



# RPS Degree College, Balana (Mahendergarh)

## Syllabus Plan

2020-21(Odd Semester)

**Class and Section: Honors Mathematics 1st Sem**

**Subject: Chemistry**

**Name of the Faculty : Ms. Vandana**

Lecture	Topics
1	introduction of atomic structure
2	idea of de Broglie matter waves
3	de Broglie wavelength
4	Heisenberg Uncertainty Principle
5	atomic orbitals
6	Quantum numbers
7	Quantum numbers
8	radial wave function
9	angular wave function and probability distribution curve
10	radial probability distribution curve
11	shape of orbitals
12	Aufbau Principle and Pauli exclusion principle
13	Hund's rule of maximum multiplicity
14	electronic configuration of elements
15	effective nuclear charge
16	Slater rule
17	valence bond theory and its limitations
18	directional characteristics of covalent bond
19	various types of hybridization and shape of simple inorganic molecules and ions
20	continued
21	continued
22	valence shell electron pair repulsion theory
23	continued
24	continued
25	Molecular orbital theory of diatomic molecules
26	Molecular orbital theory of diatomic molecules
27	Bond strength and bond energy and percent ionic character
28	percent ionic character from electronegativity difference
29	introduction of gaseous state
30	Maxwell distribution of velocities and energy
31	calculation of root mean square velocity average velocity and most probable velocity
32	collision diameter
33	collision number and collision frequency

34	mean free path
35	deviation of real gases from Ideal behaviour
36	derivation of Wonderwall equation of state
37	Boyle temperature
38	behaviour of real gases using Wonderwall equation
39	critical temperature critical pressure and Critical volume and their determination
40	PV isotherm of real gases and continuity of States
41	isotherm of wonderballs equation and relationship between critical constants and vander Waals constants
42	critical compressibility factor
43	law of corresponding States
44	liquefaction of gases
45	introduction of liquid state
46	surface tension and viscosity
47	determination of surface tension and viscosity
48	liquid crystals
49	difference between solids liquids and liquid crystals
50	types of liquid crystal
51	applications of liquid crystals
52	applications of liquid crystal
53	localised and delocalized chemical bond and resonance effect
54	applications of resonance effect
55	stereochemistry of organic compounds
56	concept of isomerism and types of isomerism
57	optical isomerism
58	optical activity chiral and a chiral molecules with two stereogenic centres and diastereomers
59	relative and absolute configuration
60	sequence rules
61	geometric isomerism
62	curved Arrow notation and drawing electron movements with arrows half added and double headed arrows homolytic and heterolytic Bond breaking
63	types of reagents and types of organic reactions
64	reactive intermediates
65	reactive intermediates
66	nomenclature of branched and unbranched alkanes and the alkyl group and classification of carbon atoms in alkanes
67	isomerism in alkanes and methods of formation
68	cycloalkanes their nomenclature and synthesis of cycloalkanes
69	dehalogenation of dihalides



# RPS Degree College, Balana (Mahendergarh)

## Lesson Plan

2020-21(Odd Semester)

**Class and Section: HM 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

Approved by **DGHE** (Govt. of Haryana) & Affiliated to **I.G. University**, Meerpur, Rewari

## Lesson plan

Name of Teacher: Dr. Surjeet Chahal &amp; Mr. Sachin

Class: B.Sc.(Hons.) Maths & Chemistry, 1<sup>st</sup> 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



Approved by **DGHE** (Govt. of Haryana) & Affiliated to **I.G. University**, Meerpur, Rewari

Day37	Magnetic Induction and magnetic flux
Day38	Solenoidal nature of Vector field of induction
Day39	Properties of B (i) $\nabla \cdot B = 0$ (ii) $\nabla \times B = \mu_0 J$
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
Day47	Revision

# RPS Degree College, Balana (Mahendergarh)

Plan

2020-21(Odd Semester)

Class and Section: HM 1st Sem

Subject: Fundamental of computer & MS- Office(Code:BHM116)

Name of the Faculty : Poonam Kumari

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 computer and its characteristics
4	Human bein vs computer
5	Types of computer
6	Classification of computer
7	History of computer
8	History of computer
9	Components of computer
10	Input Unit
11	Input Unit
12	Output Unit
13	Storage Devices: Magentic Disk
14	Magantic tape
15	Optical disk
16	Introduction of memory and its type
17	Concepts of vitual memory and cache memory
18	Types of software: System software
19	Application software and itsv function
20	Time sharing and multiprocessing operating system
21	Application of computers
22	Introduction of windows and its type
23	Window Explorer
24	Application of window
25	Dialog box widow
26	Important Icons presented on desktop
27	Managing files and folders
28	Basic Accessories
29	Control panel
30	Adding printer
31	Introduction of power point
32	Power point slide creation
33	Slide show
34	Adding graphics
35	Formating tools

36	Animation and design
37	Printing power point slides
38	Introduction of MS-Word
39	Components of ms-word
40	Standard toolbar
41	wordwrap
42	Text formating
43	formating paragraphs
44	Indent and Tabs
45	Appling animation to text
46	Appling effects to text
47	Table and chart
48	Data Interpretation
49	Introduction of Ms-Excel
50	Components of Ms-Excel
51	Working with toolbars
52	Formating tools
53	Formulas data management
54	Graphs
55	Table and chart
56	Macros
57	Functions
58	Pivot table
59	Revision
60	Revision





# RPS Degree College, Balana (Mahendergarh)

Plan

2020-21(Odd Semester)

**Class and Section: B.Sc Hons Math 1st Sem**

**Subject: Discrete Mathematics-I**

**Name of the Faculty : Mr. Hansraj**

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	Examples
5	Sets
6	principle of inclusion and exclusion
7	Examples
8	relations
9	Examples
10	equivalence relations
11	Examples
12	partition
13	Examples
14	denumerable sets
15	denumerable sets
16	Examples
17	denumerable sets
18	denumerable sets
19	Examples
20	partial order relations
21	Mathematical Induction
22	Examples
23	Pigeon Hole Principle
24	Examples
25	Propositions,
26	Examples
27	logical operations
28	Examples
29	logical operations
30	Examples
31	conditional propositions
32	Examples
33	Tautologies
34	contradictions

35	Examples
36	Quantifier
37	Examples
38	Quantifier
39	Examples
40	Predicates
41	Examples
42	Validity
43	Permutations
44	Examples
45	combinations
46	Examples
47	combinations
48	probability
49	Examples
50	basic theory of Groups and Rings
51	Examples
52	Discrete numeric functions
53	Examples
54	Generating functions
55	Examples
56	recurrence relations
57	Examples
58	recurrence relations with constant coefficients
59	Homogeneous solution
60	Examples
61	particular relations
62	Examples
63	total rotation
64	Examples
65	Solution of recurrence relation by the method of generating functions.
66	Examples



# RPS Degree College, Balana (Mahendergarh)

## Syllabus Plan

2020-21(Odd Semester)

**Class and Section: HM 1st Sem**

**Subject: Algebra (BM-111)**

**Name of the Faculty : Mr.Yash Giri**

Lecture	Topics
1	Introduction to Syllabus, Scheme of Exam & Learning Objectives/Outcomes
2	Test to Check the Learning Level of the Students
3	Theory of matrices
4	Different types of matrices
5	properties of matrices
6	symmetric matrix
7	skew symmetric matrix
8	properties of symmetric matrix
9	properties of skew symmetric matrix
10	question based on symmetric matrix
11	question based on skew symmetric matrix
12	hermition matrix
13	Skew hermition matrix
14	properties of hermition matrix
15	properties of skew hermition matrix
16	Question based on hermition matrix
17	Question based on skew hermition matrix
18	Elementary operation on matrices
19	Question based on elementary row operation
20	Question based on elementary column operation
21	Rank of a matrix
22	Question based on rank of matrix
23	properties of rank of matrix
24	Inverse of a matrix
25	Linear dependence
26	linear independence
27	properties of LD
28	Properties of LI
29	Question based on LD
30	Question based on LI
31	Row rank
32	properties of row rank
33	Question based on row rank
34	Column rank

35	properties of column rank
36	Question based on column rank
37	Eigen values
38	Eigen vector
39	properties of Eigen values and Eigen vector
40	characteristic equation of a matrix
41	minimal polynomial
42	caley hamilton theorem
43	Inverse of matrix by caley hamilton
44	Application of matrices
45	system of linear equations
46	Homogeneous system
47	Non homogeneous system
48	Theorem on consistency
49	Unitary matrix
50	Orthogonal matrix
51	Bilinear
52	Quadratic forms
53	Relation between roots and coefficient
54	Solution of polynomial equations having condition on roots
55	common roots and multiple roots
56	Transformation equations
57	Nature of roots of an equation
58	Descarte rule of signs
59	Solution of cubic equation
60	Bi quadratic equation and their solutions



# RPS Degree College, Balana (Mahendergarh)

## Syllabus Plan

2020-21(Odd Semester)

**Class and Section: HM First Semester**

**Subject: Solid Geometry**

**Name of the Faculty : Dr. Dushyant**

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	do
5	Length and equation of axis of conic
6	do
7	do
8	Parabola in general
9	do
10	Equation of tangents and normal to conic
11	do
12	Equation of Directors circle
13	General Conics
14	do
15	Tracing of conics
16	do
17	do
18	do
19	System of conics
20	do
21	Confocal conics
22	do
23	Unit Test 1
24	Sphere
25	do
26	do
27	do
28	Tangent plane to sphere
29	do
30	Two or more Spheres
31	do
32	Co axial system of sphere
33	do
34	Problem of Unit2

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



# RPS Degree College, Balana (Mahendergarh)

## Syllabus Plan

2020-21(Odd Semester)

**Class and Section:** B.Sc.(HM) 1st Sem.

**Subject:** Calculus(Code: BHM112)

**Name of the Faculty :** Dr. Garima Tomar

Lecture	Topics
1	Introduction to Syllabus, Scheme of Exam &
2	Test to Check the Learning Level of the Students
3	Definition of the limit of a function
4	Basic properties of limits
5	Basic properties of limits and examples
6	Continuous functions
7	Continuous functions and examples
8	Continuous functions and examples
9	Classification of discontinuities
10	Differentiability
11	Differentiability
12	Examples on Continuity and differentiability
13	Examples on Continuity and differentiability
14	Successive differentiation
15	Successive differentiation
16	Leibnitz theorem
17	Leibnitz theorem and examples on it
18	Maclaurin and Taylor series expansions
19	Asymptotes
20	Asymptotes in Cartesian coordinates
21	Asymptotes in Cartesian coordinates
22	Intersection of curve and its asymptotes
23	Intersection of curve and its asymptotes
24	Asymptotes in polar coordinates
25	Asymptotes in polar coordinates
26	Questions on Asymptotes
27	Questions on Asymptotes
28	Questions on Asymptotes
29	Curvature
30	Radius of curvature for Cartesian curves
31	Radius of curvature for Cartesian curves and intrinsic form
32	Radius of curvature for Polar curves
33	Radius of curvature for Pedal curves
34	Radius of curvature for parametric curves
35	Tangential polar equations
36	Newton's method
37	Centre of curvature. Circle of curvature. Chord of curvature
38	Evolutes
39	Tests for concavity and convexity
40	Tests for concavity and convexity
41	Points of inflexion
42	Multiple points. Cusps, nodes & conjugate points

43	Multiple points. Cusps, nodes & conjugate points
44	Multiple points. Cusps, nodes & conjugate points
45	Type of cusps
46	Tracing of curves in Cartesian
47	Tracing of curves in Cartesian
48	Tracing of curves in Cartesian
49	Parametric and polar co-ordinates
50	Parametric and polar co-ordinates
51	Reduction formulae
52	Reduction formulae
53	Reduction formulae
54	Reduction formulae
55	Rectification
56	Rectification
57	Intrinsic equations of curve
58	Intrinsic equations of curve
59	Quadrature (area)Sectorial area
60	Quadrature (area)Sectorial area
61	Area bounded by closed curves
62	Area bounded by closed curves
63	Volumes and surfaces of solids of revolution
64	Volumes and surfaces of solids of revolution
65	Volumes and surfaces of solids of revolution
66	Volumes and surfaces of solids of revolution
67	Theorems of Pappu's and Guilden
68	Theorems of Pappu's and Guilden
69	Questions on above topics
70	Questions on above topics





## RPS Degree College, Balana (Mahendergarh)

### Lesson Plan

Class and Section: B.Sc(H.M.) 1st Sem.

Subject: Descriptive Statistics , BHM-115

Name of the Faculty : Mr. Satyender Singh

Lecture	Topics
1	Introduction to Syllabus, Scheme of Exam & Learning Objectives/Outcomes
2	Introduction of Statistics
3	Introduction to Measurement scales
4	Nominal and ordinal scale data
5	Interval and ratio scale data
6	Classification of data
7	Primary and secondary data
8	Univariate, bivariate and multivariate data
9	Qualitative and quantitative data
10	Inferential and Descriptive Statistics
11	Data Collection methods
12	Concept of data organization
13	Importance of tabulation of data
14	Presentation of Data
15	Histograms and Bar graph
16	Frequency polygon
17	Frequency curve
18	More than and less than type ogives
19	Stem and Leaf plot ,Box Plots
20	Numericals
21	Measures of central tendency and Location
22	Mean, Geometric mean
23	Mode, Median
24	Harmonic Mean and partition values
25	Measures of dispersion
26	Absolute and relative measures of dispersion
27	Range and quartile deviation
28	Mean deviation
29	Numericals
30	Standard deviation
31	Coefficient of variation
32	Numericals
33	Moments
34	Skewness and Kurtosis
35	Moments about mean
36	Moments about any point
37	Relationship between raw and central moments
38	Sheppard's correction for moments
39	Charier's checks
40	Concepts of skewness and kurtosis in terms of moments
41	Numericals
42	Numericals continued
43	Theory of attributes
44	Symbolic notation
45	dichotomy of data
46	class frequencies
47	Order of class frequencies
48	Consistency of data
49	Independence and association of attributes
50	Numericals
51	Concept of skewness and kurtosis
52	Concept of Correlation
53	Bivariate correlation
54	Numericals
55	Scatter diagram
56	Numericals
57	Karl Pearson Correlation coefficient
58	Numericals
59	Numericals continued
60	Concept of rank correlation
61	Numericals
62	Section -4 Revision
63	Problems session
64	Presentation lecture
65	Section 3 Revision
66	Problems session
67	Presentation Lecture
68	Isometry
69	Numericals from section- 4
70	Numericals from section - 3
71	Section 2 Revision
72	Problems Discussion
73	Revision Continued
74	Presentation Lecture
75	Section 1 Discussion
76	Problems Discussion
77	Revision Continued
78	Presentation Lecture
79	Subject Extensions
80	Future Scope of the Subject Matter