

**K. L. MEHTA DAYANAND COLLEGE FOR WOMEN**  
**Lesson Plan for the Session 2024-25 (Even Semester)**

<b>Name of the Assistant Professor: Dr. Meenu Dua</b> <b>Class And Section: B.Sc Lifescience &amp; Physical</b> <b>Science 6<sup>th</sup> Semester</b> <b>Subject: Physical Chemistry(602)</b>	
<b>Week</b>	<b>Topics to be Covered</b>
<b>Week 1</b>	Introduction to Electronic Spectrum; Molecular Orbitals – Bonding and Antibonding
<b>Week 2</b>	Potential Energy Curves, Selection Rules, Franck-Condon Principle
<b>Week 3</b>	Sigma and Pi Molecular Orbitals; Energy Levels and Transitions
<b>Week 4</b>	Revision of Spectroscopy-III and Practice Questions
<b>Week 5</b>	Introduction to Photochemistry; Thermal vs. Photochemical Processes
<b>Week 6</b>	Grothuss-Draper and Stark-Einstein Laws; Quantum Yield
<b>Week 7</b>	Jablonski Diagram; Fluorescence and Phosphorescence
<b>Week 8</b>	Internal Conversion, Intersystem Crossing; Photosensitized Reactions
<b>Week 9</b>	Energy Transfer Processes; Revision of Photochemistry
<b>Week 10</b>	Ideal and Non-Ideal Solutions; Concentration Expressions, Activity
<b>Week 11</b>	Colligative Properties – Raoult’s Law, Relative Lowering of Vapor Pressure
<b>Week 12</b>	<b>MOCK TEST:</b> Covering All Units
<b>Week 13</b>	Molecular Weight from Osmotic Pressure; Boiling Point Elevation & Freezing Point Depression
<b>Week 14</b>	Thermodynamic Derivations; Experimental Methods for Colligative Properties
<b>Week 15</b>	<b>REVISION:</b> Full Syllabus Recap and Doubt Clearing

<b>Name of the Assistant Professor: Dr. Beena Sethi</b> <b>Class And Section: B.Sc. Lifescience &amp; Physical</b> <b>Science VI Semester : VI</b> <b>Subject: Inorganic Chemistry</b>	
<b>Week 1</b>	Organometallic Chemistry(basics), Definition, Nomenclature, Classification of organometallic compounds
<b>Week 2</b>	Preparation, Properties and Bonding of Alkyls of Li, Al
<b>Week 3</b>	Preparation, Properties and Bonding of Alkyls of Hg, Sn
<b>Week 4</b>	A brief account of metal-ethylene complexes
<b>Week 5</b>	Mononuclear carbonyls and the nature of bonding in metal carbonyls TEST & ASSIGNMENT
<b>Week 6</b>	Arrhenius concept of acid and base, Bronsted- lowry concept of acid and base, the Lux Flood concept of acid and base

Week 7	Solvent system concept of acid and base and lewis concept of acid and base
Week 8	Relative strength of acid and base, concept of hard and soft acids and bases
Week 9	Symbiosis, electronegativity and hardness and softness TEST & ASSIGNMENT
Week 10	Essentials and trace elements in biological processes, Nitrogen fixation
Week 11	Metalloporphyrins with special reference to haemoglobin and myoglobin, Biological role of alkali and alkaline earth metal ions with special reference to calcium
Week 12	<b>MOCK TEST</b>
Week 13	Preparation, properties, structures and uses of silicones
Week 14	Preparation, properties, structures and uses of Phosphazenes TEST & ASSIGNMENT
Week 15	<b>REVISION</b>

<b>Name of the Assistant Professor: Dr. Shveta Arya</b> <b>Class And Section: B.Sc.(Medical) 6th sem</b> <b>Subject: Zoology (Developmental Biology) (6.2)</b>	
Week 1	Spermatogenesis : Site & stages of spermatogenesis Stages of spermatogenesis& Generalized structure of mammalian sperm Stages of Oogenesis
Week 2	Vitellogenesis & Generalized structure of mammalian ovum Hormonal Control of Spermatogenesis & Oogenesis Test of Historical perspectives, aims and scope of developmental biology
Week 3	Types & significance of Fertilization Process of Fertilization
Week 4	Parthenogenesis :Types & Significance Process of blastulation in invertebrates Process of blastulation in vertebrates
Week 5	Process of blastulation in invertebrates Process of blastulation in vertebrates
Week 6	Fate-map construction in frog Fate-map construction in chick
Week 7	Gastrulation in invertebrates <b>Class Test</b> of Fertilization and different types of eggs
Week 8	<b>Assignment</b> Gastrulation in vertebrates
Week 9	Gastrulation & formation of three germinal layers in frog Gastrulation & formation of three germinal layers in chick
Week 10	Extra embryonic membranes: structure & significance in birds Extra embryonic membranes: structure & significance in mammals
Week 11	Elementary knowledge of primary organizers <b>Class Test</b>
Week 12	<b>MOCK TEST</b>

Week 13	Concepts of competence, determination and differentiation
Week 14	Concept of regeneration
Week 15	<b>REVISION</b>

<b>Name of the Assistant Professor: Dr Shveta Arya</b> <b>Class And Section: B.Sc. (Medical) 6th semester</b> <b>Subject: Entomology</b>	
Week 1	Introduction to the syllabus and discussion about books, Study of important insect pests, Study of sugarcane pest (sugarcane leaf - hoper)
Week 2	Study of sugarcane leaf-hopper systematic position, habits and nature of damage caused, Study of life cycle and control of pyrilla perpusilla
Week 3	Study of sugarcane whitefly pest, Study of sugarcane top borer pest <b>Assignment</b>
Week 4	Study of sugarcane root borer, Study of Gurdaspur borer <b>Class Test</b>
Week 5	Study of Cotton grey weevil, Study of Cotton jassid, Study of wheat stem borer with its systematics position, habits, nature of damage caused and life cycle and control
Week 6	Study of Rice Hispa, Study of vegetable pest The Red pumpkin beetle With their systematic position, habits and nature of damage caused, Life cycle and control
Week 7	Study of The pumpkin fruit fly, Study of paddy pest Gandhi bug with their systematic position, habits and nature of damage caused and life cycle and control, Study of Rice grasshopper, Study of Rice stem borer
Week 8	Study of The vegetable mite, Study of Stored grain pest pulse beetle with their systematic position, habits and nature of damage caused. Life cycle and control
Week 9	Study of Rice weevil, Study of wheat weevil <b>Class Test</b>
Week 10	Study of Rust Red Flour beetles
Week 11	Study of Lesser grain borer, Study of The Hadda beetle
Week 12	<b>MOCK TEST</b>
Week 13	Study of Grain & Flour moth and integrated pest management, Study of insect control (biological control) it's history, requirement and precautions and feasibility of biological agents for control and chemical control
Week 14	Important Bird and rodent pests of agriculture & their management
Week 15	<b>REVISION</b>

<b>Name of the Assistant Professor: Ms. Renu</b> <b>Pandey Class And Section: B.Sc. Biotechnology</b> <b>2<sup>nd</sup> sem</b> <b>Subject: Basics of Microbiology (DSC03)</b>	
Week 1	History and Evolution of Microbiology, understanding of microbial growth
Week 2	Assignment, the criteria used included molecular approaches,
Week 3	Distribution and characterization of Prokaryotic and Eukaryotic cells, Morphology and cell structure.
Week 4	Assignment ,Current classification of bacteria, Major groups of microorganisms: bacteria, algae, fungi
Week 5	algae, fungi, Nutritional categories of micro-organisms, Microbial growth: Growth curve, <b>Class Test</b>
Week 6	Microbial Metabolism: Metabolic pathways, Microbial Metabolism: amphi-catabolic, Nutritional requirements, <b>Assignment</b>
Week 7	Control of Microorganisms: By Physical Agents, Preservation of Microorganisms, microbial growth, measurements of growth factors,
Week 8	Spore and fram staining negative staining,
Week 9	Membrane transport, model membrane, viral reproduction, cell cycle system,
Week 10	<b>Class Test</b> , Cell division, Apoptosis cell death programme
Week 11	Component of cell cycle and cell cycle regulation
Week 12	<b>MOCK TEST</b>
Week 13	Microbial taxonomhy, Different criteria of classification, Classification of Bacteria
Week 14	Contribution of Scientist in Microbiology, Louis Pasteur, Robert Koch, Edward Jenner
Week 15	<b>REVISION</b>

<b>Name of the Assistant Professor: MS. Renu</b> <b>Class And Section: B.Sc. Biotechnology IIIrd year</b> <b>(6<sup>th</sup>Sem)</b> <b>Subject: IPR Entrepreneurship, Bioethics &amp; Biosafety (BT 601)</b>	
Week 1	World Trade Organization, WIPO, Trade Mark, Trade Design
Week 2	Assignment, Industrial Property Right, WTO and related intellectual property provisions,
Week 3	Patenting in Biotechnology, Entrepreneurship, Introduction, selection of a product, <b>Assignment</b>
Week 4	Release of product, Basic regulation of excise, Demand for a given product
Week 5	<b>Class Test</b> , Feasibility of its production under constraints of raw material, Energy input and financial situation,

Week 6	Export potential, Bioethics-necessity, Bioethics- paradigms, Health hazards concerning biotechnology,
Week 7	Bioethical Issues, Introduction to contaminant levels, Biosafety Levels,
Week 8	Introduction to GLP, Biosafety Levels,
Week 9	Energy constraints, Introduction to GMP
Week 10	Ethical Issues molecular biology and genetic engineering issues
Week 11	Physical constraints, Biosafety level issues, <b>Class Test</b>
Week 12	<b>MOCK TEST</b>
Week 13	Good laboratory practices and Good Manufacturing Practices
Week 14	Legal protection in research, , ethical and depository considerations
Week 15	<b>REVISION</b>

<b>Name of the Assistant Professor: Dr. Nupur</b>	
<b>Class And Section: B.Sc. 6th SEMESTER</b>	
<b>Subject: DYNAMICS</b>	
Week 1	Syllabus and examination scheme discussed, Preliminary concepts
Week 2	Simple Harmonic Motion (SHM) - Articles, Examples, and Exercises
Week 3	SHM continued - Exercises and Doubt sessions, Elastic String - Articles
Week 4	Elastic String - Examples and Exercises, Test on SHM and Elastic String
Week 5	Newton's Laws of Motion - Articles and Examples (Ex 5.1, 5.2)
Week 6	Newton's Laws of Motion - Exercises and Doubts, Work Done - Articles and Examples (Ex 6.1)
Week 7	Work Done, Power, and Energy - Articles, Examples, and Exercises (Ex 6.2, 6.3)
Week 8	Test on Work, Power, and Energy, Projectile Motion - Articles and Examples (Ex 8.1, 8.2)
Week 9	Projectile Motion - Exercises, Doubts, and Examples (Ex 8.3, 8.4)
Week 10	Central Orbits - Articles and Examples (Ch 9: Ex 9.1, 9.2), Test on Ch 9
Week 11	Kepler's Laws of Planetary Motion - Articles and Examples (Ch 10), Exercises and Doubts
Week 12	Motion along a Plane Curve - Articles and Examples (Ch 1), Relative Motion - Articles and Examples (Ch 2)
Week 13	Motion of a Particle in Three Dimensions - Articles and Exercises (Ch 11), Motion on Smooth and Rough Plane Curves - Articles and Exercises (Ch 7)
Week 14	Mock Tests
Week 15	Doubts and Revisions of Ch 1 to 11

<b>Name of the Assistant Professor: Ms. VANDANA KUMARI</b> <b>Class And Section: M.Sc. Mathematics</b> <b>Subject: Python Programming</b>	
<b>Week</b>	<b>Topics Covered</b>
<b>Week 1</b>	Introduction to Python: Overview of Python, Python Interpreter, Python Shell. Writing and executing Python scripts.
<b>Week 2</b>	Data Types and Variables: Numeric types, Strings, Lists, Tuples, Sets, Dictionaries. Basic Operators and Expressions.
<b>Week 3</b>	Control Flow Statements: If-else, Loops (for, while), Break, Continue, Pass statements.
<b>Week 4</b>	Functions: Defining and calling functions, Arguments, Recursion, Keyword arguments. Built-in functions and Lambda functions.
<b>Week 5</b>	File Handling: Reading and writing files, Opening and closing files. File modes and operations.
<b>Week 6</b>	Exception Handling: Try-except blocks, Handling multiple exceptions. Debugging and Error Handling techniques.
<b>Week 7</b>	Python Graphics: Implementing visualization using graphical objects like point, line, histogram, sine and cosine curves.
<b>Week 8</b>	Strings and Lists: String manipulation, String functions, List operations. List comprehension and advanced list operations.
<b>Week 9</b>	Tuples, Dictionaries, and Sets: Creating and manipulating collections. Practical applications of dictionaries and sets.
<b>Week 10</b>	Advanced Function Concepts: Higher-order functions, Map, Filter, Reduce. Working with modules and packages.
<b>Week 11</b>	Practice Programs: Solving problems on number operations, string manipulations. Writing efficient Python code.
<b>Week 12</b>	<b>MOCK TEST:</b> Covering all topics taught so far.
<b>Week 13</b>	Implementing Python programs for file handling, exception handling, and data visualization.
<b>Week 14</b>	Hands-on session for problem-solving.
<b>Week 15</b>	<b>REVISION:</b> Discussion of key concepts, doubts, and final preparation for exams.

<b>Name of Assistant Professor: Ms. Jyoti</b> <b>Class: MDC Mathematics) 2nd Sem</b> <b>Subject: Mathematical Reasoning</b>	
<b>Week</b>	<b>Topics Covered</b>
<b>Week 1</b>	Introduction to Mathematical Reasoning Course Overview, Logical Thinking, Analogy, Classification

<b>Week 2</b>	Series Completion & Coding-Decoding Number and Letter Series, Coding-Decoding Techniques
<b>Week 3</b>	Blood Relation & Puzzle Test Family Tree, Relationship-based Questions, Puzzle Solving
<b>Week 4</b>	Sequential Output Tracing & Logical Venn Diagrams
<b>Week 5</b>	Alphabet Test & Number Ranking Alphabet Order, Ranking and Time Sequence Problems
<b>Week 6</b>	Mathematical Operations & Logical Sequences Arithmetic Operations, Logical Sequences, Word-based Puzzles
<b>Week 7</b>	Data Interpretation (Tabulation & Graphs) Data Representation, Tables, Bar Graphs, Line Graphs
<b>Week 8</b>	Pie Charts & Venn Diagrams Understanding Pie Charts, Complex Venn Diagram Applications
<b>Week 9</b>	Analytical Reasoning & Mirror Images Concept of Analytical Reasoning, Mirror Image Problems
<b>Week 10</b>	Problem-Solving Strategies Mixed Topic Practice, Time Management
<b>Week 11</b>	Advanced Logical Reasoning Higher-Level Logical and Analytical Reasoning Problems, Past Year Questions
<b>Week 12</b>	<b>Mock Test</b>
<b>Week 13</b>	<b>Doubt Clearing &amp; Review Sessions</b> Addressing Common Mistakes, Topic-wise Problem Solving
<b>Week 14</b>	<b>Exam Preparation Strategies</b> Revision of Key Concepts, Solving Sample Papers
<b>Week 15</b>	<b>Final Revision</b> Quick Recap of Important Topics, Last-Minute Practice

<b>Name of the Assistant Professor:Ms. Reeta Kumari</b> <b>Class And Section: B.Sc.(Physical Science) 2nd sem</b> <b>Subject: Electricity and magnetism(Major Physics)</b>	
<b>Week 1</b>	Introduction about syllabus, electric field and electric potential: scalars and vectors, dot and cross product, triple vector product, scalar and vector fields.
<b>Week 2</b>	Differentiation of vector, Gradient of a scalar and its physical signification, integration of vector, Gauss Divergence theorem and stock's theorem.
<b>Week 3</b>	Derivation of field E from potential as gradient, Laplace and Poisson equations. Electric flux. Gauss's law
<b>Week 4</b>	Application of gauss law, mechanical force of charged surface, energy per unit volume. test
<b>Week 5</b>	Assignment. Biot-Savart's law and its applications. Ampere's circuital law and its application. Properties of B , Vector potential.
<b>Week 6</b>	Force on a dipole in an external field, electric current in an atom, electron spin and magnetic moment.

Week 7	Magnetic materials. Various magnetic terms. Electronic theory of diamagnetism, Paramagnetism, domain theory of ferromagnetism, B-H loop and energy loss
Week 8	Test, Faraday's law of induction and Lenz's law, self-inductance, mutual inductance energy stored in magnetic field
Week 9	Maxwell equations and their derivation, displacement current. Vector and scalar potentials, boundary conditions at interface between different media, Poynting vector and theorem.
Week 10	Electric current and current density, Ohm's law growth and decay of current in LC and LR circuits
Week 11	Growth and decay of current in LCR circuit. Resonance circuit
Week 12	<b>MOCK TEST</b>
Week 13	Analysis of RL, RC and LCR circuits, test
Week 14	Series and parallel resonance circuits
Week 15	<b>REVISION</b>

<b>Name of the Assistant Professor: Dr. Annu Kalra</b> <b>Class And Section: M.Sc (F) Chemistry</b> <b>Subject: Inorganic Special-IV (Organotransition metal Chemistry), 17CHE24GA1</b>	
Week 1	Introduction and Classification of organometallic compounds, Covalent organometallic compounds, Ionic organometallic compounds, Electron deficient organometallic compounds, Cluster organometallic compounds, Alkyls and Aryls of Transition Metals and their types
Week 2	Alkyls and Aryls of Transition Metals, routes of synthesis, stability and decomposition pathways, organo copper in organic synthesis
Week 3	Transition metal $\pi$ -complexes with alkenes, Transition metal $\pi$ -complexes with alkynes, Transition metal $\pi$ -complexes with allyls
Week 4	Transition metal $\pi$ -complexes with allyls, Transition metal $\pi$ -complexes with dieneys (metallocenes), Preparation of Transition metal $\pi$ -complexes
Week 5	Properties of Transition metal $\pi$ -complexes, Nature of bonding and structural features, Important reactions related to nucleophilic attack on ligands
Week 6	Important reactions related to organic synthesis, Introduction to Transition metal-carbene complexes: Fischer type and Schrock type carbene complexes, Synthesis of Fischer type carbene complexes, Reactions of Fischer type carbene complexes, Structure and Bonding of Fischer type carbene complexes
Week 7	Synthesis of Schrock type carbene complexes, Reactions of Schrock type carbene complexes, Structure and Bonding of Schrock type carbene complexes, Transition metal-carbyne complexes and their synthesis
Week 8	Transition metal-carbyne complexes and their synthesis, Transition metal-carbyne complexes and their reactions, Transition metal-carbyne complexes: structural features

Week 9	Fluxionality & dynamic equilibria in compounds such as acyclic alkenes, Fluxionality & dynamic equilibria in compounds such as $\sigma$ -bonded alkenes, Fluxionality & dynamic equilibria in compounds such as $\pi$ -bonded cyclic alkenes
Week 10	Rotation of ligands on metals, Ligand scrambling on metals, Zeigler-Natta polymerization ; homogeneous catalytic hydrogenation
Week 11	Alkene hydrogenation-Wilkinson Catalyst, Oxidation of olefins-Wacker's process, Hydroformylation of olefins – the oxo process
Week 12	<b>MOCK TEST</b>
Week 13	Revision of Unit 1 and 2
Week 14	Revision of Unit 3 and 4
Week 15	<b>Revision</b> (Full syllabus)

<b>Name of the Assistant Professor: Dr. Annu Kalra</b> <b>Class And Section: B.Sc Physical Sciences/Life Sciences</b> <b>Subject: Skill Enhancement Course (Fuel Chemistry), 24CHE402SE01</b>	
Week 1	Solid Fuels Coal- origin, composition, calorific value and classification
Week 2	Characteristics and distribution of Indian Coal, storage and spontaneous combustion of coal, coal washing and blending
Week 3	Petrographic constituents of coal, carbonization of coal, manufacture and properties of metallurgical coke and recovery of by-products
Week 4	Liquid Fuels Origin and composition of crude oil, crude oil distillation
Week 5	Special reference to distillation products- gasoline, kerosene and diesel oil, cracking and reforming
Week 6	Coal tar distillation products, shale oil
Week 7	Gaseous Fuels Natural gas, coal gas, coke oven and blast furnace gas
Week 8	Manufacture of water gas and producer gas, carbureted water gas
Week 9	Synthetic fuels: hydrogenation of coal, Fischer Tropsch synthesis
Week 10	Nuclear Fuels Introduction to nuclear fuels and nuclear reactors, moderators and structural materials, introduction to renewable energy sources
Week 11	Combustion: combustion of solid fuels, calculation of volume and weight of air necessary for combustion of fuels, gas analysis

Week 12	<b>MOCK TEST</b>
Week 13	Revision of Unit 1 and 2
Week 14	Revision of Unit 3 and 4
Week 15	<b>REVISION</b>

<b>Name of the Assistant Professor: Ms. Reeta Kumari</b> <b>Class And Section: B.Sc.(Non-Med.) 6th semester Subject: Atomic, Molecular And Laser Physics</b>	
Week 1	Introduction about syllabus, Vector atom model, quantum numbers associated with vector atom model, penetrating and non-penetrating orbits.
Week 2	Spectral lines in different series off alkali spectra, assignment and test
Week 3	Spin orbit interaction and doublet term separation, LS or Russel-Saunders Coupling.
Week 4	JJ coupling, Interaction energy for LS and JJ coupling
Week 5	Zeeman effect(normal and anomalous), Zeeman pattern of D1 and D2 lines in Na-atom
Week 6	Paschen- back effect of single valance electron system. Weak field Stark Effect of Hydrogen atom. test
Week 7	Discrete set of electronic energies of molecules. Quantization of vibrational and rotational energies.
Week 8	Raman effect (Stoke's and anti Stoke's lines. Features of laser: directionality.
Week 9	Features of laser: High intensity, high degree of coherence, Einstein's coefficients and possibility of amplification.
Week 10	Momentum transfer, life time of level, kinetics of optical absorption.
Week 11	Threshold condition for laser emission, laser pumping.
Week 12	<b>MOCK TEST</b>
Week 13	He-Ne laser and Ruby laser(principle, construction and working), test
Week 14	Application of laser in the field of medicine and industry.
Week 15	<b>REVISION</b>

<b>Name of the Assistant Professor: Dr. Sonam Ahuja</b> <b>Class And Section: B.Sc( Physical Science) Sem</b> <b>6th Subject: Linear Algebra</b>	
<b>Week 1</b>	Unit1: vector Spaces , Subspaces , Sun of Subspaces, Linear Span, Linear independent and dependent subsets of a vector spaces
<b>Week 2</b>	Finitely generated vector space, Existence theorem for basis of a finitely generated vector space, Finite dimensional vector spaces
<b>Week 3</b>	Invariance of the number of elements of basis sets, Dimensions Quotient space and it's dimension
<b>Week 4</b>	Unit2: Homomorphism & isomorphism of vector spaces linear transformations and linear forms on vector spaces, vector space of all the linear transformations
<b>Week 5</b>	Dual spaces, Bidual spaces annihilator of subspaces of finite dimensional vector spaces
<b>Week 6</b>	Null Space , Range space of a linear transformation, Rank & Nullity Theorem.
<b>Week 7</b>	Applications of unit 1 & unit 2 Doubt Sessions of both units Test of both units
<b>Week 8</b>	Unit 3: Algebra of Linear transformation , minimal polynomial of linear transformation, singular and non-singularly transformations
<b>Week 9</b>	Matrix of a linear transformation, Change of basis, Eigenvalues & Eugene vectors of Linear Transformations.
<b>Week 10</b>	Applications of unit 3 Doubts & Test of unit 3
<b>Week 11</b>	Unit 4: nner product spaces, Cauchy-Schwarz inequality, orthogonal vectors, orthogonal complements, orthogonal sets and Basis
<b>Week 12</b>	<b>MOCK TEST</b>
<b>Week 13</b>	Bessel's inequality for finite dimensional vector spaces, Gram-Schmidt orthogonalization process Adjoint of a linear transformation and it's properties, unitary linear transformations.
<b>Week 14</b>	Assignments & Test of unit 3 , unit 4
<b>Week 15</b>	<b>REVISION</b>

**Name of the Assistant Professor: Dr. Sonam Ahuja**  
**Class and Section: M.Sc. Mathematics, Semester II**  
**Subject: Theory of Field Extensions**

<b>Week</b>	<b>Topics to be Covered</b>
<b>Week 1</b>	Introduction to Field Extensions: Definitions and elementary properties; Simple Extensions: Algebraic and transcendental extensions
<b>Week 2</b>	Factorization of polynomials in extensions; Minimal polynomials and their properties
<b>Week 3</b>	Splitting fields and their existence; Algebraically closed fields
<b>Week 4</b>	Separable and inseparable extensions; Perfect fields
<b>Week 5</b>	Introduction to Galois Theory; Galois extensions and examples

Week 6	Automorphism groups of fields; The fundamental theorem of Galois Theory
Week 7	Fixed fields and the connection with field extensions; Monomorphisms and their linear independence
Week 8	Normal extensions and their characterizations; Cyclotomic extensions
Week 9	Applications of Galois Theory in solving polynomials; Radical solutions of polynomials
Week 10	Solvability of polynomial equations using radicals; Fundamental theorem of algebra and its proof using field extensions
Week 11	Constructible numbers and classical Greek problems; Examples and problem-solving
Week 12	<b>MOCK TEST</b> covering all sections
Week 13	Review of key concepts; Discussion on advanced problems and applications
Week 14	Advanced problem-solving sessions; Additional applications of field extensions
Week 15	<b>REVISION</b> and doubt-clearing session

<b>Name of the Assistant Professor : Ms.Shivani Gandhi</b> <b>Class : B.sc.2nd yr.(4th Sem)</b> <b>Subject : programming in C and Numerical Method</b>	
Week 1	Programmers model of a computer, algorithms, flow charts, data type, operators and expressions , input /output functions.
Week 2	Test and Assignment, decision statements, logical and conditioner statements, implementation of loops
Week 3	Switch statement and case control structures. Functions, Proprocessors and Arrays.
Week 4	Character data type, standard string handling functions, arithmetic operations on characters, test and assignment.
Week 5	Definition of structures, using structures, use of structures in array and Arrays in structures
Week 6	Pointers pointers data type, pointers and Arrays, pointers and functions.
Week 7	Solution of algebraic and Transcendental equations, bisection method, test and assignment.
Week 8	Application of Boolean Algebra to switching theory (using AND,ORand NOTgates ) The Karnaugh method .
Week 9	Regula- falsi method, secant method, assignment
Week 10	Newton rephson's method, Newton's iterative method for finding pth root of a number, order of convergence of above methods
Week 11	Simultaneous linear algebraic equations: gauss elimination method, Gauss Jordan method
Week 12	Mock Test

Week 13	Triangularization method(LU decomposition method) , crout's method, Choleski decomposition method,
Week 14	Iterative method, jacobi's method, Gauss seidel's method, Relaxation method.
Week 15	<b>Revision.</b>

<b>Name of the Assistant Professor: Ms.Jyoti</b> <b>Class And Section: B.Sc. 1st year (2nd sem)</b> <b>Subject : Elements of Mathematical Reasoning</b>	
Week 1	Analogy, Classification and Series Completion
Week 2	Coding And Decoding, Blood Relation and Puzzle Test
Week 3	Sequential Output Tracing and Logical Venn Diagram
Week 4	Test of unit -1 and Alphabet Test
Week 5	Number,Ranking and Time Sequence Test
Week 6	Mathematical Operations And Logical Sequence of Words
Week 7	Arithmetical Reasoning and Test of Unit - 2
Week 8	Data Interpretation ( Tabulation)
Week 9	Bar Graphs and Line Graphs
Week 10	Pie Chart and Test of Data Interpretation
Week 11	Venn Diagrams
Week 12	<b>MOCK TEST</b>
Week 13	Analytical Reasoning and Mirror Images
Week 14	Test of Unit - 3
Week 15	<b>REVISION</b>

<b>Name of the Assistant Professor :Ms. Sonia</b> <b>ClassAnd Section:B.Sc. Final year Subject:Real &amp; Complex Analysis</b>	
<b>Week 1</b>	Jacobians
<b>Week 2</b>	Beta & Gamma Function
<b>Week 3</b>	Gamma Function Introduction of Double & Triple integrals
<b>Week 4</b>	Double & Triple integrals, Class test & Assignment
<b>Week 5</b>	Change of order of integration in double integrals Introduction of fourier series
<b>Week 6</b>	Properties of fourier series, fourier coefficients, drichlet's conditions, parseval's s identity
<b>Week 7</b>	Fourier series for even & odd functions, half range series, change of intervals
<b>Week 8</b>	Extended complex plan, Stereographic projection of complex numbers
<b>Week 9</b>	Continuity, differentiability of complex functions, analytic function
<b>Week 10</b>	Cauchy-Riemann equations, Harmonic functions
<b>Week 11</b>	Mapping by elementary functions: Translation, Rotation , Magnification & Inversion
<b>Week 12</b>	<b>MOCK TEST</b>
<b>Week 13</b>	Conformal Mapping, Mobius transformations, fixed point
<b>Week 14</b>	Cross Ratio, Inverse points & Critical Mappings
<b>Week 15</b>	<b>REVISION</b>

<b>Name of the Assistant Professor: Ms. Sonia Class</b> <b>And Section: B.Sc. 2nd year</b> <b>Subject: Sequence &amp; Series</b>	
<b>Week 1</b>	Topology of real numbers
<b>Week 2</b>	Topology of real numbers & introduction of sequences

Week 3	Cauchy's first & second theorem ,Cauchy's sequence
Week 4	Cauchy's general principal of convergence, subsequences
Week 5	Infinite series convergence & divergence
Week 6	Infinite series continue Hyper harmonic series Class test & Assignment
Week 7	D'Alembert's ratio test Raabes test, Logarithmic test
Week 8	De Morgan and Bertrand's test, cauchy's nth root test
Week 9	Cauchy's integrals test, Gauss test, cauchy's condensation test
Week 10	Class test & Assignment Introduction of Alternating series
Week 11	Leibnitz's test ,absolute &conditional convergence
Week 12	<b>MOCK TEST</b>
Week 13	Arbitrary series,able's lemma,able's test, continue
Week 14	Convergence & absolute convergence
Week 15	<b>REVISION</b>

<b>Name of the Assistant Professor: Dr. Nupur Srivastava</b> <b>Class And Section: M.Sc. (2<sup>nd</sup> semester)</b> <b>Subject: Measure and Integration Theory</b> <b>(24MAT202DS02)</b>	
Week 1	Introduction of subject, Set Function, elementary operation on set
Week 2	Measurable sets, Fundamental properties of measurable sets, Lebesgue measure
Week 3	Algebra of measurable sets, Borel Sets, equivalent formulation of measurable sets, Closed sets,
Week 4	Non measurable sets, measurable function, properties of function, Approximation of measurable function
Week 5	Convergence in measure function, short coming of Riemann integral, Test
Week 6	Lebesgue integral, bounded convergence theorem, fetal lemma, vitali convergence theorem
Week 7	Differentiation of monotonic function, function of bounded variation, test, presentation
Week 8	Test, doubt class, difference of indefinite integral, presentation, absolute continuous function
Week 9	Properties of function, theorem, presentation
Week 10	Comparison of Riemann and a Lebesgue integral
Week 11	Numerical problems, doubt class

Week 12	<b>MOCK TEST</b>
Week 13	Test, doubt class
Week 14	Presentation, doubt class, test
Week 15	<b>REVISION</b>

<b>Name of the Assistant Professor:Ms.Garima Mehta</b> <b>Class And Section:B.Sc (MDC Statistics ) 2nd Semester Subject:Statistics in Everyday Life</b>	
Week 1	Data and Types of data ,Scales of Measurement.
Week 2	Discrete and Continuous Random variables.
Week 3	Mathematical Expectations and Variance , Skewness and Kurtosis.
Week 4	Discrete Probability Distribution : Bernoulli, Binomial.
Week 5	Discrete Probability Distribution : Poisson, Geometric
Week 6	Discrete Probability Distribution : Negative Binomial ,Hyper -Geometric Distribution
Week 7	Continuous Probability Distribution:Uniform, Normal .
Week 8	Continuous Probability Distribution: Exponential,Rayleigh .
Week 9	Continuous Probability Distribution: Weibull ,Laplace .
Week 10	Test of Hypothesis: Concept of Hypothesis,Degree of freedom, Level of Significance.
Week 11	Critical Region, Types of errors, One sample tests for Mean ,Variance and Population Proportion.
Week 12	<b>MOCK TEST</b>
Week 13	Paired t -test, Two Independent Sample test for Means, Variances and Proportions.
Week 14	Correlation Test and Chi -square test.
Week 15	<b>REVISION</b>

<b>Name of the Assistant Professor:Ms.Garima Mehta</b> <b>Class And Section:Minor(Mathematics) 2nd Semester Subject:Business Mathematics</b>	
Week 1	Linear Programming-Formulation of LPP: Graphical method of solution.
Week 2	Problems relating to two variables including the case of mixed constraints.
Week 3	Cases having no solution ,multiple solution , unbounded solution and redundant solution.
Week 4	Simplex Method -Solution of problem upto three variables , including cases of mixed constraints.
Week 5	Duality and its applications.
Week 6	Transportation problems.
Week 7	Simple interest and its applications .
Week 8	Compound interest :Certain different types of interest rates.
Week 9	Compound interest :Concept of present value and amount of sum.
Week 10	Annuities ;Types of annuities ,Present value and amount of annuity.
Week 11	Annuities: Case of continuous compounding.
Week 12	<b>MOCK TEST</b>
Week 13	Annuities:Valuation of simple loans and debentures.
Week 14	Annuities :Problem relation to sinking funds.
Week 15	<b>REVISION</b>

<b>Name of the Assistant Professor:Ms. Shivani</b> <b>Class And Section:B.Sc (Physical Science) 2nd Semester Subject:Calculus</b>	
Week 1	Limits and Continuity,Discontinuity and its types.
Week 2	Differentiability of the function, Successive differentiation, Leibnitz rule and its applications.
Week 3	L'Hospital's rule : Indeterminate form, Taylor's theorem with Lagrange's forms of remainder.
Week 4	Taylor's theorem with Cauchy's forms of remainder , Maclaurin's and Taylor's series expansions.
Week 5	Tangent and Normal, Asymptotes of curves in Cartesian and Polar coordinates, Curvature.

Week 6	Radius of curvature for Cartesian curves, parametric ,polar and pedal form of curves.
Week 7	Circle of Curvature , Chord of Curvature, Concavity, Convexity and Inflexion points.
Week 8	Tracing of curves in Cartesian coordinates of standard curves (Cubic curves, Semicubical Parabola ,Folium of Descartes,Cardioid , Lemniscate of Bernoulli , Astroid , Rose curve, Logarithmic Spiral, Lpsispiral, Cycloid,Catenary).
Week 9	Tracing of curves in Parametric coordinates of standard curves (Cubic curves, Semicubical Parabola ,Folium of Descartes,Cardioid , Lemniscate of Bernoulli , Astroid , Rose curve, Logarithmic Spiral, Lpsispiral, Cycloid,Catenary).
Week 10	Tracing of curves in Polar coordinates of standard curves (Cubic curves, Semicubical Parabola ,Folium of Descartes,Cardioid , Lemniscate of Bernoulli , Astroid , Rose curve, Logarithmic Spiral, Lpsispiral, Cycloid,Catenary).
Week 11	Function of Several variables, Limits and Continuity.
Week 12	<b>MOCK TEST</b>
Week 13	Partial Differentiation and Euler's theorm on homogenous functions , Chain rule.
Week 14	Directional Derivatives,Gradient vector and tangent plane.
Week 15	<b>REVISION</b>

<b>Name of the Assistant Professor: Ms. Sonia Bisht</b> <b>Class And Section: B.Sc. Physical Science 2nd</b> <b>Semester Subject: Office Automation (MDC)</b> <b>Computer</b>	
Week 1	<b>Unit – I</b> MS-Windows: Operating system-Definition & functions, basics of Windows. Basic components of windows, icons, types of icons, taskbar
Week 2	Activating windows, using desktop, title bar, running applications, exploring computer, managing files and folders, copying and moving files and folders, Control panel – display properties
Week 3	Adding and removing software and hardware, setting date and time, screensaver and appearance. Using windows accessories, <b>ASSIGNMENT-I &amp; TEST</b>
Week 4	<b>Unit – II</b> Documentation Using MS-Word: Introduction to word processing interface, Toolbars Creating & Editing Document, Formatting Document
Week 5	Finding and replacing text, Format painter, Header and footer, Drop cap, Auto-text, Autocorrect, Spelling and Grammar Tool Document Dictionary,
Week 6	Page Formatting, Bookmark, Previewing and printing document, Advance Features of MS-Word-Mail Merge, Macros and Tables <b>ASSIGNMENT-II &amp; TEST</b>
Week 7	<b>Unit – III</b> Electronic Spread Sheet using MS-Excel: Introduction to MS-Excel, Cell, cell address, Creating & Editing Worksheet, Formatting and Essential Operations

Week 8	Moving and copying data in excel, Header and footer, Formulas and Functions, Charts, Cell referencing, Page setup, Macros, Advance features of MS-Excel-Pivot table & Pivot Chart,
Week 9	Linking and Consolidation, Database Management using Excel-Sorting, Filtering, Validation, What if analysis with Goal Seek.
Week 10	Filtering, Validation, What if analysis with Goal Seek. <b>ASSIGNMENT-III &amp; TEST</b>
Week 11	<b>Unit – IV</b> Presentation using MS-PowerPoint: Presentations, Creating, Manipulating & Enhancing Slides,
Week 12	<b>MOCK TEST</b>
Week 13	Organizational Charts, Excel Charts, Word Art, Layering art Objects, Animations and Sounds, <b>REVISION</b>
Week 14	Inserting Animated Pictures or Accessing through Object, Inserting Recorded Sound Effect or In-Built Sound Effect.
Week 15	<b>REVISION</b>

<b>Name of the Assistant Professor: Ms. Rajni</b> <b>Class And Section: M.Sc. Chemistry II Semester</b> <b>Subject: Organic Spectroscopy and Advanced Organic Chemistry (24CHE202DS03)</b>	
Week 1	Ultraviolet and Visible Spectroscopy: Principle, electronic energy levels and transitions, chromophores and auxochromes, bathochromic and hypsochromic shift, hypochromic and hyperchromic effect.
Week 2	Infrared Spectroscopy: Principle, functional group and fingerprint regions, absorption of infrared radiation and molecular vibrations (stretching and bending), fundamental vibrations and overtones. NMR Spectroscopy: Spin active nuclei, chemical shift, shielding and deshielding, internal standards
Week 3	NMR Spectroscopy: spin spin coupling, equivalent and non-equivalent protons, effect of changing solvents and hydrogen bonding on chemical shifts, anisotropic effect. Applications of UV, IR, and NMR spectra in the structural elucidation of organic compounds. TEST
Week 4	Aliphatic Nucleophilic Substitution: SN1, SN2, mixed SN1 and SN2, SNi, SN1', SN2', SNI' and SET mechanisms. Effects of substrate structure, attacking nucleophile, leaving group and reaction medium on reactivity. Neighbouring group mechanism, neighbouring group participation by $\sigma$ - and $\pi$ -bonds, anchimeric assistance. Ambident nucleophiles, regioselectivity and chemoselectivity. And Assignment.
Week 5	Aromatic Nucleophilic Substitution: ArSN1, ArSN2, Benzyne and SRN1 mechanisms. Effect of substrate structure, leaving group and attacking nucleophile on reactivity. Von Richter and Smiles rearrangements.
Week 6	Aliphatic Electrophilic Substitution: SE1, SE2 and SEi mechanism. Effect of substrates, leaving group and solvent polarity on the reactivity. Aromatic Electrophilic Substitution: Reactivity in substrates and electrophiles, Vilsmeier reaction, Gattermann-Koch reaction.
Week 7	Pericyclic Reactions: Molecular orbital symmetry, Frontier orbitals of ethylene, 1,3-butadiene, 1,3,5hexatriene and allyl system. Classification of pericyclic reactions, Woodward Hoffmann correlation diagrams. TEST
Week 8	Electrocyclic reactions - conrotatory and disrotatory motions, $4n$ , $4n+2$ , and allyl systems. Cycloadditions - antarafacial and suprafacial additions, $4n$ and $4n+2$ systems.

Week 9	Sigmatropic rearrangements - suprafacial and antarafacial shifts of H, sigmatropic shifts involving carbon moieties, 3,3- and 5,5sigmatropic rearrangements, Claisen and Cope rearrangements.
Week 10	Addition to Carbon-Hetero Multiple Bonds: Mechanism of metal hydride reduction of saturated and unsaturated carbonyl compounds. Addition of Grignard reagents, organozinc and organolithium reagents to carbonyl and unsaturated carbonyl compounds, Wittig reaction. And Assignment.
Week 11	Mechanism of condensation reactions involving enolates: Aldol, Knoevenagel, Claisen, Mannich reaction.
Week 12	<b>MOCK TEST</b>
Week 13	Mechanism of condensation reactions involving enolates:, Benzoin, Perkin and Stobbe reactions. Hydrolysis of esters and amides, ammonolysis of esters.
Week 14	Test, Revision and Doubts.
Week 15	<b>REVISION</b>

<b>Name of the Assistant Professor: Ms. Sudha</b> <b>Class And Section: B.Sc. Biotech, B.Sc. Home</b> <b>Science II Semester</b> <b>Subject: Chemistry of Metals &amp; Non-Metals,</b> <b>Hydrocarbons and Solutions (24CHE402MI01)</b>	
Week 1	Metal and Non-Metals: Occurrence of elements in nature, physical and chemical properties of metals and non-metals, minerals and Ores. metallurgical processes (benefaction, roasting, calcination and reduction of metal oxides processes), refining of metals, metallurgy of Fe, Zn, Al and Cu.
Week 2	metallurgical processes (benefaction, roasting, calcination and reduction of metal oxides processes),
Week 3	Refining of metals and Metallurgy of Fe, Zn, Al and Cu. Alkanes: General methods of preparation and Reactions: free radical substitution. Assignment
Week 4	Hydrocarbons: Alkenes: General methods of preparation and Reactions: cis-addition (alk. KMnO <sub>4</sub> ) and trans-addition (bromine) And TEST
Week 5	Addition of HX (Markownikoff's and anti-Markownikoff's addition), hydration, ozonolysis, oxymercuration-demercuration, hydroboration oxidation. Alkynes: General methods of preparation
Week 6	Alkynes: Reactions: formation of metal acetylides and acidity of alkynes, addition of bromine and alkaline KMnO <sub>4</sub> , ozonolysis and oxidation with hot alk. KMnO <sub>4</sub> , hydration to form carbonyl compounds.
Week 7	Aromatic Hydrocarbons: Structure of benzene (Kekule, hybrid and resonance), preparation of benzene. Reactions: electrophilic substitution reactions in benzene And Assignment
Week 8	Electrophilic substitution reactions in benzene citing examples of nitration, halogenation, sulphonation and Friedel-Craft's alkylation

Week 9	Friedel-Craft's acylation with special emphasis on carbocationic rearrangement, side chain oxidation of alkyl benzene. And TEST
Week 10	Solution: Types of solutions, expression of concentration of solutions of solids in liquids, solubility of gases in liquids, solid solutions, Raoult's law
Week 11	Colligative properties - relative lowering of vapour pressure, elevation of boiling point, depression in freezing point
Week 12	<b>MOCK TEST</b>
Week 13	Colligative properties : osmotic pressure, Determination of molecular masses using Colligative properties, abnormal molecular mass, Van't Hoff factor.
Week 14	Test , Revision and Doubts
Week 15	<b>REVISION</b>

<b>Name of the Assistant Professor: Ms. Manisha</b> <b>Class And Section: M.Sc. Chemistry</b> <b>Subject: Physical Spectroscopy and Advanced Physical Chemistry (24CHE202DS02)</b>	
Week 1	Introduction to spectroscopy: Electromagnetic radiations, interaction of electromagnetic radiation with matter, regions of spectrum , width and intensity of spectral transitions
Week 2	Resolving power, transition probability, Rotational spectra: Rotational spectra of diatomic molecules (rigid rotator) Test Spectrum of non –rigid rotator, effect of isotopic substitution, rotational spectra of linear and asymmetric top polyatomic molecules
Week 3	Vibrational and Vibrational- Rotational Spectra : Vibrating diatomic molecule(simple harmonic vibrator),anharmonicity, diatomic vibrating rotator,interaction of rotations and vibrations, vibrational spectra of polyatomic molecules, analysis by infrared technique
Week 4	Test Electronics Spectra: Electronic spectra of diatomic molecules,vibrational course structure and rotational fine structure of electronic band, Frank-Condon principle( intensity of vibrational-electronic band, dissociation energy), Fortrat diagram
Week 5	Photochemistry: Basic concepts of photochemistry, rate constant & life time of excited electronic states of atoms and molecules, charge transfer transitions test
Week 6	Frank-Condon principle, emission spectra, environment effect on aabsorption and emission spectra, Wigner's spin conservation rule, Modes of decay of excited states, quenching of fluorescence, delayed fluorescence, kinetics of collisional quenching
Week 7	Test Stern- Volmer equation, Excimer and Exciplex formation and delay, Techniques for the study of transient species in photochemical reactions, Application of Lasers in photochemical kinetics
Week 8	Electro-Analytical & Potentiometric Methods: Polarization Phenomenon and its theories, effect of concentration on cell potential, Concept of liquid junction potential

Week 9	Test Reference electrodes (Calomel, Ag/AgCl, Tl/TlCl),Metallic redox indicator electrode: Membrane and ion-selective electrodes, electricalproperties of the membrane, glass electrode with special reference to H <sup>+</sup> ,Na <sup>+</sup> ,K <sup>+</sup> ions, operation of solid membrane electrode in determination of some toxic metals and some anions(F <sup>-</sup> ,Cl <sup>-</sup> ,Br <sup>-</sup> , I <sup>-</sup> ,NO <sub>3</sub> <sup>-</sup> )
Week 10	Symmetry and Group Theory in Chemistry: Symetry elements and symmetry operation
Week 11	Point group and its properties, group multiplication table, Schonflies symbol, representation of groups by matrices (representation for Cn, Cnv, Cnh, Cs, Dnh etc groups to be worked out explicitlyand
Week 12	<b>MOCK TEST</b>
Week 13	Point group of Following molecules: H <sub>2</sub> O,NH <sub>3</sub> ,CH <sub>4</sub> ,SF <sub>6</sub> ,CHCl <sub>3</sub> ,BF <sub>3</sub> ,C <sub>6</sub> H <sub>6</sub> ,C <sub>5</sub> H <sub>5</sub> ,NSF <sub>3</sub> ,C <sub>2</sub> H <sub>2</sub> ,HCl,HCN,CO <sub>2</sub> etc. Irreducible representation of groups
Week 14	The Great orthogonality theorem (without proof) and its importance,Character tables and its applications in spercrosopy
Week 15	<b>REVISION</b>

<b>Name of the Assistant Professor: Ms. Savita &amp; Ms Payal</b> <b>Class And Section: B.Sc.(Life Science) 2nd</b> <b>Semester Subject: Digital and Technological Solutions (23CSAX01VA01)</b>	
Week 1	Introduction & Evolution of Digital Systems: Role & Significance of Digital Technology, Information and Communication Technology (ICT) & Tools
Week 2	Computer system and its working , software and its types
Week 3	Operating systems: Types and Functions, Problem solving: Algorithms and Flowcharts
Week 4	Communication Systems: Principles, model & Transmission Media, Computer Networks and internet: Concepts & Applications
Week 5	www, web Browsers, Search Engines, Messaging, Email, Social Networking, Computer based information system: Significance & Challenges
Week 6	Digital India &e-Governance: Initiatives, Infrastructure, Services and Empowerment, digital financial tools: Unified payment interface
Week 7	Unified Payment Interface, Aadhar enabled Payment System, USSD, Credit/debit cards, e- wallets, Internet banking
Week 8	NEFT/RTGS and IMPS, OnlineBill Payment and POS.Cyber Security:Threats,significance, Challenges, Precautions
Week 9	Test Precautions, safety Measures and Tools,Emerging Technologiesand their applications: Overview of Artificial intelligence
Week 10	Machine Learning: Big Data, Data Science and Big Data Analytics; Internet of Things(IoT)
Week 11	Industrial Internet of Things (IIoT), Robotics and 3D Printig
Week 12	<b>MOCK TEST</b>
Week 13	Block chain Technology Test

Week 14	Quantum Computing; Cloud computing and its service models
Week 15	<b>REVISION</b>

<b>Name of the Assistant Professor: :Ms.Pooja Khatana</b> <b>Class And Section: M.Sc.(F) Chemistry</b> <b>Subject: Inorganic Special-V (Electro Analytical Chemistry), 17CHE24GA2</b>	
Week 1	Introduction of Electroanalytical Chemistry, Electrons at and across interfaces Electro-Chemical And Chemical Reactions
Week 2	Residual Current, Migration Current, Diffusion Current, Limiting Current Saturated Calomel Electrode(SCE)
Week 3	Dropping Mercury Electrode(DME), Ilkovic Equation, Koutecky Equation for Diffusion Current, Polarographic Waves TEST & ASSIGNMENT
Week 4	Half Wave Potentials, Oxygen Interference, Function Of Supporting Electrolyte, maxima
Week 5	Determination of stability constants of complexes (reversible systems only) by D.C.Polarography, Catalytic hydrogen wave, Principles of Amperometric titrations
Week 6	Types of titration curves, apparatus and techniques, Hanging mercury drop electrode, Rotating dropping mercury electrode , Platinum Electrodes(RPE), Gold electrode
Week 7	Carbon paste electrode, Glassy carbon electrode, Graphite electrode TEST & ASSIGNMENT
Week 8	A.C. Polarography, D.C. Polarography, Super imposed a.c. Polarography, Voltametry in quiet and stirred solution with electrode other than mercury, Square-wave polarography
Week 9	Normal pulse polarography, Differential pulse polarography, Chronopotentiometry, Coulometry
Week 10	Stripping voltammetry, Theory of anodic stripping voltammetry, Concentration process, Rest period, Stripping process
Week 11	Cathodic stripping voltammetry, Anodic and cathodic deposition TEST & ASSIGNMENT
Week 12	<b>MOCK TEST</b>
Week 13	Ion selective electrodes, Principle of ion selective electrodes, Types of ion selective electrode, Liquid membrane electrode, Gas membrane electrode, Solid state electrode, Gas sensing electrode
Week 14	Ion selective electrodes, Principle of ion selective electrodes, Types of ion selective electrode, Liquid membrane electrode, Gas membrane electrode, Solid state electrode, Gas sensing electrode
Week 15	<b>REVISION</b>

<b>Name of the Assistant Professor: Ms. Anita</b> <b>Class And Section: B.Sc. (Life Science) 2nd</b> <b>Semester ,Section-A &amp; B</b> <b>Subject: Fundamental Chemistry-II</b>	
Week 1	<b>Unit-I</b> Non-aqueous Solvents , Physical properties of a solvent, types of solvents and their general characteristics, solvent system concept, reactions in non-aqueous solvents with reference to liquid NH <sub>3</sub> and liquid SO <sub>2</sub> .
Week 2	Hard and soft acids and bases (HSAB concept), applications of HSAB principle. Noble Gases Occurrence and uses, rationalization of inertness of noble gases, clathrates, preparation and properties, chemical properties of the noble gases.
Week 3	Chemistry of xenon: structure and bonding in xenon fluorides, oxides and oxyfluorides (XeF <sub>2</sub> , XeF <sub>4</sub> , XeF <sub>6</sub> , XeO <sub>3</sub> , XeO <sub>4</sub> , XeOF <sub>2</sub> , XeO <sub>2</sub> F <sub>2</sub> , XeOF <sub>4</sub> , XeF <sub>5</sub> <sup>+</sup> , XeF <sub>5</sub> <sup>-</sup> ), nature of bonding in noble gas compounds (valence bond treatment and MO treatment for XeF <sub>2</sub> and XeF <sub>4</sub> ), molecular shapes of noble gas compounds (VSEPR theory) <b>ASSIGNMENT-I</b> , <b>TEST</b>
Week 4	<b>Unit-II</b> Thermodynamics Brief discussion upto first law of thermodynamics, heat capacity, heat capacities at constant volume and pressure and their relationship. Joule's law, Joule-Thomson coefficient for ideal gases and real gases and inversion temperature
Week 5	Calculation of work and heat, dU & dH for the expansion of ideal gases and real gases under isothermal and adiabatic conditions for reversible and irreversible processes, enthalpy and internal energy change at constant P, V & T, Kirchhoff's equation. Second law of thermodynamics and its limitations, different statements of the law, Carnot's cycle and its efficiency, Carnot's theorem, thermodynamics scale of temperature.
Week 6	Enthalpy and internal energy change at constant P, V & T, Kirchhoff's equation. Second law of thermodynamics and its limitations, different statements of the law, Carnot's cycle and its efficiency, Carnot's theorem, <b>TEST</b>
Week 7	Concept of entropy- entropy as a state function ,entropy change in ideal gases, entropy as a function of V & T, entropy as a function of P & T, entropy as a function of P & V, entropy as a criterion of spontaneity and equilibrium.
Week 8	<b>Unit-III</b> Hydrocarbons Alkanes: Physical and chemical properties of alkanes, free radical substitutions, halogenation, concept of relative reactivity v/s selectivity, <b>ASSIGNMENT-II</b>
Week 9	Alkenes: Structure and isomerism, general methods of preparation, physical and chemical properties. Mechanism of E1, E2, E1cb reactions, Saytzeff and Hoffmann elimination, electrophilic addition (mechanism with suitable examples),
Week 10	Markownikoff rule, syn and anti-addition, addition of H <sub>2</sub> , X <sub>2</sub> oxymercuration-demercuration, hydroboration- oxidation, ozonolysis, hydroxylation. Alkynes: General methods of preparation, reactions of alkynes: acidity, electrophilic and nucleophilic additions, hydration to form carbonyl compounds, alkylation of terminal alkynes, <b>TEST</b>
Week 11	<b>Unit-IV</b> Aromatic Hydrocarbons and Dienes Concept of aromaticity, Huckel's rule, aromatic character of arenes, cyclic carbocations and carbanions with suitable examples and heterocyclic compounds with suitable examples, electrophilic aromatic substitution: halogenation, nitration, sulphonation,
Week 12	<b>MOCK TEST</b>
Week 13	Friedel Crafts alkylation/ acylation with their mechanism, directing effects of groups in electrophilic substitution, <b>REVISION</b>

Week 14	Nomenclature and classification of dienes: isolated, conjugated and cumulated dienes. Structure of butadiene, chemical reactions- 1, 2 and 1, 4 additions (electrophilic and free radical mechanism), Diels – Alder reaction, <b>ASSIGNMENT-III</b>
Week 15	<b>REVISION</b>

<b>Name of the Assistant Professor: Ms. Sonia Bisht</b> <b>Class And Section: B.Sc. Physical Science 2nd</b> <b>Semester Subject: Office Automation (MDC)</b> <b>Computer</b>	
Week 1	<b>Unit – I</b> MS-Windows: Operating system-Definition & functions, basics of Windows. Basic components of windows, icons, types of icons, taskbar
Week 2	Activating windows, using desktop, title bar, running applications, exploring computer, managing files and folders, copying and moving files and folders, Control panel – display properties
Week 3	Adding and removing software and hardware, setting date and time, screensaver and appearance. Using windows accessories, <b>ASSIGNMENT-I &amp; TEST</b>
Week 4	<b>Unit – II</b> Documentation Using MS-Word: Introduction to word processing interface, Toolbars Creating & Editing Document, Formatting Document
Week 5	Finding and replacing text, Format painter, Header and footer, Drop cap, Auto-text, Autocorrect, Spelling and Grammar Tool Document Dictionary,
Week 6	Page Formatting, Bookmark, Previewing and printing document, Advance Features of MS-Word-Mail Merge, Macros and Tables <b>ASSIGNMENT-II &amp; TEST</b>
Week 7	<b>Unit – III</b> Electronic Spread Sheet using MS-Excel: Introduction to MS-Excel, Cell, cell address, Creating & Editing Worksheet, Formatting and Essential Operations
Week 8	Moving and copying data in excel, Header and footer, Formulas and Functions, Charts, Cell referencing, Page setup, Macros, Advance features of MS-Excel-Pivot table & Pivot Chart,
Week 9	Linking and Consolidation, Database Management using Excel-Sorting, Filtering, Validation, What if analysis with Goal Seek.
Week 10	Filtering, Validation, What if analysis with Goal Seek. <b>ASSIGNMENT-III &amp; TEST</b>
Week 11	<b>Unit – IV</b> Presentation using MS-PowerPoint: Presentations, Creating, Manipulating & Enhancing Slides,
Week 12	<b>MOCK TEST</b>
Week 13	Organizational Charts, Excel Charts, Word Art, Layering art Objects, Animations and Sounds, <b>REVISION</b>
Week 14	Inserting Animated Pictures or Accessing through Object, Inserting Recorded Sound Effect or In-Built Sound Effect.
Week 15	<b>REVISION</b>

<b>Name of the Assistant Professor: Ms. Sonia Bisht</b> <b>Class And Section: M.Sc. Chemistry 4th Semester</b> <b>Subject: Inorganic Special-VI (Medicinal Aspects of Inorganic Chemistry)</b>	
<b>Week 1</b>	<b>Section-A</b> Metals in Medicine: Biochemical bases of essential metal deficient diseases; Iron, copper and zinc deficiencies and their therapies, carcinogens
<b>Week 2</b>	Carcinostatic agents, zinc in tumour growth and inhibition, anticancer activity and mechanism of platinum complexes
<b>Week 3</b>	Anticancer activity of Rhodium, copper and Gold complexes, anti cancer activity of Selenium, antibacterial and antiviral properties of metal complexes, <b>ASSIGNMENT-I &amp; TEST</b>
<b>Week 4</b>	Polyamino carboxylic acids and polyethylene amines as chelating drugs. <b>Section-B</b> Miscellaneous applications of Inorganic compounds as medicines: Drugs in hypo and hyper activity of thyroids
<b>Week 5</b>	Inorganic drugs in dental carries, clinical disorders of alkali and alkaline earth metals and their remedies, lithium drugs in psychiatry.
<b>Week 6</b>	Heavy metals in Biological systems: Toxicity of heavy metals – and their detoxification, role of Selenium in Biological systems with reference to its essentiality and toxicity
<b>Week 7</b>	Mechanism of metal ion induced toxicity, interaction between orally administered drugs and metal ions in gut, <b>ASSIGNMENT-II &amp; TEST</b>
<b>Week 8</b>	<b>Section-C</b> Ligand Therapy: Ligand induced toxicity, interference with haemoglobin in oxygen transport system, interference with metallo-enzymes,
<b>Week 9</b>	Beneficial effects of ligand chelation; carcinogenic ligands, carcinostatic ligands, alkylating agents as anticancer drugs, Thiosemicarbazones as anticancer drugs
<b>Week 10</b>	Macrocyclic antibiotic ligands and probable mechanism of the drug, antiviral activity of chelating agents, aspirin chelation , <b>TEST</b>
<b>Week 11</b>	Drugs where chelation and therapeutic activity are unrelated. <b>Section-D</b> Vitamins and their functions in general, recommended dietary allowances , deficiencies and supplementations
<b>Week 12</b>	<b>MOCK TEST</b>
<b>Week 13</b>	Dietary minerals, calcium and vitamin D, antioxidants and their health effects, biomimicry Radiopharmacology, nuclear medicines , <b>ASSIGNMENT-III</b>
<b>Week 14</b>	Radioiodine -131, technetium – 99m, gallium and indium scan, <b>REVISION</b>
<b>Week 15</b>	<b>REVISION</b>

<b>Name of the Assistant Professor: Dr. Purnima Verma</b> <b>Class And Section: M.sc Chemistry 2nd Subject: Inorganic Chemistry</b>	
Week 1	<b>UNIT-1</b> Electronic Absorption Spectroscopy: Energy levels in diatomic molecules, introduction to electronic transition, assignment of transitions, selection rules for EAS, p-d intermixing. Nuclear Magnetic Resonance: Quantum concept of NMR, larmor frequency, coupling constant, applications of spin-spin coupling in structure determination of inorganic compounds, population excess and types of relaxation,
Week 2	Standard references for inorganic compounds, calculation of rates from NMR spectrum, determination of order by NMR, double resonance technique for inorganic compounds like B <sub>2</sub> H <sub>6</sub> , Al(BH <sub>4</sub> ) <sub>3</sub> etc. Characterization of metal hydrides complexes (counting signals), inorganic applications of NMR like <sup>1</sup> H NMR, <sup>11</sup> B NMR, <sup>19</sup> F NMR, <sup>31</sup> P NMR (dynamic and frozen spectra), fluxional behaviour of inorganic molecules. Finger print regions of IR spectroscopy, Hooke's law & its applications for determination of stretching frequency.
Week 3	Application of infrared spectroscopy in the determination of inorganic compounds: Determination of coordination site, identification of cis and trans isomers, structure elucidation of covalent molecules, H-bonding etc. <b>TEST OF UNIT -I, ASSIGNMENT</b>
Week 4	<b>UNIT-II</b> Organometallic: 18-electron rule, counting methods and ligand contributions, haptoligands with hapticity from two to eight. Clusters: Multi-nuclear carbonyl clusters: Low nuclearity carbonyl clusters (LNCC), High nuclearity carbonyl clusters (HNCC),
Week 5	Clusters having interstitial atoms, electron counting schemes for high nuclearity clusters, polyhedral skeletal electron pair approach/Mingo's rules, structure and bonding in higher boranes, Wade's rules, carboranes,
Week 6	Applications of Wade's rules, zintl-ions, isolobal analogy, dinuclear clusters (metal clusters containing M-M multiple bonds). <b>TEST OF UNIT -II, ASSIGNMENT</b>
Week 7	<b>UNIT -III</b> Magnetic Properties of transition metal complexes: Elementary theory of magneto-chemistry, dia, para, ferro and antiferro magnetism, concept of magnetic susceptibility, methods for determination of magnetic susceptibility, Curie and Curie-Weiss law for temperature dependence of magnetic susceptibility,
Week 8	Temperature independent paramagnetic, calculation of magnetic moments of metal ions Cr <sup>3+</sup> , Co <sup>3+</sup> , Mn <sup>2+</sup> and Fe <sup>2+</sup> , Linde factor, $\mu_J$ and $\mu_{eff}$ , orbital contribution to the magnetic moment, quenching of magnetic moment by crystal-field,
Week 9	Application of magneto-chemistry in structure determination, magnetic exchange coupling and spin state crossover in coordination compounds. <b>TEST OF UNIT -III, ASSIGNMENT</b>
Week 10	Electronic Spectra of Transition Metal Complexes: Spectroscopic ground states, spin-orbit coupling in free metal ions for 3d- series of transition metals, ground state terms for transition metals/ions,
Week 11	Racah parameters and nephelauxetic effect, Orgel diagrams (d1 to d10) and Tanabe-Sugano diagrams for transition metal complexes (d1 & d2 states), elementary concept of Dq, B and $\beta$ parameters
Week 12	<b>MOCK TEST</b>

Week 13	effect of Jahn-Teller distortion on electronic spectra of 3d-series metal complexes, charge transfer spectra, electronic spectra of molecular addition compounds of iodine <b>TEST OF UNIT -III, ASSIGNMENT</b>
Week 14	<b>REVISION UNIT I &amp; UNIT II</b>
Week 15	<b>REVISION UNIT III &amp; UNIT IV</b>

<b>Name of the Assistant Professor: Ms Payal</b> <b>Class And Section: B.Sc NM 2nd Sem</b> <b>Subject: Value added (Digital Technology Tool)</b>	
Week 1	<b>UNIT-I</b> Introduction & Evolution of Digital Systems: Role & Significance of Digital Technology; Information and Communication Technology (ICT) & Tools;
Week 2	Computer System & its working, Software and its types. Operating Systems: Types and Functions. Problem Solving: Algorithms and Flowcharts <b>TEST UNIT-I &amp; ASSIGNMENT</b>
Week 3	<b>UNIT-II</b> Communication Systems: Principles, Model & Transmission Media. Computer Networks & Internet: Concepts & Applications,
Week 4	WWW, Web Browsers, Search Engines, Messaging, Email, Social Networking. Computer Based information System: Significance & Types.
Week 5	E-commerce & Digital Marketing: Basic Concepts, Benefits & Challenges <b>TEST UNIT-II &amp; ASSIGNMENT</b>
Week 6	<b>UNIT-III</b> Emerging Technologies and their applications: Overview of Artificial Intelligence, Machine Learning,
Week 7	Deep Learning; Big Data, Data Science and Big Data Analytics; Internet of Things (IoT) and Industrial Internet of Things (IIoT),
Week 8	Robotics and 3D Printing; Blockchain Technology; Quantum Computing; Cloud computing and its service models.
Week 9	<b>TEST UNIT-III &amp; ASSIGNMENT</b>
Week 10	<b>UNIT-IV</b> Digital India & e-Governance: Initiatives, Infrastructure, Services and Empowerment. Digital Financial Tools: Unified Payment Interface,
Week 11	Aadhar Enabled Payment System, USSD, Credit / Debit Cards, e-Wallets, Internet Banking, NEFT/RTGS and IMPS, Online Bill Payment and POS.
Week 12	<b>MOCK TEST</b>
Week 13	Cyber Security: Threats, Significance, Challenges, Precautions, Safety Measures and Tools.
Week 14	<b>REVISION UNIT I &amp; UNIT II</b>
Week 15	<b>REVISION UNIT III &amp; UNIT IV</b>

<b>Name of the Assistant Professor: Ms. Priyanka Bhatia</b> <b>Class And Section: B.Sc. NM 6th Sem</b> <b>Subject: Organic Chemistry</b>	
Week 1	<b>Heterocyclic Compounds-I</b> Introduction: Molecular orbital picture and aromatic characteristics of pyrrole, furan, thiophene and pyridine..
Week 2	Methods of synthesis and chemical reactions with particular emphasis on the mechanism of electrophilic substitution
Week 3	Mechanism of nucleophilic substitution reactions in pyridine derivatives. Comparison of basicity of pyridine, piperidine and pyrrole
Week 4	<b>Test</b> <b>Heterocyclic Compounds-II</b> Introduction to condensed five and six- membered heterocycles. Preparation and reactions of indole, quinoline and isoquinoline with special reference to Fisher indole synthesis
Week 5	Skraup synthesis and Bischler-Napieralski synthesis. Mechanism of electrophilic substitution reactions of, quinoline and isoquinoline <b>Organosulphur Compounds</b> Nomenclature, structural features
Week 6	Methods of formation and chemical reactions of thiols, thioethers, sulphonic acids, sulphonamides and sulphaguanidine. Synthetic detergents alkyl and aryl sulphonates. <b>Test</b>
Week 7	<b>Organic Synthesis via Enolates</b> Acidity of $\alpha$ -hydrogens, alkylation of diethyl malonate and ethyl acetoacetate. Synthesis of ethyl acetoacetate: the Claisen condensation. Keto-enol tautomerism of ethyl acetoacetate.
Week 8	<b>Synthetic Polymers</b> Addition or chain-growth polymerization. Condensation or step growth polymerization. Polyesters, polyamides, phenol formaldehyde resins, urea formaldehyde resins, epoxy resins and polyurethanes. Natural and synthetic rubbers.
Week 9	Free radical vinyl polymerization, ionic vinyl polymerization, Ziegler-Natta polymerization and vinyl polymers. <b>Assignment</b>
Week 10	Amino Acids, Peptides & Proteins Classification, of amino acids. Acid-base behavior, isoelectric point and electrophoresis.
Week 11	Preparation of $\alpha$ -amino acids. Structure and nomenclature of peptides and proteins. Classification of proteins
Week 12	<b>MOCK TEST</b>
Week 13	Peptide structure determination, end group analysis, selective hydrolysis of peptides. Classical peptide synthesis, solid-phase peptide synthesis. Structures of peptides and proteins: Primary & Secondary structure
Week 14	<b>Doubt Class and Test</b>
Week 15	<b>REVISION</b>

<b>Name of the Assistant Professor: Ms. Sonia Bisht</b> <b>Class And Section: B.Sc. (Physical Science) 2nd</b> <b>Semester ,Section-A &amp; B</b> <b>Subject: Fundamental Chemistry-II</b>	
Week 1	<b>Unit-I</b> Non-aqueous Solvents , Physical properties of a solvent, types of solvents and their general characteristics, solvent system concept, reactions in non-aqueous solvents with reference to liquid NH <sub>3</sub> and liquid SO <sub>2</sub> .
Week 2	Hard and soft acids and bases (HSAB concept), applications of HSAB principle. Noble Gases Occurrence and uses, rationalization of inertness of noble gases, clathrates, preparation and properties, chemical properties of the noble gases.
Week 3	Chemistry of xenon: structure and bonding in xenon fluorides, oxides and oxyfluorides (XeF <sub>2</sub> , XeF <sub>4</sub> , XeF <sub>6</sub> , XeO <sub>3</sub> , XeO <sub>4</sub> , XeOF <sub>2</sub> , XeO <sub>2</sub> F <sub>2</sub> , XeOF <sub>4</sub> , XeF <sub>5</sub> <sup>+</sup> , XeF <sub>5</sub> <sup>-</sup> ), nature of bonding in noble gas compounds (valence bond treatment and MO treatment for XeF <sub>2</sub> and XeF <sub>4</sub> ), molecular shapes of noble gas compounds (VSEPR theory) <b>ASSIGNMENT-I ,TEST</b>
Week 4	<b>Unit-II</b> Thermodynamics Brief discussion upto first law of thermodynamics, heat capacity, heat capacities at constant volume and pressure and their relationship. Joule's law, Joule-Thomson coefficient for ideal gases and real gases and inversion temperature
Week 5	Calculation of work and heat, dU & dH for the expansion of ideal gases and real gases under isothermal and adiabatic conditions for reversible and irreversible processes, enthalpy and internal energy change at constant P, V & T, Kirchhoff's equation. Second law of thermodynamics and its limitations, different statements of the law, Carnot's cycle and its efficiency, Carnot's theorem, thermodynamics scale of temperature.
Week 6	Enthalpy and internal energy change at constant P, V & T, Kirchhoff's equation. Second law of thermodynamics and its limitations, different statements of the law, Carnot's cycle and its efficiency, Carnot's theorem, <b>TEST</b>
Week 7	Concept of entropy- entropy as a state function ,entropy change in ideal gases, entropy as a function of V & T, entropy as a function of P & T, entropy as a function of P & V, entropy as a criterion of spontaneity and equilibrium.
Week 8	<b>Unit-III</b> Hydrocarbons Alkanes: Physical and chemical properties of alkanes, free radical substitutions, halogenation, concept of relative reactivity v/s selectivity, <b>ASSIGNMENT-II</b>
Week 9	Alkenes: Structure and isomerism, general methods of preparation, physical and chemical properties. Mechanism of E <sub>1</sub> , E <sub>2</sub> , E <sub>1c</sub> b reactions, Saytzeff and Hoffmann elimination, electrophilic addition (mechanism with suitable examples),
Week 10	Markownikoff rule, syn and anti-addition, addition of H <sub>2</sub> , X <sub>2</sub> oxymercuration-demercuration, hydroboration- oxidation, ozonolysis, hydroxylation. Alkynes: General methods of preparation, reactions of alkynes: acidity, electrophilic and nucleophilic additions, hydration to form carbonyl compounds, alkylation of terminal alkynes, <b>TEST</b>
Week 11	<b>Unit-IV</b> Aromatic Hydrocarbons and Dienes Concept of aromaticity, Huckel's rule, aromatic character of arenes, cyclic carbocations and carbanions with suitable examples and heterocyclic compounds with suitable examples, electrophilic aromatic substitution: halogenation, nitration, sulphonation,
Week 12	<b>MOCK TEST</b>

Week 13	Friedel Crafts alkylation/ acylation with their mechanism, directing effects of groups in electrophilic substitution, <b>REVISION</b>
Week 14	Nomenclature and classification of dienes: isolated, conjugated and cumulated dienes. Structure of butadiene, chemical reactions- 1, 2 and 1, 4 additions (electrophilic and free radical mechanism), Diels – Alder reaction, <b>ASSIGNMENT-III</b>
Week 15	<b>REVISION</b>

<b>Name of the Assistant Professor: Ms. Priyanka Bhatia</b> <b>Class And Section: B.Sc. M 6th Sem</b> <b>Subject: Organic Chemistry</b>	
Week 1	<b>Heterocyclic Compounds-I</b> Introduction: Molecular orbital picture and aromatic characteristics of pyrrole, furan, thiophene and pyridine..
Week 2	Methods of synthesis and chemical reactions with particular emphasis on the mechanism of electrophilic substitution
Week 3	Mechanism of nucleophilic substitution reactions in pyridine derivatives. Comparison of basicity of pyridine, piperidine and pyrrole
Week 4	<b>Test</b> <b>Heterocyclic Compounds-II</b> Introduction to condensed five and six- membered heterocycles. Preparation and reactions of indole, quinoline and isoquinoline with special reference to Fisher indole synthesis
Week 5	Skraup synthesis and Bischler-Napieralski synthesis. Mechanism of electrophilic substitution reactions of, quinoline and isoquinoline <b>Organosulphur Compounds</b> Nomenclature, structural features
Week 6	Methods of formation and chemical reactions of thiols, thioethers, sulphonic acids, sulphonamides and sulphaguanidine. Synthetic detergents alkyl and aryl sulphonates. <b>Test</b>
Week 7	<b>Organic Synthesis via Enolates</b> Acidity of $\alpha$ -hydrogens, alkylation of diethyl malonate and ethyl acetoacetate. Synthesis of ethyl acetoacetate: the Claisen condensation. Keto-enol tautomerism of ethyl acetoacetate.
Week 8	<b>Synthetic Polymers</b> Addition or chain-growth polymerization. Condensation or step growth polymerization. Polyesters, polyamides, phenol formaldehyde resins, urea formaldehyde resins, epoxy resins and polyurethanes. Natural and synthetic rubbers.
Week 9	Free radical vinyl polymerization, ionic vinyl polymerization, Ziegler-Natta polymerization and vinyl polymers.  <b>Assignment</b>

Week 10	Amino Acids, Peptides & Proteins Classification, of amino acids. Acid-base behavior, isoelectric point and electrophoresis.
Week 11	Preparation of $\alpha$ -amino acids. Structure and nomenclature of peptides and proteins. Classification of proteins
Week 12	<b>MOCK TEST</b>
Week 13	Peptide structure determination, end group analysis, selective hydrolysis of peptides. Classical peptide synthesis, solid-phase peptide synthesis. Structures of peptides and proteins: Primary & Secondary structure
Week 14	<b>Doubt Class and Test</b>
Week 15	<b>REVISION</b>

<b>Name of the Assistant Professor: Ms. Sonia</b> <b>Class And Section: B.Sc. Final year</b> <b>Subject: Real &amp; Complex Analysis</b>	
Week 1	Jacobians
Week 2	Beta & Gamma Function
Week 3	Gamma Function Continue Introduction of Double & Triple integrals
Week 4	Double & Triple integrals
Week 5	Change of order of integration in double integrals Introduction of fourier series
Week 6	Properties of fourier series, fourier coefficients, dirichlet's conditions, parseval's identity
Week 7	Fourier series for even & odd functions, half range series, change of intervals
Week 8	Extended complex plan, Stereographic projection of complex numbers
Week 9	Continuity, differentiability of complex functions, analytic function
Week 10	Cauchy-Riemann equations, Harmonic functions
Week 11	Mapping by elementary functions: Translation, Rotation, Magnification & Inversion
Week 12	<b>MOCK TEST</b>
Week 13	Conformal Mapping, Mobius transformations, fixed point
Week 14	Cross Ratio, Inverse points & Critical Mappings
Week 15	<b>REVISION</b>

<b>Name of the Assistant Professor: Dr. Pinki Rani</b> <b>Class And Section: B.Sc. 1st year (2nd sem)</b> <b>Subject: Computational Techniques in Physics</b>	
Week 1	Introduction to programming using Python
Week 2	Identifiers and keywords, Literals, Strings and basic operators in Python
Week 3	Standard libraries in python, notion of class, object and method
Week 4	Creating Python programs using literal, numbers and string
Week 5	Expression, Input/ Output statements, defining statement in Python Class Test-1
Week 6	Control Structure ( conditional statements, loop control statements, break, continue and pass, exit function)
Week 7	Mutable and immutable objects, Testing and debugging a program.
Week 8	Data types, Fortran variables, Formats, built in function, Class Test- 2
Week 9	executable and non executable statements, Control statements, Arithmetic If and logical if statement
Week 10	Flow charts, truncation error, character DATA management
Week 11	Numerical differentiation and integration methods (Forward and backward difference formula, Trapezoidal and simpson rule)
Week 12	<b>MOCK TEST</b>
Week 13	Curve Fitting, Linear regression, Polynomial regression, Newton interpolation formula
Week 14	Euler and RK methods, Radioactive Decay, Current in RC and IC circuits with DC source
Week 15	<b>REVISION</b>

<b>Name of the Assistant Professor: Dr Pinki Rani</b> <b>Class And Section: B.Sc. 6th sem</b> <b>Subject: Nuclear Physics</b>	
Week 1	Introduction of Nuclear Physics, Rutherford back Scattering
Week 2	Nuclear mass and Binding energy, Nuclear size, spin, parity
Week 3	Numerical Problem on Binding energy and nuclear size, Magnetic dipole moment, quadrupole moment
Week 4	Bain Bridge Spectrograph, Bain Bridge and Jordon mass spectrograph, Determination of charge by Mosley law.
Week 5	Introduction of unit 2: Interaction of charged particles, Alpha disintegration

Week 6	Range and straggling of alpha particles, Numerical problems Class Test - 1
Week 7	Range of electrons and absorption of beta particles, Geiger Nuttal law
Week 8	Interaction of gamma rays, Absorption of gamma rays and its application
Week 9	Introduction of unit 3, Nuclear reactions, Elastic and inelastic scattering, Nuclear disintegration , photonuclear reaction Class test-2
Week 10	Heavy ion and spallation reaction, conservation laws, Q- value and Threshold reactions
Week 11	Nuclear reactors, general aspects of reactor design, Nuclear Fission reactor, Nuclear Fusion reactor
Week 12	<b>MOCK TEST</b>
Week 13	Cyclotron and Betatron accelerator, Ionization Chamber, Proportional counter
Week 14	Geiger Muller Counter, Tendem accelerator, Scintillation counter and semiconductor detector
Week 15	<b>REVISION</b>

<b>Name of the Assistant Professor: Ms Sudha Diwakar</b> <b>Class And Section: B.Sc Biotech 6th sem</b> <b>Subject: Organic chemistry , BT 606</b>	
Week 1	Molecular orbital picture and aromatic characteristics Of pyrrole , Furan and thiophene. Methods of synthesis of pyrrole and furan.
Week 2	Methods of synthesis of thiophene Chemical reactions of pyrrole, furan and thiophene
Week 3	Molecular orbital picture and aromatic characteristics of Pyridine. The mechanism of electrophilic and nucleophilic substitution Preparation of indole, <b>Class Test</b>
Week 4	Preparation and chemical reactions of quinolone and isoquinoline.
Week 5	Nomenclature, structural features, Methods of formation and chemical reactions of thiols, thioethers
Week 6	Methods of formation and chemical reaction of sulphonic acids sulphonamides and sulphaguanidine
Week 7	Synthetic detergents alkyl and aryl sulphonates Acidity of hydrogen, alkylation of diethyl malonate and ethyl acetoacetate. The Claisen condensation. Keto-enol tautomerism of ethyl acetoacetate, <b>Class Test</b>
Week 8	Addition or chain-growth polymerization. Free radical vinyl polymerization. Ionic vinyl polymerization,
Week 9	Preparation , properties and uses of polymers. Ziegler-Natta polymerization. Vulcanization of natural rubber

Week 10	Classification of amino acids. Acid-base behaviour. Structure, and classification of proteins Isoelectric point and electrophoresis, <b>Assignment</b>
Week 11	Preparation of amino acids. Peptide structure determination, end group analysis
Week 12	<b>MOCK TEST</b>
Week 13	Selective hydrolysis of peptides. Classical peptide synthesis. Solid-phase peptide synthesis
Week 14	Proteins: Primary & Secondary structure. Structures of peptides.
Week 15	<b>Revision</b>

<b>Name of the Assistant Professor: Ms. Sapna</b> <b>Class And Section: B.Sc Medical 6th semester</b> <b>Subject: Paper 1- Plant Biochemistry and biotechnology</b>	
Week 1	Introduction of enzymes, discovery and nomenclature, characteristics of enzymes, concept of holoenzymes, Apoenzyme, coenzyme and co-actors.
Week 2	Regulation of enzyme activity, mechanism of action and functions of enzymes. Revision of unit-1 <b>Test</b>
Week 3	Introduction to respiration, aerobic and anaerobic respiration, respiratory substrates, respiratory quotient.
Week 4	Glycolysis, breakdown of pyruvic acid, krebs cycle Chemiosmotic theory, redox potential.
Week 5	Electron transport chain, Oxidative phosphorylation, pentose phosphate pathway, <b>Assignment</b>
Week 6	Factors affecting respiration Revision of unit-2 <b>Test</b>
Week 7	Lipid metabolism- structure and function of lipids, saturated and unsaturated fatty acid Biosynthesis of fats, alpha and beta oxidation
Week 8	Storage and mobilization of fatty acids, glyoxylate cycle. Introduction of nitrogen metabolism and biology of nitrogen fixation
Week 9	Nodule formation in plants, nitrate assimilation in plants and importance of nitrate reductase, ammonium assimilation in plants. Revision of unit-3
Week 10	Tools and techniques of recombinant dna technology, cloning vectors, gene cloning, PCR technique.
Week 11	Genomic and cDNA library, transposable elements, cellular totipotency, differentiation and morphogenesis.
Week 12	<b>MOCK TEST</b>
Week 13	Gene transfer techniques, application of recombinant DNA technology, introduction to plants tissue culture and requirements of plant tissue culture.
Week 14	Different types of plant tissue culture, protoplast fusion and somatic hybridization, application of plant tissue culture.
Week 15	<b>REVISION</b>

<b>Name of the Assistant Professor: Ms. Sapna</b> <b>Class And Section: B.Sc Medical 6th semester</b> <b>Subject: Paper 2- Economic Botany</b>	
Week 1	Vavilov's centre of origin Of crop plants, origin, distribution, botanical description, brief idea of cultivation and uses of wheat, rice and maize.
Week 2	Origin, distribution, botanical description, brief idea of cultivation and uses of pulses(gram, arhar and pea).
Week 3	Origin, distribution, botanical description, brief idea of cultivation and uses of vegetables (potato, tomato, onion).
Week 4	Revision of unit-1 <b>Test</b>
Week 5	Origin, distribution, botanical description, brief idea of cultivation, processing and uses of fibres( cotton, jute and flax).
Week 6	Origin, distribution, botanical description, brief idea of cultivation and uses of groundnut, mustard, sunflower oil.
Week 7	Origin, distribution, botanical description, brief idea of cultivation and uses of coconut. Revision of unit-2 <b>Test</b>
Week 8	Morphology of plant part used, brief idea of cultivation and uses of spices(coriander, ferula, ginger, turmeric).
Week 9	Morphology of plant part used, brief idea of cultivation and uses of cloves. Medicinal plant – Cinchona, Rauwolfia, Atropa, Opium, cannabis
Week 10	Morphology of plant part used, brief idea of cultivation and uses of withania. Revision of unit-3, <b>Assignment</b>
Week 11	Morphology of plant part used, brief idea of cultivation, processing and uses of alcoholic beverage(Tea, coffee)
Week 12	<b>MOCK TEST</b>
Week 13	Morphology of plant part used, brief idea of cultivation, processing and uses of rubber, sugarcane.
Week 14	General account and sources of timber, energy plantation and bio-fuels.
Week 15	<b>REVISION</b>

<b>Name of the Assistant Professor: Ms. Indu Rani</b> <b>Class And Section: B.Sc Life Sciences 2nd</b> <b>Sem. Section A and B</b> <b>Subject: Diversity of Archegoniate</b>	
Week 1	Introduction to bryophyte, General character and classification, Economic importance of bryophyte.
Week 2	Structure and reproduction in Marchantia Structure of Anthoceros
Week 3	Reproduction in Anthoceros, Structure and Reproduction of Funaria Evolution of sporophytes in Bryophytes
Week 4	<b>Test</b> General characters and classification of pteridophytes.

Week 5	Rhynia structure and reproduction Sellaginella external and internal structure
Week 6	Reproduction in Sellaginella Structure and reproduction of Equisetum
Week 7	Structure and reproduction in Pteris Apospory, apogamy and stellar system in pteridophytes
Week 8	<b>Test</b> Fossils and process of fossilization , Geological time scale
Week 9	<b>Assignment</b> Fossil gymnosperm- Lyginopteris, Willaimsonia and Bennettites
Week 10	General characters of gymnosperm and classification of gymnosperm Economic importance of gymnosperm
Week 11	Structure and reproduction of Cycas
Week 12	<b>MOCK TEST</b>
Week 13	Structure and reproduction of Pinus
Week 14	Structure and reproduction of Ephedra
Week 15	<b>REVISION</b>

<b>Name of the Assistant Professor: Ms. Indu Rani</b> <b>Class And Section: Bsc.Biotech 2ns Semester</b> <b>Subject: Basics of Plant Genetics (Botany Minor)</b>	
Week 1	Introduction of Mendellian genetic, history and laws of inheritance Chromosome theory of inheritance,Autosomes and sex chromosome
Week 2	Pedigree analysis, recessive and dominant traits, incomplete and complete dominance Multiple alleles, lethal allele, Epistasis
Week 3	Pleiotrophy, penetrance and expressivity Polygenic inheritance, Numerical practice
Week 4	<b>Test</b> Chloroplast mutation, Variegation in four' o clock plant
Week 5	Mitochondrial mutation, Shell coiling in snail Infective heredity- kappa particles in Paramecium
Week 6	Linkage and crossing over , cytological basis of crossing over Chromosome mapping and recombination frequency
Week 7	Sex linkage, Numerical practice Deletion, duplication , inversion and translocation in chromosome
Week 8	<b>Test</b> Position effect , Aneuploidy and Euploidy and sex determination in plants
Week 9	<b>Assignment</b> Mutation and it's types, physical and chemical mutagens CIB method to detect mutation
Week 10	Fine structure of gene, complementing test for functional alleles Population and evolutionary genetics introduction

Week 11	Allergic and genotypic frequencies Hardy Weinberg law
Week 12	<b>MOCK TEST</b>
Week 13	Role of natural selection, mutation, genetic drift, genetic variations and speciation .
Week 14	Numerical practice
Week 15	<b>REVISION</b>

<b>Name of the Assistant Professor:Ms Khushboo</b> <b>Class And Section: B.Sc life Sciences 2nd Sem</b> <b>Subject: Botany Skill ( Floriculture )</b>	
Week 1	History of gardening, Importance and scope of floriculture and landscape gardening. Nursery Management and Routine Garden Operations:
Week 2	Routine Garden Operations: Sexual and Vegetative methods of propagation: Soil sterilization, Seed sowing: Pricking.
Week 3	Planting and Transplanting, Shading, Stopping or pinching: Defoliation, Wintering, Mulching: Topiary, Role of plant growth regulators.
Week 4	<b>Test</b>
Week 5	Ornamental Plants: Flowering annuals (Petunia, Chrysanthemum) ,Perennials( Rose ,China Rose),Divine vines (Money plant, Monstera)
Week 6	Shade and ornamental trees, Ornamental bulbous.Foliage plants, Cacti and succulents; Palms and Cycads; Ferns and Selaginellas.
Week 7	Ferns and Selaginellas,Cultivation of plants in pots, Indoor gardening; Bonsai.
Week 8	<b>Test, Assignment</b>
Week 9	Principles of Garden Design and landscaping ideas: Features of a garden - Garden wall, Fencing. Steps.
Week 10	Hedge, Edging, Lawn, Flower beds. Shrubbery , Borders, Water Garden.
Week 11	Commercial Floriculture: Factors affecting flower production: Production and packaging of cut flowers.
Week 12	<b>MOCK TEST</b>
Week 13	Flower arrangements; Methods to prolong vase life; Cultivation of Important cut flowers (Carnation, Aster).
Week 14	Chrysanthemum, Dahlia, Gerbera, Gladiolous, Marigold: 1. Rose. Lilium, Orchids.
Week 15	<b>REVISION</b>

<b>Name of the Assistant Professor:Ms Khushboo</b> <b>Class And Section: BSc 2nd Sem</b> <b>Subject: Multidisciplinary Course ( Plant Diversity and Human Welfare)</b>	
Week 1	Types of Biodiversity, Level of Biodiversity: genetic, species and ecosystems, Patterns of Biodiversity
Week 2	Loss of genetic diversity. Loss of species diversity, Loss of economic diversity ,loss of agrobiodiversity, Projected scenario for biodiversity loss
Week 3	Factors affecting biodiversity , Over Exploitation , Habitat loss and Degradation , Invasive Species , Diseases, Natural calamities , Global Climate Change , Concept of endemism in plants .
Week 4	<b>Test, Assignment</b>
Week 5	IUCN categories: not evaluated; data deficient, least concern: near threatened, vulnerable, Endangered ,critically endangered, extinct in wild, extinct categories.
Week 6	Principles of conservation : Insitu and ExSitu Conservation ,Social approaches to conservation, Biodiversity awareness programmes , sustainable development .
Week 7	Organizations associated with biodiversity management-Methodology for execution-IUCN, UNEP,UNESCO, WWF, NBPGR;
Week 8	<b>Test</b>
Week 9	Biodiversity legislation and conservations. Soil erosion and conservation methods. Conservation of Forests: Afforestation, Reforestation. Monoculture.
Week 10	The Conservation of water: water scarcity, rain water harvesting. World Biodiversity hotspot ,National Parks Biosphere reserves and Wetlands.
Week 11	Role of plants in relation to Human Welfare; a) Importance of forestry their utilization and commercial aspect.
Week 12	<b>MOCK TEST</b>
Week 13	b) Avenue trees, c) Ornamental plants of India. D) Non-alcoholic beverage through ages.
Week 14	Fruits and nuts: Important fruit crops their commercial importance. Wood and its uses.
Week 15	<b>REVISION</b>

<b>Name of the Assistant Professor: Ms. Ranjana</b> <b>Class And Section: B.Sc. Biotechnology VI</b> <b>Semester</b> <b>Subject: Physical Chemistry (BT-605)</b>	
Week 1	Concept of potential energy curves for bonding and antibonding molecular orbitals. Concept of potential energy curves for bonding and antibonding molecular orbitals.
Week 2	Qualitative description of sigma and pi and n molecular orbital (MO) their energy level and respective transitions. Interaction of radiation with matter, difference between thermal and photochemical processes.
Week 3	Laws of photochemistry: Grotthus-Draper law, Stark- Einstein law (law of photochemical equivalence) Jablonski diagram depicting various processes occurring in the excited state. & <b>TEST</b>
Week 4	qualitative description of fluorescence, phosphorescence, non-radiative processes. quantum yield, photosensitized reactions-energy transfer processes.
Week 5	Ideal and non-ideal solutions, methods of expressing concentrations of solutions. activity and activity coefficient. Dilute solution, Colligative properties, Raoult's law, relative lowering of vapour pressure.
Week 6	molecular weight determination, Osmosis law of osmotic pressure and its measurement, determination of molecular weight from osmotic pressure. & <b>Assignment.</b>
Week 7	Elevation of boiling point and depression of freezing point, Thermodynamic derivation of relation between molecular weight and elevation in boiling point and depression in freezing point.
Week 8	Experimental methods for determining various colligative properties. Abnormal molar mass, degree of dissociation and association of solutes.
Week 9	Statement and meaning of the terms– phase component and degree of freedom, thermodynamic derivation of Gibbs phase rule.
Week 10	phase equilibria of one component system– water & <b>TEST</b>
Week 11	phase equilibria of one component system- Sulphur systems.
Week 12	<b>MOCK TEST</b>
Week 13	phase equilibria of one component system– water
Week 14	phase equilibria of one component system- Sulphur systems
Week 15	<b>REVISION</b>

<b>Name of the Assistant Professor: Dr. Priti</b> <b>Class And Section: B.Sc. Biotech 6th sem.</b> <b>Subject: Animal Biotechnology</b>	
Week 1	Gene transfer methods in Animals– Microinjection, Embryonic Stem cell, gene transfer
Week 2	Gene transfer methods in Animals– Retrovirus & Gene transfer
Week 3	Introduction to transgenesis. Transgenic Animals– Mice, Cow, Pig, Sheep, Goat, Bird, Insect
Week 4	Introduction to transgenesis. Transgenic Animals– Mice, Cow, Pig, Sheep, Goat, Bird, Insect, <b>Class Test I</b>
Week 5	Introduction to transgenesis. Transgenic Animals– Mice, Cow, Pig, Sheep, Goat, Bird, Insect
Week 6	Animal diseases need help of Biotechnology
Week 7	Animal diseases need help of Biotechnology–Foot-and- mouth disease, Coccidiosis, Trypanosomiasis, Theileriosis
Week 8	Animal diseases need help of Biotechnology–Foot-and- mouth disease, Coccidiosis, Trypanosomiasis, Theileriosis
Week 9	Animal propagation– Artificial insemination, Animal Clones
Week 10	Conservation Biology– Embryo transfer techniques, <b>Class Test II</b>
Week 11	Introduction to Stem Cell Technology and its applications, <b>Assignment</b>
Week 12	<b>MOCK TEST</b>
Week 13	Genetic modification in Medicine- gene therapy, types of gene therapy, vectors in gene therapy
Week 14	Molecular engineering, human genetic engineering, problems & ethics
Week 15	<b>REVISION</b>

<b>Name of the Assistant Professor: Ms. Ranjana</b> <b>Class And Section: B.Sc. Biotechnology Subject:</b> <b>Inorganic Chemistry (BT-607)</b>	
Week 1	Organometallic Chemistry Definition, nomenclature and classification of organometallic compounds.
Week 2	Preparation, properties, and bonding of alkyls of Li, Al, Hg, and Sn a brief account of metal-ethylenic complexes.
Week 3	mononuclear carbonyls and the nature of bonding in metal carbonyls. Acid & Base ,Arrhenius, Bronsted– Lowry, the Lux– Flood.
Week 4	Solvent system and Lewis concepts of acids & bases, relative strength of acids & bases. & <b>TEST</b>

Week 5	Concept of Hard and Soft Acids & Bases. Symbiosis, electronegativity and hardness and softness.
Week 6	Essential and trace elements in biological processes. metalloporphyrins with special reference to haemoglobin and myoglobin. & <b>Assignment</b>
Week 7	Biological role of alkali and alkaline earth metal ions with special reference to Ca <sup>2+</sup> . Nitrogen fixation.
Week 8	Silicones preparation, properties. & <b>TEST</b>
Week 9	Silicones structure and uses.
Week 10	Phosphazenes preparation, properties
Week 11	Phosphazenes structure and uses.
Week 12	<b>MOCK TEST</b>
Week 13	Phosphazenes preparation, properties
Week 14	Phosphazenes structure and uses.
Week 15	<b>REVISION</b>

<b>Name of the Assistant Professor: Dr. Priti</b> <b>Class And Section: B.Sc. Biotech 2nd sem.</b> <b>Subject: Basics of Biotechnology</b> <b>(24CBTS402DS02)</b>	
Week 1	Introduction to biotechnology – an interdisciplinary pursuit; Main areas of application of biotechnology; Biotechnology research in India and biotechnology in context of developing world; Public perception of biotechnological products;
Week 2	Brief account of safety guidelines, risk assessment and ethics in biotechnology; Very brief account of intellectual property rights; Substrates (raw materials) and the future of biotechnology.
Week 3	In brief scope and techniques of preservation. Introduction of fermentation technology.
Week 4	Introduction of animal tissue culture (brief of history, culture media, substrate surfaces, culture procedures, primary cultures, cell lines, organ culture and tissue engineering etc. <b>Class Test I</b>
Week 5	Introduction of plant tissue culture (in brief history, culture media, explants, totipotency, dedifferentiation and types of cell & tissue culture etc.). Scope and applications of animal biotechnology and plant biotechnology.
Week 6	Brief account of immunotechnology: immune system (immunecells, types of immunity and general structure of immunoglobulins), hybridoma technology and monoclonal antibodies. In vitro fertilization and embryo transfer technology in brief.
Week 7	Genetics and Biotechnology: Introduction of genetic engineering, gene and genomes, proteins and proteome, history of genetic manipulations, DNA fingerprinting and forensic analysis.

Week 8	Industrial genetics, Potential laboratory biohazards of genetic engineering. Introduction to molecular markers and genetic mapping;
Week 9	Introduction of enzyme technology: nature of enzymes, application of enzymes and immobilized enzymes. <b>Class Test II</b>
Week 10	An overview, scope and market of biological control of environment.
Week 11	Brief account on bioremediation and waste treatment biotechnology, microbial insecticides, biofertilizers. <b>Assignment</b>
Week 12	<b>MOCK TEST</b>
Week 13	Microbes in oil recovery and bioleaching. Application of biotechnology in medicine (pharmaceutical industry, vaccines, antibiotics etc.),
Week 14	Application of biotechnology in food industry, biofuels and chemical industry.
Week 15	<b>REVISION</b>

<b>Name of the Assistant Professor: Ms. Aarti</b> <b>Class And Section: Biotechnology</b> <b>Subject: Digital and Technological Solutions</b>	
Week 1	Introduction & Evolution of Digital Systems: Role & Significance of Digital Technology, Information and Communication Technology (ICT) & Tools
Week 2	Computer system and its working , software and its types
Week 3	Operating systems: Types and Functions, Problem solving: Algorithms and Flowcharts
Week 4	Communication Systems: Principles, model & Transmission Media, Computer Networks and internet: Concepts & Applications
Week 5	www, web Browsers, Search Engines, Messaging, Email, Social Networking, Computer based information system: Significance & Challenges
Week 6	Digital India &-Governance: Initiatives, Infrastructure, Services and Empowerment, digital financial tools: Unified payment interface
Week 7	Unified Payment Interface, Aadhar enabled Payment System, USSD, Credit/debit cards, e-wallets, Internet banking
Week 8	NEFT/RTGS and IMPS, OnlineBill Payment and POS.Cyber Security:Threats,significance, Challenges, Precautions
Week 9	<b>Class Test</b> Precautions, safety Measures and Tools,Emerging Technologiesand their applications: Overview of Artificial intelligence
Week 10	Machine Learning: Big Data, Data Science and Big Data Analytics; Internet of Things(IoT)
Week 11	Industrial Internet of Things (IIoT), Robotics and 3D Printig
Week 12	<b>MOCK TEST</b>

Week 13	Block chain Technology <b>Class Test, Assignment</b>
Week 14	Quantum Computing; Cloud computing and its service models
Week 15	<b>REVISION</b>

<b>Name of the professor: Ms Kavita</b> <b>Class and Section: B.Sc biotech 3rd yr. Semester</b> <b>VI Subject: BT603 Bioprocess Technology</b>	
Week 1	Introduction to bioprocess technology.. Basic principle components of fermentation technology
Week 2	Types of microbial culture and its growth kinetics– Batch, Fedbatch and Continuous culture.
Week 3	Design of bioprocess vessels- Significance of Impeller, Baffles, Sparger; A
Week 4	Airlift; Cyclone Column; Packed Tower and their application in production processes
Week 5	Types of culture/production vessels,
Week 6	<b>Test</b>
Week 7	Mass transfer coefficient; factors affecting KLa.
Week 8	Bioprocess measurement and control system with special reference to computer aided process control.
Week 9	Range of bioprocess technology and its chronological development
Week 10	<b>Test, Assignment</b>
Week 11	Introduction to oxygen requirement in bioprocess
Week 12	<b>MOCK TEST</b>
Week 13	Effluent treatment.
Week 14	Microbial production of ethanol, amylase, lactic acid and Single Cell Proteins.
Week 15	<b>REVISION</b>

<b>Name of the Assistant Professor: Ms. Jyoti Sharma</b> <b>Class And Section: B.Sc. Biotech 6th sem.</b> <b>Subject: Plant Biotechnology &amp; Environmental Biotechnology (BT-604) Teaching</b>	
Week 1	Introduction to <i>in vitro</i> methods. Terms and definitions. Use of growth regulators.
Week 2	Embryo culture, embryo rescue after wide hybridization and its applications, Introduction to the processes of embryogenesis
Week 3	organogenesis and their practical applications. Clonal multiplication of lite species (Micropropagation) exillary bud, shoot-tip and meristem culture.
Week 4	Haploids and their applications, Soma clonal variations and applications., <b>Class Test I</b>
Week 5	Endosperm culture and production of triploids. Single –cell suspension cultures. Introduction to protoplast isolation: Principles and applications
Week 6	Various steps in the regeneration of protoplasts. Somatic hybridization – an introduction.
Week 7	Use of markers for selection of hybrid cells. Practical applications of somatic hybridization (hybrids vs cybrids).
Week 8	Microbiological quality of food and water. <b>Assignment</b>
Week 9	Treatment of municipal waste and industries effluents.
Week 10	Degradation of pesticides and other toxic chemicals by microorganisms (Bioremediation), <b>Class Test II</b>
Week 11	Thuringiensis toxin as a natural pesticide. Biological control of other insects swarming the agricultural fields
Week 12	<b>MOCK TEST</b>
Week 13	Enrichment of ores by microorganisms. Biofertilizers
Week 14	Nitrogen fixing microorganisms enrich the soil with assimilable nitrogen.
Week 15	<b>REVISION</b>

<b>Name of the Assistant Professor: Dr. Mamta Singh</b> <b>Class And Section: B.Sc Life Sciences Semester - II Section A &amp; B Subject: DNA Fingerprinting(Minor)</b>	
Week 1	Unit 1:DNA Profiling: Introduction, History of DNA Typing, human genetics – heredity,alleles, mutations
Week 2	Molecular biology of DNA and RNA, DNA types. Unit 2: DNA Polymorphism: VNTR, STR, SNP, Mt DNA, DNA Markers
Week 3	Sequence polymorphism. DNA typing systems- RELP analysis, PCR amplifications. <b>Class Test-I</b>
Week 4	Unit 3:DNA profiling methods: Sample collection and preservation for DNA profiling,
Week 5	DNA Extraction, Analysis of SNP, STR, Y-STR.
Week 6	Mitochondrial DNA, evaluation of results, database,
Week 7	Quality control, certification and accreditation.
Week 8	Unit 4:Forensic applications of DNA Profiling: Applications in disputed paternity cases, child swapping,
Week 9	missing person’s identity – civil immigrations, veterinary
Week 10	wildlife and agriculture cases,
Week 11	legal perspectives – legal standards for admissibility of DNA profiling. <b>Assignment</b>
Week 12	<b>MOCK TEST</b>
Week 13	New and future technologies: DNA Chips
Week 14	Rapid DNA analyser, imitations of DNA profiling. <b>Class Test-II</b>
Week 15	<b>REVISION</b>

<b>Name of the Assistant Professor: Dr. Mamta Singh</b> <b>Class And Section: B.Sc Life Sciences Semester - II, Section A &amp; B Subject: Animal Diversity - II(Major)</b>	
Week 1	Unit 1 :Chordates : Salient features of chordates, principles of classification. Protochordates : Type study of Herdmania-External morphology
Week 2	Digestive and Blood vascular system . Nervous system,sense organs and excretory system
Week 3	Reproductive system (male and Female) <b>Class Test-I</b>
Week 4	Unit 2:Pisces : General characters and classification upto classes. Types of scales and fins in fishes.
Week 5	Type study : Labeo-External Characters,Body Wall Digestive system,Respiratory system.
Week 6	Blood Vascular and Nervous system . Sense Organs
Week 7	Excretory system and Reproductive Systems Unit 3:Amphibia : General characters and classification upto classes. Type study : Frog-External morphology ,Skin
Week 8	Digestive system,Respiratory system Circulatory system
Week 9	Nervous System,Sense organs and Urogenital system Parental care in Amphibians Reptilia : General characters and classification upto classes
Week 10	Unit 4:Aves : General characters and classification upto classes Flight adaptations in birds, Archeopteryx as missing link Mammals : General characters and classification upto classes <b>Assignment</b>
Week 11	Type study : Rat-External Characters,Body Wall Digestive system,Respiratory system. <b>Class test-II</b>
Week 12	<b>MOCK TEST</b>
Week 13	Blood Vascular and Nervous system . Sense Organs,
Week 14	Endocrine system and Urinogenital system
Week 15	<b>REVISION</b>

<b>Name of the Assistant Professor: Mrs. Savita Nailwal</b> <b>Class And Section: B.Sc Life Sciences Semester - II, Section A Subject: Digital &amp; Technological solutions</b>	
Week 1	Unit 1 :Introduction & Evolution of Digital Systems: Role & Significance of Digital Technology
Week 2	Information and Communication Technology (ICT) & Tools
Week 3	Computer System & its working, Software and its types. Operating Systems: Types and Functions. Problem Solving: Algorithms and Flowcharts <b>Class Test-I</b>
Week 4	Unit 2:Communication Systems: Principles, Model & Transmission Media
Week 5	Computer Networks & Internet: Concepts & Applications, WWW, Web Browsers, Search Engines, Messaging, Email, Social Networking. Computer Based Information System
Week 6	Significance & Types. E-commerce & Digital Marketing: Basic Concepts, Benefits & Challenges
Week 7	Unit 3 Emerging Technologies and their applications: Overview of Artificial Intelligence, Machine Learning, Deep Learning; Big Data, Data Science and Big Data Analytics.
Week 8	Internet of Things (IoT) and Industrial Internet of Things (IIoT), Robotics and 3D Printing
Week 9	Blockchain Technology; Quantum Computing; Cloud computing and its service models.
Week 10	Unit 4:Digital India & e-Governance: Initiatives, Infrastructure, Services and Empowerment. Digital Financial Tools: Unified Payment Interface
Week 11	Unit 4 Aadhar Enabled Payment System, USSD, Credit / Debit Cards, e-Wallets, Internet Banking, NEFT/RTGS and IMPS, Online Bill Payment and POS. <b>Class test-II, Assignment</b>
Week 12	<b>MOCK TEST</b>
Week 13	Cyber Security: Threats, Significance, Challenges
Week 14	Challenges, Precautions, Safety Measures and Tools.
Week 15	<b>REVISION</b>

<b>Name of the Assistant Professor: Ms Payal</b> <b>Class And Section: B.Sc Life Sciences Semester - II</b> <b>Subject: Basics of Zoology -II</b>	
Week 1	Unit 1: Basics of Chordates: Define and Salient features of chordates.
Week 2	Unit 1: Difference between non chordates and chordates. <b>Class test-I</b>
Week 3	Unit 1: Characters of protochordates <b>Assignment</b>
Week 4	Unit 2: Pisces (Fishes): Characteristic features of freshwater and marine fishes, Edible fishes of India, Composite fish culture.
Week 5	Unit 2: Class Amphibia: Features of amphibians, Parental care in amphibians, Role of amphibians in ecosystem
Week 6	Unit 2: Identification of turtles and tortoise, Frog and Toad.
Week 7	Unit 3: Class Reptilia: Features of Reptiles, Common reptiles of India
Week 8	Unit 3: Identification of Poisonous and non poisonous snakes
Week 9	Unit 3: Difference between crocodile and Gharial
Week 10	Unit 4: Class Aves: Characteristic features of birds, Common birds of India,
Week 11	Unit 4: Flight adaptations in birds, <b>Class test-II</b>
Week 12	<b>MOCK TEST</b>
Week 13	Unit 4: Commercial uses of birds, Role of birds in agriculture.
Week 14	Unit 4: Class Mammals: Characters and economic importance of mammals
Week 15	<b>REVISION</b>

<b>Name of the Assistant Professor: Mrs. Savita</b> <b>Nailwal</b> <b>Class And Section: B.Sc Life Sciences Semester -</b> <b>II Subject: Pest management.</b>	
<b>Week 1</b>	<b>Unit 1 :</b> Study of important insect pests of crops and vegetables: Sugarcane: (With their systematic position, habits and nature of damage caused.(a) Sugarcane leaf-hopper (Pyrilla perpusilla), (b) Sugarcane Whitefly (Aleurolobus barodensis), (c) Sugarcane top borer (Scirpophaga nivella)
<b>Week 2</b>	(d) Sugarcane root borer (Emmalocera depresella), (e) Gurdaspur borer (Bissetia steniellus) Life cycle and control of Pyrilla perpusilla only. Cotton: (With their systematic position, habits and nature of damage caused.
<b>Week 3</b>	(a) Pink bollworm (Pestiphora gossypifolia), (b) Red cotton bug (Dysdercus cingulatus), (c) Cotton grey weevil (Myloccerus undecimpustulatus) (d) Cotton Jassid (Amrasca devastans), Life cycle and control of Pectinophore gossypiella
<b>Week 4</b>	Unit 2:Wheat: Wheat stem borer (Sesamia inferens) with its systematics position, habits, nature of damage caused. Life cycle and control methods.
<b>Week 5</b>	Unit 2:Paddy: (With their systematic position, habits and nature of damage caused)(a) Gundhi bug (Leptocorisa acuta) (b) Rice grasshopper (Hieroglyphus banian), <b>Class test</b>
<b>Week 6</b>	Unit 2:(c) Rice stem borer (Scirpophaga incertullus) (d) Rice Hispa (Diceladisa armigera) Life cycle and control of Loptocorisa acuta only.
<b>Week 7</b>	Unit 3:Vegetables: (Their systematics position, habits and nature of damage caused.(a) Aulacophora faveicollis – The Red pumpkin beetle. (b) Dacus cucurbitas – The pumpkin fruit fly. (c) Tetranychus tecarius
<b>Week 8</b>	(d) Epilachna – The Hadda beetle Life cycle and control of Aulacophora faveicollis Stored grains: (Their systematic position, habits and nature of damage caused. (a) Pulse beetle (Callosobruchus maculatus) (b) Rice weevil (Sitophilus oryzae) (c) Wheat weevil (Trogoderma granarium)
<b>Week 9</b>	(d) Rust Red Flour beetles (Tribolium castaneum) (e) Lesser grain borer (Rhizopertha dominica) (f) Grain & Flour moth (Sitotroga cerealella) Life cycle and control of Trogoderma granarium)
<b>Week 10</b>	Important bird and rodent pests of agriculture & their management.
<b>Week 11</b>	Pest control: Biological control, its history, requirement and precautions and feasibility of biological agents for control., <b>Class test</b>
<b>Week 12</b>	<b>MOCK TEST</b>
<b>Week 13</b>	Chemical control: History, Categories of pesticides, important pesticides from each category to pests against which they can be used, insect repellents and attractants.
<b>Week 14</b>	Integrated pest management, <b>Assignment</b>
<b>Week 15</b>	<b>REVISION</b>

<b>Name of the Assistant Professor: Dr Reeti Panchal</b> <b>Class And Section: B.Sc. Biotech 4th Semester</b> <b>Subject: Animal Nutrition (25ZOO404MV01)</b>	
Week 1	Food procurement: Autotrophs: Photosynthetic and chemosynthetic, heterotrophs, herbivores
Week 2	Carnivores, omnivores, insectivores, cannibalism, saprotrophs
Week 3	Parasitism, Organs of digestion: mouth , buccal cavity and its glands
Week 4	Stomach and its glands, Intestine and its glands, <b>Class Test</b>
Week 5	Liver, Digestion and absorption of carbohydrates
Week 6	Digestion and absorption of proteins & fats, <b>Class Test</b>
Week 7	Nutritional requirements: balanced diet, macronutrients, micro-nutrients
Week 8	Nutritional requirements: carbohydrates, proteins, fats, water and various related deficiency disease
Week 9	Energy requirement, Vitamins: Fat soluble and various related deficiency disease
Week 10	Vitamins: Water soluble and various related deficiency disease
Week 11	Minerals and various related deficiency disease, <b>Assignment</b>
Week 12	<b>MOCK TEST</b>
Week 13	Minerals and various related deficiency disease
Week 14	Obesity and Anorexia, <b>Assignment</b>
Week 15	<b>REVISION</b>

<b>Name of the Assistant Professor: Dr Reeti Panchal</b> <b>Class And Section: B.Sc. Life science 4th sem</b> <b>Subject: Biomolecules and Mammalian Physiology (25ZOOM404DS01)</b>	
Week 1	Introduction, classification, function, general structure and properties of proteins, carbohydrates and lipids, Nomenclature, classification & mechanism of enzyme action
Week 2	Inhibition of enzyme action, Digestion & absorption of carbohydrates, proteins and fats, vitamin
Week 3	Origin, conduction and regulation of heart beat, Cardiac cycle, Electrocardiogram, Cardiac output, Fluid pressure and flow pressure in closed and open circulatory system

Week 4	Composition and function of blood & lymph, Mechanism of coagulation of blood, Coagulation factors Anticoagulants, Haemopoiesis, Control of blood pressure, <b>Class Test</b>
Week 5	Exchange of respiratory gases, Transport of gases, Lung air volumes Oxygen dissociation curve of hemoglobin
Week 6	Bohr's effect, Hamburger's phenomenon (chloride shift), Control and regulation of respiration, Factors affecting Oxygen dissociation curve
Week 7	Structure of nephron, Patterns of excretory products, Ammonotelic, ureotelic, uricotelic, Ornithine cycle for urea formation in liver
Week 8	Urine formation, Counter-current mechanism of urine concentration
Week 9	Osmoregulation and micturition, Neuron structure, <b>Class Test</b>
Week 10	Nature, origin and propagation of nerve impulse along with medullated fibres, <b>Assignment</b>
Week 11	Nature, origin and propagation of nerve impulse along with non-medullated fibre, Conduction of nerve impulse across synapse
Week 12	<b>MOCK TEST</b>
Week 13	Mechanism of hormone action, Physiology of hypothalamus, Physiology of pituitary gland, gonads, <b>Assignment</b>
Week 14	Physiology of thyroid and parathyroid gland, Physiology of Pancreas, Adrenal gland
Week 15	<b>REVISION</b>

<b>Name of the Assistant Professor: Ms. Shweta Chaudhary</b> <b>Class And Section: B. Sc. Biotechnology and B. Sc. Physical Sciences 4th Semester</b> <b>Subject: Horticulture</b>	
Week 1	Horticulture: Definition, branches, scope and economic importance of horticultural crops. Classification of horticultural crops based on climatic requirements and season of growth.
Week 2	Manures: Definition, importance of manures, FYM (compost), oil cakes, green manure, organic manures and vermicompost
Week 3	Test I Natural Propagation by seeds, vegetative Structures like Bulbs, Tubers, Corms,
Week 4	vegetative Structures like runners, Offsets and suckers
Week 5	Vegetative propagation by Rhizomes and Rootstock

Week 6	Assignment artificial Propagation: Cutting, Layering, Grafting and Budding
Week 7	Application of plant growth regulators in horticulture Auxins, Gibberellins, Cytokinins, Ethylene and Brassinosteroids.
Week 8	Test II Green house technology- definition, types, layout, construction, irrigation systems, care and attention, hardening of plants.
Week 9	Soil and climatic requirements of horticultural crops, Selection of site, planning and training.
Week 10	Management and Importance of Pruning and Cropping systems; garden implements and their uses.
Week 11	Management: Orchard management, Nutrition management, Water management and Weed
Week 12	<b>MOCK TEST</b>
Week 13	Weed Management. Growing of Important fruit plants (Mango, Ber, Almond, Lemon, Banana) through vegetative methods
Week 14	Doubt session
Week 15	<b>REVISION</b>

<b>Name of the Assistant Professor : Ms. Shivani Gandhi</b> <b>Class And Section : M.Sc. (Final year)</b> <b>Subject : Data Base Management System</b>	
Week 1	Terminologies of database, drawbacks of Conventional file System , Data Administrator (Role and Functions), Characteristics of Database
Week 2	Data Redundancy, Data integrity, Data independence
Week 3	Data Base Management System and it's functions, Advantages and Disadvantages of Database
Week 4	Three levels of architecture, External level, conceptual level and internal level
Week 5	Mappings and Schemas, client/server architecture, Distributed processing
Week 6	Test , Data models, Relational data model , Hierarchical Data model
Week 7	Network data Model, Relational model, basic Structure, terminology
Week 8	Normalization ,first Normal form, Second Normal form, Third Normal form
Week 9	BCNF, Relational algebra and Relational calculus
Week 10	Test, pL/SQL Blocks , Revision of Unit 1
Week 11	Data types, PL/ SQL functions , test
Week 12	<b>MOCK TEST</b>
Week 13	Cursors , Error Handling in PL/SQL , Package functions, Package Procedures
Week 14	Database Trigger : use and types of database triggers, Database Triggers vs. Declarative Integrity constraints, creating a trigger, Before vs. After, triggers combinations, Dropping a trigger
Week 15	<b>REVISION</b>

**K.L MEHTA DAYANAND COLLEGE FOR WOMEN, FARIDABAD**  
**LESSON PLAN FOR THE SESSION 2025-26 (EVEN SEMESTER)**

<p>Name of the Assistant Professor: Dr Pinki Rani  Class : B.Sc. 4th sem  Subject: Thermodynamics and Statistical Physics</p>	
<b>Week 1</b>	Second Law of Thermodynamics, Carnot theorem and Carnot cycle, Absolute scale of temperature.
<b>Week 2</b>	Entropy, Absolute zero, T-S diagram, Nernst heat theorem, Joule's free expansion, Joule-Thomson porous plug experiment, Joule-Thomson effect.
<b>Week 3</b>	Clausius-Clapeyron equation and latent heat equation. Phase diagram and triple point of a substance.
<b>Week 4</b>	Maxwell's thermodynamical relations (derivation). Applications of Maxwell relations in thermodynamic variables. Internal energy (U), Enthalpy (H), Helmholtz free energy (F), Gibbs free energy (G) and relations between them.
<b>Week 5</b>	Thermodynamic potentials and their physical significance. Specific heats and entropy relations. Numerical problems. Class Test – 1
<b>Week 6</b>	Distribution of distinguishable and indistinguishable particles ( $N = 2,3,4$ ). Microstates and macrostates. Thermodynamic probability.
<b>Week 7</b>	Maxwell-Boltzmann statistics (derivation). Energy distribution law. Maxwell's distribution of molecular speeds and velocities.
<b>Week 8</b>	Most probable speed, average speed and RMS speed (derivations). Mean energy of Maxwellian distribution. Numerical problems.
<b>Week 9</b>	Classical vs Quantum statistics. Need of quantum statistics. Bose-Einstein statistics and Bose-Einstein distribution law. Class Test – 2
<b>Week 10</b>	Applications of B.E. statistics to Planck's radiation law. Degeneracy and Bose-Einstein condensation.
<b>Week 11</b>	Fermi-Dirac statistics and Fermi-Dirac distribution law. Fermi energy and Fermi temperature.

<b>Week 12</b>	<b>MOCK TEST</b>
<b>Week 13</b>	Fermi–Dirac distribution applied to electron gas in metals. Zero-point energy. Average energy and speed at 0 K.
<b>Week 14</b>	Dulong and Petit Law (classical derivation). Failure of classical theory. Quantum explanation.
<b>Week 15</b>	<b>REVISION</b>

<b>Name of the Assistant Professor: Ms. Shweta Chaudhary</b> <b>Class And Section: B. Sc. Life Sciences 4<sup>th</sup> semester</b> <b>Subject: Plant Anatomy and Reproductive Biology</b>	
Week 1	Tissues - meristematic and permanent (simple, complex and secretory); Tissue systems (Epidermal, ground and vascular) The Shoot system - Histological organizations of shoot apical meristem
Week 2	Cambium structure and functions; Secondary growth in dicot stem Anomalous secondary growth (Dracaen, Boerhaavia, Achyranthus and Salvadoria)
Week 3	Test I Leaf- Anatomy of typical Monocot and Dicot leaf; cell inclusions in leaves; Stomatal apparatus and their morphological types, modifications of leaves and Secondary functions of leaves
Week 4	Assignment Root system- Histological organizations of root apical meristem; Secondary growth in dicot root;
Week 5	Functions of roots, Structural modifications in roots: Storage (Beta), Respiratory (Rhizophora), Epiphytic (Vanda)
Week 6	Test II Flower-a modified shoot, Development of anther, Microsporogenesis, Microsporangium -structure and dehiscence mechanism. Pollen grain and its structure (pollen wall).
Week 7	Pollen germination (microgametogenesis), Male gametophyte
Week 8	Pollen-pistil interaction; self incompatibility, Pollination: types and agencies. Evolutionary aspects of pollination.
Week 9	Structure of Megasporangium (ovule) and its types; Megasporogenesis and Megagametogenesis, Female gametophyte (mono, bi and tetrasporic)
Week 10	Double fertilization and its biological importance, Endosperm types. Embryogenesis in Dicot
Week 11	Embryogenesis in monocots, Polyembryony, structure of Dicot and monocot seed
Week 12	<b>MOCK TEST</b>

Week 13	Fruit types; Dispersal mechanisms in fruits and seeds
Week 14	Doubt session
Week 15	<b>REVISION</b>

<b>Name of the Assistant Professor: Ms. Jyoti kushwah</b> <b>Class And Section: B. Sc. (4th sem)</b> <b>Subject: Real Analysis</b>	
<b>Week 1</b>	Unit I : Finite and infinite sets, Countable and uncountable sets, Bounded sets
<b>Week 2</b>	Supremum and infimum, Completeness property of R
<b>Week 3</b>	Archimedean property of R. Do it Exercise 1.1 and 2.1
<b>Week 4</b>	Unit II : Riemann integral, Integrability of continuous and monotonic functions <b>Test - I</b>
<b>Week 5</b>	Fundamental theorem of integral calculus
<b>Week 6</b>	Mean value theorems of integral calculus. Do it exercise <b>Assignment-I</b>
<b>Week 7</b>	Unit III: Improper integrals and their convergence, Comparison tests
<b>Week 8</b>	Abel's and Dirichlet's tests, Frullani's integral <b>Test- II</b>
<b>Week 9</b>	Integral as a function of a parameter. Continuity, Differentiability
<b>Week 10</b>	Integrability of an integral of a function of a parameter. Do it exercise
<b>Week 11</b>	Unit IV : Jacobians, Beta and Gamma functions, Double and Triple integrals
<b>Week 12</b>	<b>MOCK TEST</b>
<b>Week 13</b>	Unit IV contd. : Dirichlet's integrals, Change of order of integration in double integrals.
<b>Week 14</b>	Do it exercise
<b>Week 15</b>	<b>REVISION</b>

<b>Name of the Assistant Professor: Ms. Anita Yadav</b> <b>Class And Section: B.Sc Physical science 4th sem</b> <b>Subject: Fundamental Chemistry -3</b>	
<b>Week 1</b>	Unit -1 Coordination Compounds Coordination compounds, ligands, coordination number, oxidation states, coordination entity
<b>Week 2</b>	IUPAC nomenclature of coordination compounds, isomerism in coordination compounds with coordination numbers 4 and 6. Chelates and chelate effect.
<b>Week 3</b>	Valence bond theory and its application to complexes of coordination numbers 4 and 6. Examples of inner and outer orbital complexes, limitations of VBT.
<b>Week 4</b>	Basic idea of Crystal field theory. Unit-2 Magnetic Properties of Transition Metal Complexes Types of magnetic behavior, methods of determining magnetic susceptibility, spin-only formula. Test of Unit-1
<b>Week 5</b>	L-S coupling, correlation of $\mu_s$ and $\mu_{eff}$ values, orbital contribution to magnetic moments, applications of magnetic moment data for 3d metal complexes. Thermodynamic and Kinetic Aspects of Metal Complexes: A brief outline of thermodynamic stability of metal complexes
<b>Week 6</b>	Factors affecting the stability, substitution reactions of square planar complexes of Pt (II). Doubt of Unit-1 Unit-3 Kinetics and Chemical Equilibrium Integrated rate expression for first, second and third order reaction and their half-life period.
<b>Week 7</b>	Methods of determination of order of reaction. Effect of temperature on the rate of reaction – Arrhenius equation. Theories of reaction rate–Simple collision theory for unimolecular and bimolecular collision.
<b>Week 8</b>	Assignment of Unit-2 Transition state theory of bimolecular reactions. Equilibrium constant and free energy, concept of chemical potential, thermodynamic derivation of law of chemical equilibrium
<b>Week 9</b>	Temperature dependence of equilibrium constant, Van't Hoff reaction isochores, Van't Hoff reaction isotherm. Le-Chatelier's principle and its applications, Clapeyron equation and

	Clausius – Clapeyron equation & its applications.
<b>Week 10</b>	Test of Unit -3 Unit–IV Alcohols, Phenols and Ethers Alcohols: General methods of preparation using Grignard reagent, ester hydrolysis, reduction of aldehydes, ketones, carboxylic acid and esters
<b>Week 11</b>	Reactions: with sodium, HX (Lucas test), esterification, oxidation (with PCC, alk. KMnO <sub>4</sub> , acid. dichromate, con. HNO <sub>3</sub> ). Oppeneauer oxidation. Diols: Oxidation of diols. Pinacol-Pinacolone rearrangement. Doubt of Unit-2,3
<b>Week 12</b>	<b>MOCK TEST</b>
<b>Week 13</b>	Phenols: Methods of preparation, physical properties and acidic character. Reactions: electrophilic substitution (nitration, halogenation and sulphonation),. Reimer-Tiemann reaction, Gattermann-Koch reaction.
<b>Week 14</b>	Houben-Hoesch condensation, Schotten-Baumann reaction. Ethers (aliphatic and aromatic): Cleavage of ethers with HI. Test of Unit- 4
<b>Week 15</b>	<b>REVISION</b>

<b>Name of the Assistant Professor: Ms. Jyoti Sharma</b> <b>Class And Section: B.Sc. Life Sciences 4<sup>th</sup> Sem</b> <b>Subject: Biotechniques (25CBT404MI01)</b>	
<b>Week 1</b>	Overview of laboratory equipment and safety protocols
<b>Week 2</b>	Introduction to basic laboratory techniques and procedures
<b>Week 3</b>	Laboratory demonstration: Pipetting, solution preparation, and sterile technique.
<b>Week 4</b>	DNA extraction methods, Principles and applications
<b>Week 5</b>	polymerase chain reaction (PCR) & RT-PCR

<b>Week 6</b>	Gel electrophoresis and nucleic acid visualization
<b>Week 7</b>	Cloning techniques: Restriction digestion, ligation, and transformation.
<b>Week 8</b>	Basics of spectrophotometry and fluorometry
<b>Week 9</b>	Western blotting and immunodetection
<b>Week 10</b>	Mass spectrometry and proteomics
<b>Week 11</b>	Statistical analysis of experimental data
<b>Week 12</b>	<b>MOCK TEST</b>
<b>Week 13</b>	Bioinformatics tools for sequence analysis,
<b>Week 14</b>	Interpretation of experimental results and troubleshooting
<b>Week 15</b>	<b>REVISION</b>

<b>Name of the Assistant Professor: Ms. Rajni</b> <b>Class And Section: M.Sc. Chemistry II Semester</b> <b>Subject: Organic Spectroscopy and Advanced Organic Chemistry (24CHE202DS03)</b>	
<b>Week 1</b>	Ultraviolet and Visible Spectroscopy: Principle, electronic energy levels and transitions, chromophores and auxochromes, bathochromic and hypsochromic shift, hypochromic and hyperchromic effect.
<b>Week 2</b>	Infrared Spectroscopy: Principle, functional group and fingerprint regions, absorption of infrared radiation and molecular vibrations (stretching and bending), fundamental vibrations and overtones. NMR Spectroscopy: Spin active nuclei, chemical shift, shielding and deshielding, internal standards
<b>Week 3</b>	NMR Spectroscopy: spin-spin coupling, equivalent and non-equivalent protons, effect of changing solvents and hydrogen bonding on chemical shifts, anisotropic effect. Applications of UV, IR, and NMR spectra in the structural elucidation of organic compounds. TEST
<b>Week 4</b>	Aliphatic Nucleophilic Substitution: SN1, SN2, mixed SN1 and SN2, SNi, SN1', SN2', SNi' and SET mechanisms. Effects of substrate structure, attacking nucleophile, leaving group and reaction medium on reactivity. Neighbouring group mechanism, neighbouring group participation by $\sigma$ - and $\pi$ -bonds, anchimeric assistance. Ambident nucleophiles, regioselectivity and chemoselectivity. And Assignment.
<b>Week 5</b>	Aromatic Nucleophilic Substitution: ArSN1, ArSN2, Benzyne and SRN1 mechanisms. Effect of substrate structure, leaving group and attacking nucleophile on reactivity. Von Richter and Smiles rearrangements.

<b>Week 6</b>	Aliphatic Electrophilic Substitution: SE1, SE2 and SEi mechanism. Effect of substrates, leaving group and solvent polarity on the reactivity. Aromatic Electrophilic Substitution: Reactivity in substrates and electrophiles, Vilsmeier reaction, Gattermann-Koch reaction.
<b>Week 7</b>	Pericyclic Reactions: Molecular orbital symmetry, Frontier orbitals of ethylene, 1,3-butadiene, 1,3,5hexatriene and allyl system. Classification of pericyclic reactions, Woodward Hoffmann correlation diagrams. TEST
<b>Week 8</b>	Electrocyclic reactions - conrotatory and disrotatory motions, 4n, 4n+2, and allyl systems. Cycloadditions - antarafacial and suprafacial additions, 4n and 4n+2 systems.
<b>Week 9</b>	Sigmatropic rearrangements - suprafacial and antarafacial shifts of H, sigmatropic shifts involving carbon moieties, 3,3- and 5,5sigmatropic rearrangements, Claisen and Cope rearrangements.
<b>Week 10</b>	Addition to Carbon-Hetero Multiple Bonds: Mechanism of metal hydride reduction of saturated and unsaturated carbonyl compounds. Addition of Grignard reagents, organozinc and organolithium reagents to carbonyl and unsaturated carbonyl compounds, Wittig reaction. And Assignment.
<b>Week 11</b>	Mechanism of condensation reactions involving enolates: Aldol, Knoevenagel, Claisen, Mannich reaction.
<b>Week 12</b>	<b>MOCK TEST</b>
<b>Week 13</b>	Mechanism of condensation reactions involving enolates:, Benzoin, Perkin and Stobbe reactions. Hydrolysis of esters and amides, ammonolysis of esters.
<b>Week 14</b>	Test, Revision and Doubts.
<b>Week 15</b>	<b>REVISION</b>

**Name of the Assistant Professor: Dr. Annu Kalra**  
**Class And Section: M.Sc. Chemistry 4<sup>th</sup> Semester**  
**Subject: Inorganic Chemistry Special-IV, Medicinal Aspects of Inorganic Chemistry, 25CHE204DS01**

<b>Week 1</b>	Biochemical bases of essential metal deficient diseases: iron, copper and zinc and their therapies, Carcinogens and Carcinostatic agents
<b>Week 2</b>	Zinc in tumor growth and inhibition, Anticancer activity and mechanism of platinum complexes

<b>Week 3</b>	Anticancer activity of Rhodium, Copper and gold complexes, Anticancer activity of Selenium
<b>Week 4</b>	Drugs in Hypo and Hyper activity of thyroids, Inorganic drugs in dental caries
<b>Week 5</b>	Clinical disorders of alkali and alkaline earth metals and their remedies, Lithium drugs in Psychiatry
<b>Week 6</b>	Toxicity of heavy metals and their detoxification, Role of Selenium in biological systems with reference to its essentiality and toxicity
<b>Week 7</b>	Mechanism of metal ion induced toxicity, Interaction between orally administered drugs and metal ions in gut
<b>Week 8</b>	Ligand induced toxicity, Interference with hemoglobin in the oxygen transport system
<b>Week 9</b>	Interference with metalloenzymes, Beneficial effects of ligand chelation, Carcinogenic ligands
<b>Week 10</b>	Carcinostatic ligands, Alkylating agents as anticancer drugs, Thiosemicarbazones as anticancer drugs
<b>Week 11</b>	Macrocyclic antibiotic ligands and probable mechanism of the drug
<b>Week 12</b>	<b>MOCK TEST</b>
<b>Week 13</b>	Antibacterial and antiviral activity of chelating agents and metal complexes
<b>Week 14</b>	Aspirin Chelation, Polyaminocarboxylic acids and polyethylene amines as chelating drugs
<b>Week 15</b>	<b>REVISION</b>

<b>Name of the Assistant Professor: Ms. Manisha</b> <b>Class And Section: M.Sc. Chemistry</b> <b>Subject: Physical Spectroscopy and Advanced Physical Chemistry (24CHE202DS02)</b>	
<b>Week 1</b>	Introduction to spectroscopy: Electromagnetic radiations, interaction of electromagnetic radiation with matter, regions of spectrum , width and intensity of spectral transitions
<b>Week 2</b>	Resolving power, transition probability, Rotational spectra: Rotational spectra of diatomic molecules (rigid rotator) Test Spectrum of non –rigid rotator, effect of isotopic substitution, rotational spectra of linear and asymmetric top polyatomic molecules
<b>Week 3</b>	Vibrational and Vibrational- Rotational Spectra : Vibrating diatomic molecule(simple harmonic vibrator),anharmonicity, diatomic vibrating rotator,interaction of rotations and vibrations, vibrationalspectra of polyatomic molecules, analysis by infrared technique
<b>Week 4</b>	Test Electronics Spectra: Electronic spectra of diatomic molecules,vibrational course structure and rotational fine structure of electronic band, Frank-Condon principle( intensity of vibrational-electronic band, dissociation energy), Fortrat diagram

<b>Week 5</b>	Photochemistry: Basic concepts of photochemistry, rate constant & life time of excited electronic states of atoms and molecules, charge transfer transitions test
<b>Week 6</b>	Frank-Condon principle, emission spectra, environment effect on absorption and emission spectra, Wigner's spin conservation rule, Modes of decay of excited states, quenching of fluorescence, delayed fluorescence, kinetics of collisional quenching
<b>Week 7</b>	Test Stern- Volmer equation, Excimer and Exciplex formation and delay, Techniques for the study of transient species in photochemical reactions, Application of Lasers in photochemical kinetics
<b>Week 8</b>	Electro-Analytical & Potentiometric Methods: Polarization Phenomenon and its theories, effect of concentration on cell potential, Concept of liquid junction potential
<b>Week 9</b>	Test Reference electrodes (Calomel, Ag/AgCl, Tl/TlCl), Metallic redox indicator electrode: Membrane and ion-selective electrodes, electrical properties of the membrane, glass electrode with special reference to H <sup>+</sup> , Na <sup>+</sup> , K <sup>+</sup> ions, operation of solid membrane electrode in determination of some toxic metals and some anions (F <sup>-</sup> , Cl <sup>-</sup> , Br <sup>-</sup> , I <sup>-</sup> , NO <sub>3</sub> <sup>-</sup> )
<b>Week 10</b>	Symmetry and Group Theory in Chemistry: Symmetry elements and symmetry operation
<b>Week 11</b>	Point group and its properties, group multiplication table, Schonflies symbol, representation of groups by matrices (representation for C <sub>n</sub> , C <sub>nv</sub> , C <sub>nh</sub> , C <sub>s</sub> , D <sub>nh</sub> etc groups to be worked out explicitly and
<b>Week 12</b>	<b>MOCK TEST</b>
<b>Week 13</b>	Point group of Following molecules: H <sub>2</sub> O, NH <sub>3</sub> , CH <sub>4</sub> , SF <sub>6</sub> , CHCl <sub>3</sub> , BF <sub>3</sub> , C <sub>6</sub> H <sub>6</sub> , C <sub>5</sub> H <sub>5</sub> , NSF <sub>3</sub> , C <sub>2</sub> H <sub>2</sub> , HCl, HCN, CO <sub>2</sub> etc. Irreducible representation of groups
<b>Week 14</b>	The Great orthogonality theorem (without proof) and its importance, Character tables and its applications in spectroscopy
<b>Week 15</b>	<b>REVISION</b>

<b>Name of the Assistant Professor: :Ms. Pooja Khatana</b> <b>Class And Section: M.Sc. (F) Chemistry</b> <b>Subject: Inorganic Special-V (Organo-transition Metal Chemistry), 25CHE204DS04</b>	
<b>Week 1</b>	Organometallic Reagents: Synthesis reactions and applications of butyl-lithium, Grignard reagent, organo-aluminium
<b>Week 2</b>	Organo-zinc reagents and organo-copper in organic synthesis, Organometallic Compounds: Introduction and classification by bond types viz., covalent, ionic
<b>Week 3</b>	Electron deficient and cluster compound, <b>Alkyls and Aryls of Transition Metals:</b> Types, routes of synthesis, stability and decomposition pathways.
<b>Week 4</b>	<b>Organometallic Reactions:</b> Oxidative addition, agostic and anagostic interactions, C–H activation and cyclometallation, orthometallation, $\pi$ -bond metathesis
<b>Week 5</b>	Reductive elimination, reactions involving modification of ligands /alkyl and hydrogen migrations, $\alpha$ -Hydrogen elimination, $\alpha$ - $\beta$ hydrogen abstraction, ligand substitution reactions
<b>Week 6</b>	Factors affecting substitution reactions, associative and dissociative substitutions, hapticity change in multidentate ligands (e.g. indenyl, fluorenyl, pentadienyl and allyl)
<b>Week 7</b>	<b>Organometallic Catalysis: Homogeneous catalysis:</b> Alkene hydrogenation (Wilkinson's catalyst), hydroformylation or oxo-process, <b>TEST &amp; ASSIGNMENT</b>
<b>Week 8</b>	oxidation of olefins (Wacker's process), Monsanto acetic acid synthesis, Cativa Process, Tennessee Eastman acetic anhydride process, olefin metathesis
<b>Week 9</b>	<b>Heterogeneous catalysis:</b> Ziegler-Natta polymerizations, syngas and Fischer–Tropsch process, zeolites as catalysts
<b>Week 10</b>	<b>Transition Metal <math>\pi</math>-Complexes:</b> Transition metal $\pi$ -complexes with unsaturated molecules (alkenes, alkynes & allyl): nature of bonding and structural features, preparation and properties, <b>TEST &amp; ASSIGNMENT</b>
<b>Week 11</b>	Structure, bonding and properties of $M Cp_2$ complexes, ferrocene, reactions of metal sandwich compounds, bent sandwich compounds, and important reactions related to nucleophilic attack
<b>Week 12</b>	<b>MOCK TEST</b>
<b>Week 13</b>	Electrophilic attack on ligands (alkenes, alkynes, allyls, and cyclopentadienyl) related to organic synthesis. <b>Fluxional Organometallic Compounds:</b> Fluxionality and dynamic equilibria in compounds such as acyclic alkenes

<b>Week 14</b>	$\sigma$ -bonded and $\pi$ -bonded cyclic alkenes, rotation of ligands on metals, ligand scrambling on metals
<b>Week 15</b>	<b>REVISION</b>

<b>Name of the Assistant Professor: Ms. Sonia Bisht</b>	
<b>Class And Section: M.Sc. Chemistry 4th Semester</b>	
<b>Subject: Inorganic Special-VI (Medicinal Aspects of Inorganic Chemistry)</b>	
<b>Week 1</b>	<b>Section-A</b> Metals in Medicine: Biochemical bases of essential metal deficient diseases; Iron, copper and zinc deficiencies and their therapies, carcinogens
<b>Week 2</b>	Carcinostatic agents, zinc in tumour growth and inhibition, anticancer activity and mechanism of platinum complexes
<b>Week 3</b>	Anticancer activity of Rhodium, copper and Gold complexes, anti cancer activity of Selenium, antibacterial and antiviral properties of metal complexes, <b>ASSIGNMENT-I &amp; TEST</b>
<b>Week 4</b>	Polyamino carboxylic acids and polyethylene amines as chelating drugs. <b>Section-B</b> Miscellaneous applications of Inorganic compounds as medicines: Drugs in hypo and hyper activity of thyroids
<b>Week 5</b>	Inorganic drugs in dental carries, clinical disorders of alkali and alkaline earth metals and their remedies, lithium drugs in psychiatry.
<b>Week 6</b>	Heavy metals in Biological systems: Toxicity of heavy metals – and their detoxification, role of Selenium in Biological systems with reference to its essentiality and toxicity
<b>Week 7</b>	Mechanism of metal ion induced toxicity, interaction between orally administered drugs and metal ions in gut, <b>ASSIGNMENT-II &amp; TEST</b>
<b>Week 8</b>	<b>Section-C</b> Ligand Therapy: Ligand induced toxicity, interference with haemoglobin in oxygen transport system, interference with metallo-enzymes,
<b>Week 9</b>	Beneficial effects of ligand chelation; carcinogenic ligands, carcinostatic ligands, alkylating agents as anticancer drugs, Thiosemicarbazones as anticancer drugs
<b>Week 10</b>	Macrocyclic antibiotic ligands and probable mechanism of the drug, antiviral activity of chelating agents, aspirin chelation , <b>TEST</b>
<b>Week 11</b>	Drugs where chelation and therapeutic activity are unrelated. <b>Section-D</b> Vitamins and their functions in general, recommended dietary allowances , deficiencies and supplementations

<b>Week 12</b>	<b>MOCK TEST</b>
<b>Week 13</b>	Dietary miners, calcium and vitamin D, antioxidants and their health effects, biomineralisation Radiopharmacology, nuclear medicines , <b>ASSIGNMENT-III</b>
<b>Week 14</b>	Radioiodine -1 31, technetium – 99m, gallium and indium scan, <b>REVISION</b>
<b>Week 15</b>	<b>REVISION</b>

<b>Name of the Assistant Professor: Dr. Purnima Verma</b> <b>Class And Section: M.sc Chemistry 2<sup>nd</sup> Sem</b> <b>Subject: Inorganic Chemistry, 24CHE202DS01</b>	
Week 1	<b>UNIT-1</b> Electronic Absorption Spectroscopy: Energy levels in diatomic molecules, introduction to electronic transition, assignment of transitions, selection rules for EAS, p-d intermixing. Nuclear Magnetic Resonance: Quantum concept of NMR, larmor frequency, coupling constant, applications of spin-spin coupling in structure determination of inorganic compounds, population excess and types of relaxation,
Week 2	Standard references for inorganic compounds, calculation of rates from NMR spectrum, determination of order by NMR, double resonance technique for inorganic compounds like B <sub>2</sub> H <sub>6</sub> , Al(BH <sub>4</sub> ) <sub>3</sub> etc. Characterization of metal hydrides complexes (counting signals), inorganic applications of NMR like <sup>1</sup> H NMR, <sup>11</sup> B NMR, <sup>19</sup> F NMR, <sup>31</sup> P NMR (dynamic and frozen spectra), fluxional behaviour of inorganic molecules. Finger print regions of IR spectroscopy, Hooke's law & its applications for determination of stretching frequency.
Week 3	Application of infrared spectroscopy in the determination of inorganic compounds: Determination of coordination site, identification of cis and trans isomers, structure elucidation of covalent molecules, H-bonding etc. <b>TEST OF UNIT -1, ASSIGNMENT</b>
Week 4	<b>UNIT-II</b> Organometallic: 18-electron rule, counting methods and ligand contributions, haptoligands with hapticity from two to eight. Clusters: Multi-nuclear carbonyl clusters: Low nuclearity carbonyl clusters (LNCC), High nuclearity carbonyl clusters (HNCC),
Week 5	Clusters having interstitial atoms, electron counting schemes for high nuclearity clusters, polyhedral skeletal electron pair approach/Mingo's rules, structure and bonding in higher boranes, Wade's rules, carboranes,
Week 6	Applications of Wade's rules, zintl-ions, isolobal analogy, dinuclear clusters (metal clusters containing M-M multiple bonds). <b>TEST OF UNIT -II, ASSIGNMENT</b>
Week 7	<b>UNIT –III</b> Magnetic Properties of transition metal complexes: Elementary theory of magneto-chemistry, dia, para, ferro and antiferro magnetism, concept of magnetic susceptibility, methods for determination of magnetic susceptibility, Curie and Curie-Weiss law for temperature dependence of magnetic susceptibility,

Week 8	Temperature independent paramagnetic, calculation of magnetic moments of metal ions Cr <sup>3+</sup> , Co <sup>3+</sup> , Mn <sup>2+</sup> and Fe <sup>2+</sup> , Lande factor, $\mu_J$ and $\mu_{eff}$ , orbital contribution to the magnetic moment, quenching of magnetic moment by crystal-field,
Week 9	Application of magneto-chemistry in structure determination, magnetic exchange coupling and spin state crossover in coordination compounds. <b>TEST OF UNIT -III, ASSIGNMENT</b>
Week 10	Electronic Spectra of Transition Metal Complexes: Spectroscopic ground states, spin-orbit coupling in free metal ions for 3d- series of transition metals, ground state terms for transition metals/ions,
Week 11	Racah parameters and nephelauxetic effect, Orgel diagrams (d1 to d10) and Tanabe-Sugano diagrams for transition metal complexes (d1&d2states), elementary concept of Dq, B and $\beta$ parameters
Week 12	<b>MOCK TEST</b>
Week 13	effect of Jahn-Teller distortion on electronic spectra of 3d-series metal complexes, charge transfer spectra, electronic spectra of molecular addition compounds of iodine <b>TEST OF UNIT -III, ASSIGNMENT</b>
Week 14	<b>REVISION UNIT I &amp; UNIT II</b>
Week 15	<b>REVISION UNIT III &amp; UNIT IV</b>

<b>Name of the Assistant Professor: Dr. Priti</b> <b>Class And Section: B. Sc. Biotechnology 4<sup>th</sup> Sem.</b> <b>Subject: Introduction to Bioinformatics (25CBTS404DS02)</b>	
Week 1	Overview of bioinformatics: history, scope, and detailed applications. Introduction to biological databases and data types
Week 2	Overview of bioinformatics: history, scope, and detailed applications. Introduction to biological databases and data types
Week 3	Bioinformatics resources (GenBank, ENA, DDBJ, UniProt, PDB etc).
Week 4	Understanding the structure of each source and using it on the web. Detailed Overview of NCBI.
Week 5	Basic structural introduction of Biomolecules studied in Bioinformatics (polynucleotide, polypeptides, Gene, Protein).
Week 6	Format of Sequence databases, Introduction to Pairwise Sequence Analysis and Sequence alignment

Week 7	Introduction and applications of Multiple sequence alignment.
Week 8	Basic introduction to following terms: Genomics, proteomics, transcriptomics, metabolomics,
Week 9	Chemo informatics, pharmacogenomics, system Biology,
Week 10	Homology modelling, In silico drug design. Phylogenetics: introduction and basic concepts
Week 11	Introduction to various biological data generating techniques- sequencing, microarray
Week 12	<b>MOCK TEST</b>
Week 13	RNA seq,mass spectroscopy etc. Human Genome Project objectives and applications.
Week 14	Introduction to Various Bioinformatics tools- Expasy, BLAST, Clustal omega, Prosite, InterPro.
Week 15	<b>REVISION</b>

<b>Name of the Assistant Professor: Ms. Jyoti Sharma</b> <b>Class And Section: B.Sc. Life Sciences 4<sup>th</sup> Sem</b> <b>Subject: Biotechniques (25CBT404MI01)</b>	
Week 1	Overview of laboratory equipment and safety protocols
Week 2	Introduction to basic laboratory techniques and procedures
Week 3	Laboratory demonstration: Pipetting, solution preparation, and sterile technique.
Week 4	DNA extraction methods, Principles and applications
Week 5	polymerase chain reaction (PCR) & RT-PCR
Week 6	Gel electrophoresis and nucleic acid visualization
Week 7	Cloning techniques: Restriction digestion, ligation, and transformation.
Week 8	Basics of spectrophotometry and fluorometry
Week 9	Western blotting and immunodetection
Week 10	Mass spectrometry and proteomics
Week 11	Statistical analysis of experimental data
Week 12	<b>MOCK TEST</b>
Week 13	Bioinformatics tools for sequence analysis,

Week 14	Interpretation of experimental results and troubleshooting
Week 15	<b>REVISION</b>

<b>Name of the Assistant Professor: Ms. Jyoti Sharma</b> <b>Class And Section: B.Sc. Biotech. 4<sup>th</sup> Sem</b> <b>Subject: Metabolism (25CBTS404DS01)</b>	
Week 1	Bioenergetics: Basic principles of bioenergetics- Concept of free energy, standard free energy,
Week 2	relation between equilibrium constant and standard free energy change
Week 3	coupled reactions. Biological oxidation- reduction reactions. High-energy compounds.
Week 4	Carbohydrate Metabolism: Glycolysis. Alcoholic and lactic acid fermentations.
Week 5	Feeder pathways. TCA cycle. Gluconeogenesis.
Week 6	Glycogenesis and glycogenolysis. Pentose phosphate pathway
Week 7	Electron Transport Chain and Oxidative Phosphorylation: organization and sequence of electron carriers,
Week 8	sites of ATP production, Oxidative phosphorylation: chemiosmotic theory,
Week 9	structure of ATPsynthase, Transport of reducing equivalents from cytosol into mitochondria.
Week 10	Lipid Metabolism: Introduction, hydrolysis of triacylglycerols, beta-oxidation of saturated fatty acids
Week 11	Amino acid Metabolism: General reactions of amino acid metabolism: transamination
Week 12	<b>MOCK TEST</b>
Week 13	oxidative and non-oxidative deamination and decarboxylation. Urea cycle.
Week 14	Nucleotide Metabolism: de novo and salvage pathway for purine and pyrimidine nucleotides synthesis.
Week 15	<b>REVISION</b>