RPS Degree College, Balana (Mahendergarh)

Lesson Plan

2020-21(Odd Semester)

Class and Section: B Sc Ist Sem Honours Chem

Subject: Botany

Name of the Faculty : D R Bharadwaj

Lecture	Topics
1	Orintation lectures. General characters, Salient features, organisation of thallus, habit & habitats of Algae.
2	Orintation lectures. General characters, Salient features, organisation of thallus, habit & habitats of Algae.
3	Classification, reproduction and economic importace of Algae.
4	Classification, reproduction and economic importace of Algae.
5	General account, Salient features, organisation of thallus, habit & habitats, types of spores, classification, reproduction and economic importace of Fungi.
6	General account, Salient features, organisation of thallus, habit & habitats, types of spores, classification, reproduction and economic importace of Fungi.
7	General characters and types of Mycorrhiza. General characteristics, types and reproduction in Lichens. Economic importance of Mycorrhiza & Lichens
8	General characters and types of Mycorrhiza. General characteristics, types and reproduction in Lichens. Economic importance of Mycorrhiza & Lichens
9	General characteristics, salient features, types, classification, reproduction, ecological and economic importace of Bryophytes. .
10	General characteristics, salient features, types, classification, reproduction, ecological and economic importace of Bryophytes. .
11	General account, reproduction, ecological and economic importace of Pteridophytes. Evolution of stelarsystem and seed habit in Pteridophytes
12	General characteristics, salient features, types, classification, reproduction, ecological and economic importace of Gymnosperms. .
13	General characteristics, salient features, types, classification, reproduction, ecological and economic importace of Gymnosperms. .
14	Distribution of Gymnosperms in India. Evolution of Seed habits in Gymnosperms. Pteridospermatics seeds. Heterospory. Evolution of seed habits in Gymnosperms. Economic importace of Gymnosperms with refrence to Essential oils and Drugs.

15	Distribution of Gymnosperms in India. Evolution of Seed habits in Gymnosperms. Pteridospermatics seeds. Heterospory. Evolution of seed habits in Gymnosperms. Economic importace of Gymnosperms with refrence to Essential oils and Drugs.
16	General characteristics of Angiosperms. Botanical nomenclature. Elementary knowledge of International code of Botanical nomenclature. ICBN. Herbaria preparation & methods.
17	Role of herbaria. Botanical Gardens of India & Diversity. Bentham & Hooker system of Classification. Merits and Demerits of Bentham & Hooker system of Classification
18	Role of herbaria. Botanical Gardens of India & Diversity. Bentham & Hooker system of Classification. Merits and Demerits of Bentham & Hooker system of Classification
19	Revision of Full syllabus
20	Revision of Full syllabus

Lesson plan

Name of Teacher: Dr. Surjeet Chahal & Mr. Sachin
Class: B.Sc.(Hons.)Maths& Chemistry, 1st semester
Subject: Physics Paper Code: BHM 116 Opt. (ii)

Days	Topics
Day1	Introduction
Day2	Mechanics of single particle
Day3	Conservation laws for mechanics of single particle
Day4	Mechanics of system of particles
Day5	Conservation law of linear momentum and angular momentum
Day6	Conservation of angular momentum in terms of COM
Day7	Conservation law of energy
Day8	Centre of mass and equation of motion
Day9	Constrained motion and Degrees of freedom
Day10	Generalised coordinates, Generalised displacement and velocity
Day11	Generalised acceleration and momentum
Day12	Generalised force and potential
Day13	Principle of Virtual work and D'Alembert's Principle
Day14	Hamilton's Variational Principle
Day15	Lagrange's equation of motion from Hamilton's Principle
Day16	Linear Harmonic Oscillator and Simple pendulum
Day17	Atwood's machine
Day18	Doubts and Assignment
Day19	Elasticity
Day20	Hooke's law
Day21	Elastic constants and their relations
Day22	Poisson's ratio
Day23	Torsion of cylinder and twisting couple
Day24	Bending of beam (bending moment and its magnitude) cantilevers
Day25	Centrally loaded beam
Day26	Reference systems, inertial frames
Day27	Gallilean invariance and Conservation laws
Day28	Newtonian relativity principle
Day29	Michelson - Morley experiment : Search for ether
Day30	Lorentz transformations length contraction, time dilation
Day31	Velocity addition theorem, variation of mass with velocity and mass energy equivalence
Day32	Derivation of field E from potential as gradient
Day33	Derivation of Laplace and Poisson equations
Day34	Electric flux, Gauss's Law and its application to spherical shell
Day35	Uniformly charged infinite plane and uniformly charged straight wire
Day36	Mechanical force of charged surface and energy per unit volume
Day37	Magnetic Induction and magetic flux
Day38	Solenoidal nature of Vector field of induction
Day39	Properties of B (i) $\nabla.B = 0$ (ii) $\nabla \times B = \mu_o J$
Day40	Electronic theory of dia and para magnetism (Langevin's theory)
Day41	Domain theory of ferromagnetism
Day42	Cycle of Magnetisation - Hysteresis (Energy dissipation, Hysteresis loss and importance of Hysteresis curve)
Day43	Maxwell's Equations and their derivation
Day44	Numerical problems
Day45	Doubt and assignment
Day46	Doubts from Units

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Lesson Plan

2020-21(Odd Semester)

Class - B.Sc. (Hons) Chemistry
Subject: Mathematics
Name of the Faculty : Krishan Kumar

Lecture	Topics
1	Introduction to Syllabus, Scheme of Exam & Learning Objectives/Outcomes
2	Test to Check the Learning Level of the Students
3	Sets
4	Type of set
5	Properties of set
6	Examples
7	Examples
8	Realation
9	Type of Relation
10	Examples
11	Function
12	Type of function
13	Examples
14	Nature of roots of equation
15	Descart,s rule of sign
16	permutations and combinations
17	Binomial theorem
18	Logrithim series
19	Test-Unit 1
20	Trigonometry function
21	Examples
22	Properties of trigonometry function
23	Examples
24	Limit of a function
25	Basic properties of limit
26	Examples
27	Continuous function
28	Examples
29	Examples
30	Test-Unit-2
31	Derivatives of a function
32	Derivatives of standard function
33	Examples
34	Examples

35	Derivatives of implicit function
36	Examples
37	Derivatives of function in parametric form
38	Examples
39	Maxima and minima
40	Stationery point
41	Examples
42	Examples
43	Test-Unit 3
44	Indefinite integration
45	Examples
46	Integration by parts
47	Examples
48	Examples
49	partial fraction
50	Examples
51	Definite integration
52	Examples
53	Examples
54	Reduction formula
55	Double integral
56	Examples
57	Triple integral
58	Examples
59	Test-Unit 4
60	Revision

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Lesson Plan

2020-21(Odd Semester)

Class and Section: B.Sc Hons Chemistry 1st Sem

Subject: Inorganic chemistry

Name of the Faculty : Ms. Sapna

Lecture	Topics
1	Introduction of syllabus
2	Section A: Idea of de Broglie matter waves
3	Heisenberg Uncertainty Principle
4	Numericals on de Broglie equation and Heisenberg Uncertainty principle
5	Bohr's theory and its limitations
6	atomic orbitals
7	Schrodinger wave equation,
8	significance of wave function and it's square
9	quantum numbers
10	normal and orthogonal wave functions
11	Radial and angular wave functions
12	Auf Bau principle, Pauli Exclusion Principle, Hund's rule
13	Probability distribution curves
14	Shapes of s, p and d orbitals
15	Slater's Rules and effective nuclear charge
16	Section C: VBT and its limitations
17	Directional characteristics of covalent bond
18	Hybridization
19	Types of hybridization
20	Shapes of simple inorganic molecules and ions
21	VSEPR Theory
22	MO Theory
23	MO Theory
24	Heteronuclear diatomic molecules
25	Bond energy
26	Bond Strength
27	Dipole moment and Electronegativity difference
28	Percentage ionic character
29	Weak Interactions: Hydrogen bonding: Types, theory and consequences
30	Vander Waal's forces
31	Section – Classifications of elements
32	s.p.d. and f block elements: the long form of the periodic
33	Atomic and Ionic radii
34	Atomic and Ionic radii

35	Determination of ionic radii
36	ionization energy
37	ionization energy
38	Electron affinity
39	Electronegativity
40	Methods of determination of Electronegativity
41	Linnett's Theory
42	Important features of ERT
43	spin correlation and charge correlation effect
44	double quartet approach
45	Linnett formulae of HF, F2 , C2H4 , O2 , C2H2 , N2 and CO
46	Section-D Ionic Solids:Ionic structures
47	Types of ions and packing of ions in crystals size effects
48	Ionic structures
49	Radius Ratio rules and coordination numbers
50	Limitations of radius ratio rules
51	Lattice Defects
52	Lattice Defects
53	Semiconductors
54	Lattice energy
55	Born Haber Cycle
56	solvation energy and solubility of ionic solids
57	Polarizing power and polarisability of ions
58	Fajan's Rules
59	Metallic Bond: Free electron theory
60	valence bond and band theories

RPS Degree College, Balana (Mahendergarh)

Lesson Plan

2020-21(Odd Semester)

Class and Section: B.Sc. Hons. Chemistry (Semester I)
Subject: Physical Chemistry(Code: CH (H) 102)
Name of the Faculty : Mr. Deepak Nain

Lecture	Topics
1	Introduction to Course, Scheme of Exam & Learning Objectives
2	Discussion to check the previous knowledge of students
3	Elementary treatment of gas laws
4	Real and ideal gases
5	Boyle's temperature and gas constant R
6	Critical constants and their determination
7	Kinetic gas equation and its derivation
8	Deviation of real gases from ideal behaviour and causes
9	Van der waals equation and its deviation under different PV isotherms
10	Deviation of van der waals equation under different PV isotherms
11	Isotherms of carbon dioxide and continuity of states
12	Relationship between critical constants and van der waal's constants
13	Practice problems on critical constants
14	Reduced equation of state and law of corresponding states
15	Liquefaction of gases
16	Degree of freedom of motion and equipartition of energy
17	Maxwell's Distribution of velocities and energies
18	Root mean square, average and most probable velocity
19	Collision diameter and collision number
20	Collision frequency and mean free path
21	Viscosity of gases
22	Relationship between coefficient of viscosity and mean free path
23	Calculation of molecular diameter from coefficient of viscosity
24	Adsorption and absorption
25	Types of adsorption and differences between them
26	Adsorption isotherms and isobars
27	Langmuir adsorption isotherm
28	Freundlieh adsorption isotherms
29	BET equation and its application
30	Practice problems on collision frequency and maxwell's distribution
31	Gibbs adsorption equation and its application
32	Enzyme catalysis
33	Mechanism of enzyme catalysis
34	Michaelis-menten equation

35	Michaelis-menten equation and application of adsorption
36	Crystalline and amorphous solids
37	Types of unit cells
38	Law of constancy of interfacial angles and rationality of indices
39	Law of symmetry and symmetry elements in crystal
40	Crystal systems and bravais lattices
41	Bravais lattices and Bragg's equation
42	Bragg's equation determination and X ray diffraction of crystals
43	X ray diffraction of crystals
44	Determination of crystal structure of NaCl, KCl and CsCl
45	Determination of crystal structure of NaCl, KCl and CsCl
46	Intermolecular forces and their types
47	Structure of liquids
48	Structural differences between solids, liquids and gases
49	Liquid crystals
50	Difference between solids, liquids and liquid crystals
51	Nematic and chalastric phases
52	Nematic and chalastric phases
53	Thermography
54	Thermography
55	Seven segment of cell
56	Vapour pressure of liquids
57	Theory of liquids
58	Entropy of vaporization and Viscosity
59	Viscosity and surface tension of liquids
60	Surface tension of liquids

RPS Degree College, Balana (Mahendergarh)

Lesson Plan

Class : Hons. Chemistry 1st Semester

Subject : Organic Chemistry

Name of the Faculty : Mr. Yogesh Kumar

Lecture	Topics
1	Introduction of Syllabus
2	Hybridisation
3	Bond Length, bond angle and bond energy
4	Localised and delocalised chemical bond
5	Van der Waals Interaction
6	Inclusion compounds, Clatherates
7	Charge transfer complexes , Aromaticity
8	Hyperconjugation, hydrogen bonding
9	Inductive effect and its application
10	Resonance effect and its application
11	Concept and types of isomerism
12	Elements of symmetry, chirality and optical activity
13	Enantiomers and its properties
14	Diastereomers, types and its properties
15	Meso compounds and resolution of enantiomers
16	inversion, retention and racemisation
17	Relative and absolute configuration, sequence Rule
18	R and S, D and L system of nomenclature
19	Geometric isomerism and its configuration
20	E and Z system of nomenclature
21	Geometrical isomerism in oximes and alicyclic compounds
22	Conformational analysis of ethane and n-butane, axial and equitorial bonds
23	Conformation of monosubstitued cyclohexane derivatives
24	Neweman projections and sawhorse formulae
25	Fischer and flying wedge formulae
26	Diifference between configuration and conformation
27	Asymmetric synthesis
28	Elementary idea of stereospecific and stereoselective reactions
29	Atropisomerism (biphenyls and allenes)
30	Different curved arrow notation, half and double headed arrows
31	Homolytic and heterolytic bond breaking
32	Electrophilic and nucleophlic reagents
33	Types of organic reactions
34	Types of organic reactions
35	Carbocation - formation, Structure and stability
36	Carboanion - Formation, structure and stablity
37	Free radicals - formation, structure and stability
38	Carbenes - formation, structure and stability
39	Arynes - Formation, structure and stability
40	Nitrenes - Formation, structure and stability
41	Assigning formal charges on intermediate and ionic species
42	Methods of determination of reaction mechanism

43	Methods of determination of reaction mechanism
44	Paper, thin layer and column chromatography
45	Gas chromatography and criteria of purity of organic compounds
46	Alkanes - Nomenclature and isomerism
47	Physical properties of alkanes
48	Methods of formation of alkanes
49	Methods of formation of alkanes
50	Chemical properties of alkanes
51	Free radical halogenation of alkanes - orientation, reactivity and selectivity
52	Cycloalkanes - Nomenclature and synthesis
53	Synthesis of cycloalkanes derivatives
54	Synthesis of cycloalkanes derivatives
55	Synthesis of cycloalkanes derivatives
56	Chemical reactions of cycloalkanes
57	Baeyer's strain theory and its limitations
58	Rings strain in small rings (Cyclopropane and cyclobutane)
59	Theory of strainless rings
60	Cyclopropane ring : banana bonds

RPS Degree College, Balana (Mahendergarh)

Lesson Plan

2020-21(Odd Semester)

Class and Section: HC 1st Sem
Subject: ENGLISH
Name of the Faculty : DEEPIKA

Lecture	Topics
1	Introduction to Syllabus, Scheme of Exam & Learning Objectives/Outcomes
2	Test to Check the Learning Level of the Students
3	Introduction to literature
4	General discussion on literature
5	Basics of ENGLISH
6	Poem 1 . One third W.Shakespeare
7	Two third
8	Poem complete
9	Doubt class
10	Poem 2 . One third J Donne
11	Two third
12	Poem complete
13	Doubt class
14	Poem 3 one third J Milton
15	Two third
16	Poem complete
17	Doubt class
18	Poem 4 one third J Dryden
19	Two third
20	Poem complete
21	Doubt class
22	Poem 5 one third A Pope
23	Two third
24	Poem complete
25	Doubt class
26	Poem 6 one third W Blake
27	Two third
28	Poem complete
29	Doubt class
30	Poem 7 one third W Wordsworth
31	two third
32	Poem complete
33	Doubt class
34	Text book doubt

35	Phonetics Intro
36	Trancription 1
37	Transcription 2
38	Parts of speech
39	Noun Pronoun
40	adverb
41	adjective
42	conjunction and preposition
43	Types of sentence
44	Common errors
45	Common errors
46	Letter and Application
47	Practise Technical Writing
48	Revision
49	Revision
50	Revision