4, Date: 26-4-18

Doubts.

Week 17, Day 5, Date: 27-4-18

Test of physical chemistry complete
syllabus.

Week 17, Day 6, Date: 28-4-18

Week 18, Day 1, Date:

Week 18, Day 2, Date:

Week 18, Day 3, Date:

Week 18, Day 4, Date:

Week 18, Day 5, Date:

Week 18, Day 6, Date: