



RPS Degree College, Balana (Mahendergarh)

Syllabus Plan

2020-21(Odd Semester)

Class and Section: B.Sc. Non-Medical 1st Semester

Subject: Inorganic Chemistry

Lecture	Topics
1	Idea of de Broglie matter wave
2	Heisenberg uncertainty principle
3	Atomic orbitals
4	Quantum numbers
5	Radial and angular wave functions
6	Probability distribution curves
7	shapes of s, p, d orbitals
8	shapes of s, p, d orbitals
9	General principles of periodic table
10	Aufbau principles
11	Pauli exclusion principles
12	Hund's multiplicity rule
13	Electronic configurations of the elements
14	effective nuclear charge
15	Slater's rules
16	Atomic and ionic radii- definition
17	Atomic and ionic radii- methods of determination or evaluation
18	Atomic and ionic radii- trends in periodic table (in s & p block elements)
19	Ionization energy definition
20	Ionization energy methods of determination or evaluation
21	Ionization energy trends in periodic table (in s & p block elements)
22	Electron affinity definition
23	Electron affinity methods of determination or evaluation
24	Electron affinity trends in periodic table (in s & p block elements)
25	Electronegativity definition
26	Electronegativity methods of determination or evaluation
27	Electronegativity trends in periodic table (in s & p block elements)
28	Valence bond theory and its limitations
29	Valence bond theory and its limitations
30	directional characteristics of covalent bond,
31	Various types of hybridization
32	Shapes of simple inorganic molecules
33	Shapes of simple inorganic molecules
34	Valence shell electron pair repulsion (VSEPR) theory
35	Valence shell electron pair repulsion (VSEPR) theory
36	MO theory of heteronuclear (CO and NO) diatomic molecules

37	MO theory of heteronuclear (CO and NO) diatomic molecules
38	Bond strength
39	Bond energy
40	Percentage ionic character from dipole moment
41	Percentage ionic character from dipole moment
42	Ionic structures (NaCl, CsCl, ZnS (Zinc Blende), CaF ₂)
43	Ionic structures (NaCl, CsCl, ZnS (Zinc Blende), CaF ₂)
44	Ionic structures (NaCl, CsCl, ZnS (Zinc Blende), CaF ₂)
45	Radius ratio effect
46	Radius ratio effect
47	Coordination number
48	Coordination number
49	Limitation of radius ratio rule
50	Limitation of radius ratio rule
51	Limitation of radius ratio rule
52	Lattice defects
53	Semiconductors
54	Lattice energy
55	Born-Haber cycle
56	Solvation energy
57	Solvation energy & its relation with solubility of ionic solids
58	Polarizing power
59	Polarisability of ions
60	Fajan's rule



RPS Degree College, Balana (Mahendergarh)

Lesson Plan

2020-21(Odd Semester)

Class and Section: B.Sc. 1st Sem Non-Medical

Subject: Physical Chemistry(Code: CH102)

Lecture	Topics
1	Introduction to Course, Scheme of Exam & Learning Objectives
2	Discussion to check the previous knowledge of students
3	Introduction to Gaseous state and Maxwell's distribution
4	Maxwell's distribution of velocities and energies
5	Root mean, average and most probable velocities
6	Root mean, average and most probable velocities
7	Collision diameter and collision number
8	Collision frequency and mean free path
9	Concept of ideal and real gases
10	Deviation of real gases from ideal behaviour
11	Derivation of Van der Waal's equation of state
12	Boyle's temperature and compression factor
13	Application of Van der Waal's equation to calculate Boyle's temperature
14	Explanation of behaviour of real gases using Van der Waal's equation
15	Explanation of behaviour of real gases using Van der Waal's equation
16	Critical temperature and pressure
17	Critical temperature and pressure
18	Determination of Critical temperature and pressure
19	Critical volume and its determination
20	PV isotherms of real gases
21	PV isotherms of real gases
22	Continuity of states
23	Continuity of states
24	Isotherms of Van der Waal's equation
25	Relationship between critical constants and van der waal's constants
26	Relationship between critical constants and van der waal's constants
27	Practice problems related to calculation of critical constants
28	Critical compressibility factor and Law of corresponding states
29	Liquifaction of gases
30	Liquifaction of gases
31	Introduction to liquid state
32	Structure of liquids
33	Structure of liquids
34	Properties of liquids
35	Surface tension

36	Surface tension and its determination
37	Viscosity
38	Determination of Viscosity
39	Vapour pressure
40	Vapour pressure
41	Determination of vapour pressure
42	Optical rotation
43	Method for determining optical rotation
44	Introduction to solid state
45	Classification of solids
46	Law of constancy of interfacial angles and rationality of indices
47	Law of symmetry
48	Symmetry elements of crystals
49	Unit cell and space lattice
50	Bravais lattice
51	Crystal systems
52	Crystal systems
53	X ray diffraction of crystals
54	X ray diffraction of crystals
55	Derivation of Bragg equation
56	Practice problems related to Bragg equation
57	Determination of crystal structure of NaCl, KCl
58	Liquid crystals
59	Difference between solids, liquids and liquid crystals
60	Applications of liquid crystals

RPS Degree College, Balana (Mahendergarh)

Lesson Plan

Class : B.Sc. Non-Medical 1st Sem

Subject : Organic Chemistry

Lecture	Topics
1	Introduction of Syllabus
2	Localized and delocalised chemical bond
3	Van der Waals Interaction
4	Resonance concept condition, energy
5	Resonance effect and its application
6	Hyperconjugation
7	Inductive effect and its application
8	Electromeric effect and its comparison
9	Concept of isomerism and types
10	Optical isomerism , elements of Symmetry
11	Optical activity and Enantiomerism
12	Diastereomers and its types , meso compounds
13	Resolution of enantiomers
14	Inversion , retention and racemization
15	Relative and absolute configuration, sequence Rule
16	R and S system of nomenclature
17	Geometric isomerism and its configuration
18	E and Zsystem of nomenclature
19	Conformational isomerism
20	Conformational analysis of ethane and n-butane
21	Conformations of Cyclohexane
22	Axial and equatorial bonds
23	Newman projection concept
24	Sawhorse projections concept
25	Difference between Configuration and conformation
26	Different types of arrow notation
27	Half headed and double headed arrow
28	Drwaing electron movement with arrows
29	Homolytic and heterolytic bond cleavage
30	Electrophile reagent
31	Nucleophilic Reagent
32	Types of Organic Reaction
33	Types of Organic Reaction
34	Energy Consideration
35	Energy Consideration
36	Carbocation - formation and Structure
37	Stablity of Carbocation
38	Carboanion - Formation, structure and stablity
39	Free radicals - formation, structure and stability

40	Carbenes - formation, structure and stability
41	Arynes - Formation, structure and stability
42	Nitrenes - Formation, structure and stability
43	Assigning formal charges on intermediate and ionic species
44	Alkanes - Nomenclature
45	Classification of carbon atom in alkanes
46	Isomerism in alkanes
47	Physical properties of alkanes
48	Methods of formation of alkanes
49	Methods of formation of alkanes
50	Nomenclature of cycloalkanes
51	Synthesis of cycloalkanes and its derivatives
52	Photochemical (2 + 2) Cycloaddition reactions
53	Dehalogenation and pyrolysis reaction
54	Baeyer's strain theory and its limitations
55	Baeyer's strain theory and its limitations
56	Theory of strainless rings
57	Revision
58	Revision
59	Revision
60	Revision



RPS Degree College, Balana (Mahendergarh)

Syllabus Plan

2020-21(Odd Semester)

Class and Section: NM 1st

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 language and literature
4	One third of 1st poem W. SHAKESPEARE
5	Two third of the 1st poem
6	Poem complete
7	Doubt class regarding 1st poem
8	2nd poem one third J. DONNE
9	2nd poem two third
10	2nd poem complete
11	Doubt class regarding 2nd poem
12	3rd poem one third J.MILTON
13	3rd poem two third
14	3rd poem complete
15	Doubt class
16	fourth poem one third A POPE
17	fourth poem two third
18	fourth poem complete
19	Doubt class
20	5th poem one third W. BLAKE
21	5th two third
22	5th poem complete
23	Doubt class
24	6th poem one third W. Wordsworth
25	6th poem two third
26	6th poem complete
27	Doubt class
28	7th poem one third H.Vaughan
29	7th poem two third
30	7th poem Complete
31	doubt class
32	8th poem one third L.Tennyson
33	8th poem two third
34	8th poem complete

35	Doubt class
36	Introduction to Grammar concepts
37	Translation structure (Present)
38	Translation structure (Past)
39	Translation structure (Future)
40	Translation structure (outside tense)
41	Paragraph writing
42	Paragraph Important
43	common errors 1
44	common errors 2
45	common errors 3
46	common errors 4
47	common errors 5
48	common errors 6
49	common errors 7
50	Important phrasal verbs
51	Important prepositions
52	Revision
53	Revision
54	Revision
55	Revision
56	Revision
57	Revision
58	Revision
59	Revision
60	Revision



RPS Degree College, Balana (Mahendergarh)

Lesson Plan

2020-21(Odd Semester)

Class : BSc. NM 1st Semester

Subject : Algebra

Lecture	Topics
1	Introduction to Syllabus, Scheme of Exam & Learning Objectives/Outcomes
2	Test to Check the Learning Level of the Students
3	Introduction of Matrices and their types
4	Hermitian and skew Hermitian matrix
5	All results and theorem
6	Exercise questions
7	Rank of matrix
8	Theorems on elementary operations
9	Normal form of a matrix
10	Inverse of Matrix
11	Exercise questions
12	Linear Dependence and Independence
13	Exercise questions of chapter 2
14	Characteristics Equation of matrix
15	Eigen vector
16	Exercise questions
17	Cayley Hamilton Theorem
18	Problems of Cayley hamilton theorem
19	Minimal Equation
20	Applications of matrices to a system
21	Problems to solve non homogeneous system
22	Problems to solve homogeneous system
23	Orthogonal matix and related results
24	problems of orthogonal matrix
25	Unitary matrices
26	Exercise questions of chapter5
27	Linear Transformation
28	polynomial and roots of equations
29	Division algorithm
30	synthetic division method
31	Fundamental theorem od algebra
32	Relation between roots and coefficient of equation
33	Practical Problems
34	Exercise questions
35	Practical Problems of Permutation
36	Common roots of two equation

37	Transformation of equations
38	related results and theorems
39	Exercise problems
40	Biquadratic equations
41	Equation of squared difference on a cubic
42	Cardan method to solve cubic equation
43	Descartes solution of biquadratic equation
44	Exercise problems
45	Ferrari method
46	Descartes rule of signs
47	Exercise problems
48	Quadratic forms
49	Bilinear forms
50	Exercise problems
51	Method to write matrix in quadratic form
52	Linear Transformation of quadratic form
53	Exercise problems
54	Lagrange's method of diagonalization
55	Exercise problems
56	Factorable quadratic forms and related theorems
57	Practical Problems
58	Syllabus revision
59	Syllabus revision
60	Syllabus revision



RPS Degree College, Balana (Mahendergarh)

Lesson Plan

2020-21(Odd Semester)

Class and Section: BSc. N.M. 1st Sem

Subject: Calculus

Lecture	Topics
1	Limit of function
2	Limit of a function
3	Basic properties of limit
4	Continuous function
5	Properties of continuous function
6	Types of discontinuity
7	Classification of discontinuity
8	Differentiability
9	Differentiability
10	Successive differentiation
11	Leibnitz theorem
12	Leibnitz theorem problem
13	Maclaurin theorem
14	Taylor's theorem
15	Application of Taylor's theorem
16	Problems on Maclaurin and Taylor's theorem
17	Asymptotes
18	Asymptotes in cartesian co-ordinate
19	Intersection of curve and its asymptotes
20	Intersection of curve and its asymptotes in Polar coordinates
21	Curvature
22	Radius of curvature
23	Parametric curve
24	Polar curve
25	Newton's method
26	Radius of curvature for polar curve
27	Tangential polar curve
28	Centre of curvature
29	Circle curvature
30	Chord of curvature
31	Evolutes
32	Test for concavity
33	Test for convexity
34	Point of inflection
35	Problems on point of inflection

36	Multiple points
37	Cusps
38	Node
39	Conjugate point
40	Type of cusps
41	Tracing of curve in polar coordinates
42	Parametric and polar curve
43	Reduction formula
44	Rectification
45	Intrinsic equations
46	Quadrature
47	Sectorial area
48	Area bounded by closed curve
49	Volume of solid revolution
50	Surface of solid revolution
51	Theorem of Pappus
52	Theorem of Guldin
53	Area problem
54	Revision
55	Revision
56	Revision
57	Revision
58	Revision
59	Revision
60	Revision



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Lesson Plan

2020-21(Odd Semester)

Class and Section: B.Sc NM 1st Semester

Subject: Solid Geometry

Lecture	Topics
1	Introduction to Syllabus, Scheme of Exam & Learning Objectives/Outcomes
2	Test to Check the Learning Level of the Students
3	Conic Sections
4	Conic Sections
5	Length and equation of axis of conic
6	Length and equation of axis of conic
7	Length and equation of axis of conic
8	Parabola in general
9	Parabola in general
10	Equation of tangents and normal to conic
11	Equation of tangents and normal to conic
12	Equation of Directors circle
13	General Conics
14	General Conics
15	Tracing of conics
16	Tracing of conics
17	Tracing of conics
18	Tracing of conics
19	System of conics
20	System of conics
21	Confocal conics
22	Confocal conics
23	Unit Test 1
24	Sphere
25	Sphere
26	Sphere
27	Sphere
28	Tangent plane to sphere
29	Tangent plane to sphere
30	Two or more Spheres
31	Two or more Spheres
32	Co axial system of sphere
33	Co axial system of sphere
34	Problem of Unit2
35	Cylinder

36	Cylinder
37	Cylinder
38	Unit Test 2
39	The Conicoid
40	The Conicoid
41	The Conicoid
42	Enveloping Cone
43	Enveloping Cylinder
44	Diametral plane
45	Plane Section of Conicoid
46	Plane Section of Conicoid
47	Generating Lines
48	Generating Lines
49	Reduction of Second degree equation
50	Reduction of Second degree equation
51	Reduction of Second degree equation
52	Reduction of Second degree equation
53	Reduction of Second degree equation
54	Confocal Conicoid
55	Confocal Conicoid
56	Revision
57	Revision
58	Revision
59	Important questions
60	Important questions



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B. Sc. Noon Medical 1st Sem Pass Course

Subject : Mechanics (PHY-101)

Lecture	Particular
1	Introduction of unit -first, Basic concepts of classical Mechanics, Mechanics of a particle
2	Conservative and non-conservative force, derivative of F
3	Conservation theorem for a particle
4	Conservation of linear momentum, angular momentum and energy of a particle
5	Mechanic of a system of a particle, Centre of mass and equation
6	Conservation theorem of linear momentum, angular momentum for a system of a particle
7	Conservation theorem of linear momentum in terms of CM
8	Conservation theorem of energy for the system of a particle
9	K.E. of the system in terms of CM
10	Classification of Constraints, Holonomic & Non-Holonomic
11	Scleronomic & Rhenomic & their examples
12	Numericals of unit first
13	1 st class test of unit 1 st Mechanics of system of particles
14	Introduction to unit-3 rd Moment of Inertia
15	k.E. of rotation, comparison between translator & rotatory motions
16	Relation between torque & angular momentum, Work and power in rotational motion
17	Relation between torque and angular acc., work done in terms of rotational K.E.
18	Law of rotation, Comparison between translator and rotatory motion
19	Theorem of perpendicular axes
20	Theorem of parallel axes
21	Moment of inertia of thin uniform rod & rectangular lamina
22	M.O.I. of solid bar of rectangular cross-section & thin circular ring
23	M.O.I. of disc and Annular disc
24	M.O.I. of solid and hollow cylinder
25	M.O.I. of solid sphere and numericals
26	M.O.I. of spherical shell and numericals based on it
27	M.O.I. of hollow sphere and numericals
28	K.E. of rolling body and acc. Of body rolling down an inclined plane
29	2 nd class test of unit 3 rd

30	Previous year question paper solved and numericals of unit 3 rd
31	Introduction to unit 2 nd Generalised Co-ordinates
32	Degree of freedom, transformation equations
33	Generalised co-ordinates—displacement, velocity, acc., momentum, force
34	Generalised potential & advantage of generalized Co-ordinates
35	Configuration space and Hamilton's variational principle
36	Derivation of Lagrange's equation from hamilton's principle
37	Superiority of Lagrangian approach
38	Over Newtonian.
39	Rules for forming Lagranges's equation
40	Derivation of Hamiltons Principle from Newtonian equation
41	Importance of Lagrangian formulation
42	Solved numericals of unit 2 nd
43	3 rd class test of unit 2 nd
44	Numerical problem
45	Class test solution
46	Revision of unit- 1. 2,3
47	Previous years paper solved
48	Syllabus complete

Class: B.Sc Physics, Semester 1st

Subject: Electricity and Magnetism (PHY-102)

Lecture	Topics
1	Introduction to scalars and vectors (Unit I)
2	Dot product of vectors
3	Numericals of dot product
4	Cross product of vectors
5	Numericals of cross product
6	Triple vector product and its numericals
7	Scalar and vector fields
8	Differentiation of a vector
9	Gradient of a scalar and its physical significance
10	Numericals of gradient of a scalar
11	Divergence of a vector and its physical significance
12	Numericals of divergence of a vector
13	Curl of a vector and its physical significance
14	Numericals of curl of a vector
15	Line integral and its physical significance
16	Numericals of line integral
17	Surface integral and its physical significance
18	Numericals of surface integral
19	Volume integral and its physical significance

20	Numericals of volume integral
21	Gauss's divergence theorem
22	Numericals using divergence theorem
23	Stoke's theorem
24	Numericals using Stoke's theorem
25	Basic introduction to electrostatic field
26	Coulomb's law
27	Electric field
28	Properties of electric field lines
29	Derivation of electric field from potential as gradient
30	Derivation of Laplace equation
31	Derivation of Poisson equation
32	Electric flux
33	Gauss's law and its applications
34	Continue..
35	Mechanical force of charged surface
36	Energy per unit volume
37	Basic introduction to magnetostatics (Unit-II)
38	Magnetic induction
39	Magnetic flux
40	Solenoidal nature of vector field of induction
41	Properties of magnetic field
42	Langevin's theory
43	Continue...
44	Domain theory of ferromagnetism
45	Cycle of magnetization-Hysteresis
46	Continue...
47	Basic introduction to electromagnetic theory(Unit-III)
48	Maxwell equation and their Derivations
49	Continue...
50	Displacement current
51	Vector and scalar potentials
52	Boundary conditions at interface of two different media
53	Continue...
54	Propagation of electromagnetic wave
55	Continue...
56	Poynting vector
57	Poynting theorem
58	(Revision)& discussion of previous paper (Unit I)
59	(Revision)& discussion of previous paper (Unit II)
60	(Revision)& discussion of previous paper (Unit III)