K.L MEHTA DAYANAND COLLEGE FOR WOMEN, FARIDABAD
LESSON PLAN FOR THE SESSION 2024-25(ODD SEMESTER)

Name of the Assistant Professor: Dr. Meenu Dua **Class and Section: B.Sc. (Medical &Non-Medical) III Year** **Subject: Physical Chemistry** **Teaching Term: 22nd July 2024 to 22nd Nov 2024(Excluding Diwali Break)**	
Week 1	Introduction Of Quantum Mechanics. Black-Body Radiation, Plank's Radiation Law. Photoelectric Effect,.
Week 2	Heat Capacity Of Solids , Compton Effect, Wave Function & Its Significance Postulates Of Quantum Mechanics
Week 3	Quantum Mechanical Operator, Commutation Relations. Hamiltonial Operator To Show Quantum Mechanically That Position And Momentum Cannot Be Predicated Simultaneously
Week 4	Hermitian Operator, Average Value Of Square Of Hermitian As A Positive Quantity. Role Of Operators In Quantum Mechanics. Energy Of A Particle In One Dimensional Box
Week 5	**Test**, Determination Of Wave Function &, Pictorial Representation And Its Significance.
Week 6	Electromagnetic Radiation, Regions Of Spectrum, Basic Features Of Spectroscopy, Statement Of Born Oppenheimer Approximation, Degrees Of Freedom. & Assignment I
Week 7	Rotational Spectrum Of Diatomic Molecules. Energy Levels Of Rigid Rotator, Selection Rules, Spectral Intensity Distribution Using Population Distribution, Determination Of Bond Length, Qualitative Description Of Non-Rigid Rotor, Isotope Effect.
Week 8	Optical Activity, Polarization, Orientation Of Dipoles In An Electric Field, Dipole Moment, Included Dipole Moment, **Assignment**
Week 9	Measurement Of Dipole Moment-Temperature Method And Refractivity Method, Dipole Moment And Structure Of Molecules, Magnetic Permeability, **Test**
Week 10	Magnetic Susceptibility And Its Determination. Application Of Magnetic Susceptibility, Magnetic Properties – Paramagnetism, Diamagnetism And Ferromagnetics. , Assignment II
Week 11	Vibrational Spectrum: Energy Levels Of Simple Harmonic Oscillator, Selection Rules, Pure Vibrational Spectrum, Intensity, Determination Of Force Constant. Test
Week 12	Qualitative Relation Of Force Constant And Bond Energies, Effects Of Anharmonic Motion And Isotopic Effect On The Spectra., **Mock Test**
Week 13	Idea Of Vibrational Frequencies Of Different Functional Groups. Concept Of Polarizibility, Pure Rotational Raman Spectra.
Week 14	Pure Vibrational Raman Spectra Of Diatomic Molecules, Selectin Rules, Quantum Theory Of Raman Spectra & Doubt Class.
Week 15	Revision

Name of the Assistant Professor: Dr. Beena Sethi **Class And Section: B.Sc Medical second year** **Subject: Inorganic Chemistry** **Teaching Term: 22nd July 2024 to 22nd Nov 2024(Excluding Diwali Break)**	
Week 1	Introduction To Chemistry Of D-Block Elements Definition Of Transition Elements, Position In The Periodic Table, Electronic Configuration
Week 2	General Characteristic And Properties Of D -Block Elements, Comparison Of Properties Of 3d Elements With 4d And 5d Elements With Reference To Only Ionic Radii.
Week 3	Discussion About Oxidation States And E M.F (Latimer And Frost Diagrams)
Week 4	Structures And Properties Of Some Compounds Of Transition Elements- Titanium Dioxide,Vanadium Oxydichoride,Ferric Chloride,Copper Chloride, Tetracarbonylnickel.
Week 5	**Test** Introduction To Coordination Compounds
Week 6	Werner's Theory Of Coordination Compounds,Effective Atomic Number
Week 7	Chelates And Chelating Ligands,Factors Affecting The Stability Of Coordination Comupounds.
Week 8	Nomenclature Of Coordination Compounds,Isomerism In Coordination Compounds .
Week 9	Valence Bond Theory Of Transition Metal Complexes, **Assignment**
Week 10	**Test** Introduction To Non Aqueous Solvents
Week 11	Physical Properties Of Solvents, Types Of Solvents And Their General Charcateristics.
Week 12	**Mock Test**
Week 13	Reactions In Non Aqueous Solvents With Reference To Liquid Ammonia And Liquid Sulpur Dioxide
Week 14	Reactions In Non Aqueous Solvents With Reference To Liquid Ammonia And Liquid Sulpur Dioxide
Week 15	Revision

Name of the Assistant Professor: Dr. Beena Sethi
Class and Section: B.Sc (Non Med & Medical) 5th Semester
Subject: Inorganic Chemistry
Teaching Term: 22nd July 2024 to 22nd Nov 2024(Excluding Diwali Break)

Week 1	Metal-Ligand Bonding In Transition Metal Complexes, Limitation of Valence Bond Theory
Week 2	An Elementary idea of crystal field theory, Crystal field splitting in Octahedral Complexes
Week 3	Crystal field splitting in Tetrahedral and Square Planar Complexes, Factors affecting Crystal field Spliting
Week 4	Crystal field splitting in Tetrahedral and Square Planar Complexes, Factors affecting Crystal field Spliting
Week 5	Thermodynamics and Kinetic aspects of Metal Complexes, A Brief outline of thermodynamic stability of metal complexes
Week 6	A Brief outline of thermodynamic stability of metal complexes Factor affecting the stability
Week 7	Factor affecting the stability, Substitution reactions of Square Planar Complexes of Pt(II), **Test**
Week 8	Factor affecting the stability, Substitution reactions of Square Planar Complexes of Pt(II), **Assignment**
Week 9	Magnetic properties of Transition Metal Complexes, Types of Magnetic Behaviour
Week 10	Methods of determining magnetic susceptibility, Spin only Formula, L-S Coupling
Week 11	Orbital Contribution to magnetic moments, Application of magnetic moment data for 3d metal complexes
Week 12	**Mock Test**
Week 13	Electronic Spectra of Transition metal Complexes, Types of Electronic Transition, Selection Rules for d-d transitions
Week 14	Spectroscopic ground states, Spectrochemical Series, Orgel-energy level diagrams for d1 and d9 states, **Test**
Week 15	Discussion of the electronic spectrum of [Ti(H2O)6}3+ complex ions

Name of the Assistant Professor: Dr Shveta Arya **Class And Section: B.Sc. (Medical) 5th Semester** **Subject: Fish And Fisheries** **Teaching Term: 22nd July 2024 to 22nd Nov 2024(Excluding Diwali Break)**	
Week 1	Introduction To World Fisheries: Production, Utilization And Demand History Of Fisheries, Marine & Inland Fisheries
Week 2	Fresh Water Fishes Of India: River System, Reservoir Fisheries
Week 3	Pond, Tank Fisheries; Captive And Culture Fisheries, Cold Water Fisheries.
Week 4	Fishing Crafts And Gears Class Test Of History Of Fisheries, Marine & Inland Fisheries
Week 5	Fin Fishes, Crustaceans And Their Culture, **Test**
Week 6	Molluscs And Their Culture, **Assignment**
Week 7	Seed Production: Natural Seed Resources – Its Assessment, Collection, Hatchery Production
Week 8	Nutrition: Sources Of Food (Natural, Artificial) And Feed Composition (Calorie And Chemical Ingredients). Class-Test Of Cold Water Fisheries
Week 9	Induced Breeding, **Test**
Week 10	Hatchery Production
Week 11	Field Culture: Ponds, Running Water, Recycled Water, Cage Culture.
Week 12	Poly Culture, **Mock Test**
Week 13	Culture Technology: Biotechnology, Gene Manipulation.
Week 14	Cryopreservation Of Gametes
Week 15	Revision

Name of the Assistant Professor: Ms. Renu Pandey **Class And Section: B.Sc. Biotechnology 1st year** **Subject: Cell Biology (DSC A1)** **Teaching Term: 22nd July 2024 to 22nd Nov 2024 (Excluding Diwali Break)**	
Week 1	Unit I: Basics Of Cell Biology, Discovery Of Cell & Cell Theory, Structure & Function Of Protoplasm.
Week 2	Cell Wall, Plasma Membrane, Modification Of Plasma Membrane, Intracellular Junctions.
Week 3	Cytoskeleton, Mitochondria, Chloroplast, ER, Golgi Complex, Structure And Function Of Lysosomes,
Week 4	Endosomes And Microbodies, Ribosomes, Centriole, Nucleus, Chromosomes. Unit II: Chemical Components Of A Cell, **Test**
Week 5	Catalysis And Use Of Energy By Cells, Biogenesis Of Cellular Organelles, Mitochondria, Chloroplasts, **Test**
Week 6	ER, Golgi Complex, Biosynthetic Processes In ER, And Golgi Apparatus, Protein Synthesis And Folding In The Cytoplasm, Degradation Of Cellular Components.
Week 7	Unit III: Structure And Function Of Prokaryotic Cell And Its Components- The Slime And The Cell Wall Of The Bacteria Containing Peptidoglycan.
Week 8	And Related Molecules, The Outer Membrane Of Gram-Negative Bacteria, And The Cytoplasmic Membrane, Water And Ion Transport.
Week 9	Mesosomes, Flagella, Pilus, Fimbriae, Ribosomes, Carboxysomes, Sulphur Granules, Glycogen, Polyphosphate Bodies, Fat Bodies, **Assignment**
Week 10	Gas Vesicles, Endospores, Exospores, Cysts. Mycelia Of Fungi And Actinomycetes, Cytoskeleton Filament, Proteins And Carbohydrates, Solute Transport By Simple Diffusion, Facilitated Diffusion And Active Transport
Week 11	Heterocysts And Akinetes Of Cyanobacteria, Gliding, And Motility. Unit Iv: Membrane Structure And Transport- Models Of Membrane Structure, Membrane Lipids.
Week 12	**Mock Test**
Week 13	Cell Cycle Overview Of Cell Cycle, Components Of Cell Cycle Control System,
Week 14	Intracellular And Extracellular Control Of Cell Division, Programmed Cell Death (Apoptosis).
Week 15	Revision

Name of the Assistant Professor: Ms. Renu Pandey **Class And Section: B.Sc. Biotechnology 2nd year** **Subject: Bioanalytical Tools (BT 303)** **Teaching Term: 22nd July 2024 to 22nd Nov 2024 (Excluding Diwali Break)**	
Week 1	UNIT I: Simple Microscopy, Simple Compound Light Microscopy, Phase Contrast Microscopy/.
Week 2	Fluorescence Microscopy, Electron Microscopy, TEM, And SEM.
Week 3	Absorption Spectroscopy, Emission Spectroscopy, Ph Meter.
Week 4	UNIT II: Principle Of Absorption Fluorimetry, **Test**
Week 5	Colorimetry, Infra-Red Spectrophotometry, Spectrophotometry (UV-Visible).
Week 6	Cell Fractionation Techniques, Isolation Of Sub-Cellular Organelles And Particles.
Week 7	UNIT III Introduction Of Chromatography, Principle Of Chromatography, Paper Chromatography,
Week 8	Thin Layer Chromatography, Column Chromatography, Cellulose Gel, SDS-PAGE, Native PAGE, Sequencing.
Week 9	Silica And Gel Filtration, Affinity And Ion Exchange Chromatography, **Assignment**
Week 10	Chromatography: Silica And Gel Filtration, Gas Chromatography, **Test** HPLC.
Week 11	UNIT IV Introduction To Electrophoresis. Support Media Gel, Starch-Gel, Polyacrylamide Gel, Starch-Gel
Week 12	**Mock Test**
Week 13	2D Gel Electrophoresis, Agarose-Gel Electrophoresis, Immuno electrophoresis.
Week 14	Isoelectro focussing, Introduction To Nanotechnology, Biosensors.
Week 15	Revision

Name of the Assistant Professor: Ms. Renu Pandey **Class And Section: B.Sc. Biotechnology3rd year** **Subject: Genomics & Proteomics (BT504)** **Teaching Term: 22nd July 2024 to 22nd Nov 2024 (Excluding Diwali Break)**	
Week 1	Unit I: Introduction To Genomics, DNA Sequencing Methods, Manual & Automated
Week 2	Maxam & Gilbert Method, Sangers Method, Chain Termination Method.
Week 3	Dideoxymethod, Pyrosequencing, Genome Sequencing Methods
Week 4	Shot Gun Method, Hierarchical Method, Clone Contig Method, **Test**
Week 5	Unit II: Computer Tools For Sequencing Projects, NCBI, UCSC, VISTA.
Week 6	Managing & Distributing Genome Data, Selected Model Organismal Genomes & Databases.
Week 7	Web-Based Servers And Software For Genome Analysis, **Assignment**
Week 8	Unit III: Introduction To Protein, Chemical Properties Of Protein, **Test**
Week 9	Physical Interaction That Determines The Properties Of Proteins, Electrostatic Forces, Vander Wall Interactions
Week 10	Determination Of Sizes, Sedimentation Analysis, Gel Filtration Chromatography.
Week 11	Introduction To Proteomics, Analysis Of Proteome, 2D PAGE, Sample Preparation, Solubilization, Reduction, And Reproducibility Of 2D PAGE.
Week 12	**Mock Test**
Week 13	De NOVO Sequencing Of Using Mass Spectrometric Data, Mass Spectrometry.
Week 14	Top-Down And Bottom-UP Sequencing.
Week 15	Revision

Name of the Assistant Professor: Dr. Shveta Arya **Class And Section: B.SC. (Medical) 5TH Semester** **Paper-II(5.2) Ecology & Evolution** **Subject: Zoology** **Teaching Term: 22nd July 2024 to 22nd Nov 2024(Excluding Diwali Break)**	
Week 1	Basic Concepts Of Ecology: Definition, Significance. Concepts Of Habitat And Ecological Niche.
Week 2	Abiotic Factors (Light-Intensity, Quality And Duration), Temperature, Humidity, Topography; Edaphic Factors.
Week 3	Biotic Factors- Positive & Negative Interactions, **Test**
Week 4	Ecosystem: Concept, Components, Properties And Functions; Ecological Energetics And Energy Flow-Food Chain, Food Web, Trophic Structure
Week 5	Ecological Pyramids, Concept Of Productivity Class Test Of Biotic Factors
Week 6	Biogeochemical Cycles: Concept, Reservoir Pool, Gaseous Cycles
Week 7	Sedimentary Cycles, **Assignment**
Week 8	Population: Growth And Regulation
Week 9	Origin Of Life, **Test**
Week 10	Theories Of Organic Evolution, Evidences Of Organic Evolution.
Week 11	Concept Of Microevolution And Concept Of Species Class Test Of Theories Of Organic Evolution.
Week 12	**Mock Test**
Week 13	Concept Of Macro-And Mega-Evolution, Phylogeny Of Horse
Week 14	Evolution Of Man.
Week 15	Revision

Name of the Assistant Professor: Ms. Sonia **Class And Section: M.Sc (Maths) Final year** **Subject: Elementary Topology** **Teaching Term: 22nd July 2024 to 22nd Nov 2024(Excluding Diwali Break)**	
Week 1	Introduction Of Topology, Comparison Of Topologies On Set, Intersection & Union Of Topology On A Set,
Week 2	Neighborhoods, Interior Point, Closed Set, Adherent Point, Limit Point, Closure Of A Set, Derived Set,
Week 3	Boundary Of Set, Dense Subsets, Alternative Methods Of Defining A Topology In Terms Of Neighborhood System & Kuratowski Closure Operator
Week 4	Relative Topology, Base & Sub Base, Continuous Function, **Test**
Week 5	Open & Closed Function, Homeomorphism, Connectedness, Connected Subsets
Week 6	Continuity & Connectedness, Components, Locally Connected Spaces, **Assignment**
Week 7	Compact Spaces & Subsets, Compactness In Terms Of Finite Intersection Property, Continuity & Compact Sets,
Week 8	Basic Properties Of Compactness, Closeness Of Compact Subset & A Continuous Map From A Compact Space Into Hausdorff
Week 9	Sequentially & Countably Compact Sets, Locally Compactness & One Point Compatification
Week 10	**Test**
Week 11	First Countable, Second Countable & Separation Spaces, Hereditary & Topological Property, Countability Of A Collection Of Disjoint Open Sets In Separation
Week 12	**Mock Test**
Week 13	Their Characterization & Basic Properties
Week 14	Second Countable Spaces, Lindelof Theorem, T0, T1, T2 Separation Axioms
Week 15	Revision

Name of the Assistant Professor: Ms. Sonia **Class And Section: B.Sc 3rd Sem** **Subject: Partial Differential Equation** **Teaching Term: 22nd July 2024 to 22nd Nov 2024(Excluding Diwali Break)**	
Week 1	Formation of Partial Differential Equation
Week 2	First order linear partial differential equation
Week 3	First order non linear partial differential equation
Week 4	Continue, first order non linear differential equation, **Assignment**
Week 5	Linear partial differential equations of second and higher orders
Week 6	Continue, linear partial differential equations of second & higher orders, **Test**
Week 7	Partial differential equations with variable coefficients Reducible to Equations with constant coefficients
Week 8	Classification & canonical forms of second order linear partial differential equations
Week 9	Classification & canonical forms of second order linear partial differential equations, **Test**
Week 10	Monge's Method for partial differential equations of second order
Week 11	Characteristics of second order partial differential equations & cauchy's problem
Week 12	**Mock Test**
Week 13	Method of separation of variables: waves, heat & Laplace equations
Week 14	Method of separation of variables: waves, heat & Laplace equations
Week 15	Revision

Name of the professor: **Vandana Kumari** **Class: B.Sc. (Non-Med) 5th Sem** **Subject: Numerical Analysis (Math-III)**	
Week 1	Introduction of the Syllabus Introduction to Finite Difference Operators & How to make Forward and Backward Difference tables and examples Relation between Shift Operators, Forward Difference Operators, Backward Difference Operators Examples & Exercise
Week 2	Finding the missing Term and their examples Effect of error in difference tabular values Introduction to Interpolation with equal intervals Derivation of Newton's Gregory Forward interpolation formula
Week 3	Examples & Exercise Doubts Derivation of Newton's Gregory Backward interpolation formula Examples, Exercise and problems
Week 4	Subdivided intervals and their examples & Exercise Introduction to Interpolation with Unequal Intervals and Divided Difference, Doubts Numerical Solution of Ordinary Differential Equation using Single Step Methods: Euler's Method
Week 5	Derivation of Newton's Divided Difference Interpolation Formula and few theorems Examples & Exercise Derivation Lagrange's interpolation Formula Examples, Exercise and problems **Assignment**
Week 6	Derivation of Hermite's interpolation Formula Examples, Exercise and problems Derivation of Gauss's Forward & Backward interpolation Formula Examples, Exercise and problems
Week 7	Derivation of Sterling's and Bessel's interpolation Formula Examples, Exercise and problems Probability distribution of Random variables, Mean and Variance Examples, Exercise and problems Binomial distribution of Random variables, Mean and Variance
Week 8	Poisson's distribution of Random variables, Mean and Variance Examples, Exercise and problems Normal distribution of Random variables, Mean and Variance Examples, Exercise and problems **Test**

Week 9	Derivative of functions using interpolation formulae with equal intervals & Examples, Exercise and problems Derivative of functions using interpolation formulae with unequal intervals & Examples, Exercise and problems Derivative of functions using central difference interpolation formulas & Examples, Exercise and problems Doubts
Week10	Introduction to Eigen value problems Power Method: Examples, Exercise and problems Jacobi's Method: Examples, Exercise and problems House Holder Method, QR Method, Lanczo's Method Examples, Exercise and problems
Week11	Introduction to Numerical Integration &Newton Cote's Quadrature Formula Trapezoidal Rule, Simpson's 1/3 Rule & Simpson's 3/8 Rule Explain how to use Mathematics table booklet Chebychev Formula & Gauss Quadrature Formula & Examples, Exercise and problems, **Test**
Week 12	Numerical Solution of Ordinary Differential Equation using Single Step Methods: Picard's Method **Mock Test**
Week 13	Numerical Solution of Ordinary Differential Equation using Single Step Methods: Taylor's Series Method Numerical Solution of Ordinary Differential Equation using Single Step Methods: Runge-Kutta Method
Week 14	Numerical Solution of Ordinary Differential Equation using Multiple Step Methods: Milne-Simpson's Method Doubts Numerical Solution of Ordinary Differential Equation using Multiple Step Methods: Adam-Bashforth Method
Week 15	Discuss Previous years Question Papers (unit-1) Discuss Previous years Question Papers (unit-2) Discuss Previous years Question Papers (unit-3) Discuss Previous years Question Papers (unit-4)

Name of the Assistant Professor: Ms. Indu Rani **Class And Section: 1st year Minor Botany** **Subject: Fundamentals of plant Ecology** **Teaching Term: 22nd July 2024 to 22nd Nov 2024(Excluding Diwali Break)**	
Week 1	Definition, Scope And Importance Of Ecology
Week 2	Levels Of Organization In Ecology, Introduction Of Environment And Environmental Factors, Climatic Factors Water And Humidity
Week 3	Climatic Factors Wind ,Light And Temperature, Edaphic Factors(Soil Profile)
Week 4	Physiochemical Properties Of Soil, Topographic Factors And Biotic Factors
Week 5	**Test** Adaptation Of Plants To Water Stress And Salinity, Morphological And Anatomical Features Of Hydrophytes
Week 6	Morphological And Anatomical Features Of Xerophytes , Morphological And Anatomical Features Of Halophytes
Week 7	Basic Concept And Characteristics Of Population, Biotic Potential, **Assignment**
Week 8	Growth Curves , Ecotypes And Ecads **Test**
Week 9	Community Ecology ; Concept And Characteristics (Qualitative And Quantitative), Methods Of Analysis
Week 10	Ecological Succession, Ecosystem Structure And Functions
Week 11	Biogeochemical Cycles ; Carbon, Nitrogen, Phosphorus And Hydrological
Week 12	Phytogeographical Regions Of India, Vegetation Type Of India, Environmental Pollution (Air Pollution), **Mock Test**
Week 13	Water Pollution, Green House Effect And Green House Gases, Impact Of Global Warming, Carbon Dating
Week 14	Ozone Layer Depletion ,Biomagnification
Week 15	Revision

Name of the Assistant Professor: Ms. Indu Rani **Class And Section: B.Sc Life Science 1st year** **Subject: Diversity of Microbes** **Teaching Term: 22nd July 2024 to 22nd Nov 2024(Excluding Diwali Break)**	
Week 1	Discovery, Physiochemical And Biological Characteristics Of Viruses
Week 2	Classification, General Structure ,Replication, DNA Virus ,Lytic And Lysogenic Cycle
Week 3	RNA Virus , Discovery , General Characters ,Types Of Bacteria, Cell Structure ,Nutritional Types
Week 4	Reproduction And Economic Importance Of Bacteria. **Test**
Week 5	Cyanobacteria, General Characters, Thallus Organization, Cell Structure, **Assignment**
Week 6	Nostoc, Economic Importance Of Cyanobacteria Algae, General Characters, Algae In Diversified Habitat
Week 7	Thallus Organization, Cell Structure, Reproduction, Criteria Of Classification Of Algae
Week 8	Classification Of Algae, Algal Blooms, Red Tides And Algae Biofertilizers **Test**
Week 9	Morphology And Life Cycle Of Volvox Morphology And Life Cycle Of Oedogonium
Week 10	Morphology And Life Cycle Of Vaucheria Morphology And Life Cycle Of Ectocarpous
Week 11	Morphology And Life Cycle Of Polysiphonia, Economic Importance Of Algae. General Characters ,Organization Of Thallus, Nutrition And Reproduction In Fungi, Classification Of Fungi Morphology And Life Cycle Of Phytophthorn
Week 12	**Mock Test**
Week 13	Morphology And Life Cycle Of Mucor ,Penicillium, Puccinia And Agaricus
Week 14	Morphology And Life Cycle Of Colletotrichum,Economic Importance Of Fungi. Lichens And Mycorrhiza
Week 15	Revision

Name of the Assistant Professor : Ms. Shivani Gandhi **Class : B.sc./ B.A.(Physical Science)** **Subject : Advanced Calculus** **Teaching Term: 22nd July 2024 to 22nd Nov 2024(Excluding Diwali Break)**	
Week 1	Continuous Functions, Discontinuous Functions, Algebra of Continuous Functions
Week 2	PTheorems of continuous and discontinuous function, open set and closed set
Week 3	Theorems of open and closed set , intermediate value theorem , uniform continuity, Assignment
Week 4	**Test**, Derivability of a function,chain rule,sign of derivatives,Darboux's theorem,Means Value Theorems,Rolle's Theorem
Week 5	Lagrange's Mean value Theorem,Theorems of LMVT, Cauchy's Means Value Theorem, Taylor's Theorem, Taylor's Theorem with various form of remainder
Week 6	Maclaurin's theorem, Taylor's Theorem with cauchy's form of remainder,Another Form of Taylor's Theorem
Week 7	**Assignment,Test**
Week 8	Cartesian product of two or more sets , Function of two variables,square and circular neighborhood of a point (a,b),Limit of a function of two variables
Week 9	Algebra of limits, theorems of limit of a function, algebra of continuous functions
Week 10	Introduction of differentiability of functions of two variables
Week 11	Differentiability, theorem of differentiability, Young's theorem
Week 12	Schwarz's Theorem, Implicit function, Implicit Function Theorem, **Mock Test**
Week 13	Tangents, principal normals,binormals,serret-Frenet formulae,locus of centre of curvature
Week 14	Locus of centre of spherical curvature,Involutes,Evolutes, Bertrand curves
Week 15	Revision

Name of the Assistant Professor : Ms. Shivani Gandhi
Class : M.sc (Mathematics)
Subject : Discrete Mathematics
Teaching Term: 22nd July 2024 to 22nd Nov 2024(Excluding Diwali Break)

Week 1	Statement Symbolic Representation And Tautologies,Quantifiers,Predicates And Validity,Prepositional Logic
Week 2	Problems, Revision, **Test And Assignment**,Lattices As Partially Ordered Sers
Week 3	Properties Of Order Set, Lattices As Algebraic System, Sub Lattices.
Week 4	Direct Products And Homomorphism, Some Special Lattices,E.G. Complete, Complemented And Distributive Lattices .
Week 5	**Test**, Boolean Algebra As Lattices, Various Boolean Identities,The Switching Algebra, Examples,Subalgebras.
Week 6	Direct Products And Homomorphism, Joint Irreducible Elements , Items And Minterms, Boolean Forms And Their Equivalence, Minterms Boolean Forms .
Week 7	Sum Of Products, Canonical Forms, Minimisation Of Boolean Functions.
Week 8	Application Of Boolean Algebra To Switching Theory (Using AND,Orand Notgates) The Karnaugh Method .
Week 9	Finite State Machine And Their Transition Table Diagrams, Equivalence Of Finite State, Machines, Reduced Machines.
Week 10	Homomorphism, Finite Automata, Acceptors, Non -Deterministic, Finite Automata And Equivalence Of Its Power To That Of Deterministic Finite Automata Moore And Mealy Machines
Week 11	Grammars And Language,Phrase Structure Grammars,Requiting Rules, Derivation,Sentential Forms, Language Generated By A Grammar, Regular.
Week 12	Context - Free And Context Sensitive Grammers And Languages,Regular Sets, Regular Expression And The Pumping Lemma, **Mock Test**
Week 13	Recurrence,Relations And Generating Function ,Some Numbers Sequences,Linear Homogeneous Recurrence Relations,Non - Homogeneous Recurrence Relations, Generating Functios.
Week 14	Recurrence And Generating Functions, Exponential Generating Functions
Week 15	Revision

Name of the Assistant Professor : Ms. Shivani Gandhi
Class : B.sc 1st yr.(Physical science)
Subject : programming in C and Numerical Method (Skill)
Teaching Term: 22nd July 2024 to 22nd Nov 2024(Excluding Diwali Break)

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**.
Week 8	Application Of Boolean Algebra To Switching Theory (Using AND,Orand Notgates) The Karnaugh Method .
Week 9	Regula- Falsi Method, Secant Method
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	Questions On Above Methods
Week 12	Simultaneous Linear Algebraic Equations: Gauss Elimination Method, Gauss Jordan Method, Problems Based On Above Method, **Mock Test**
Week 13	Triangularization Method(LU Decomposition Method) , Crout's Method.
Week 14	Choleski Decomposition Method, Itreative Method, Jacobi's Method, Problems Based On Above Method
Week 15	Gauss Seidel's Method, Relaxation Method, Revision.

Name of the Assistant Professor : Ms. Shivani Gandhi
Class : MDC
Subject : Introductory Mathematics
Teaching Term: 22nd July 2024 to 22nd Nov 2024(Excluding Diwali Break)

Week 1	Numbers, problems based on numbers
Week 2	HCF and LCM of a numbers
Week 3	Problems based on HCf and LCM of a numbers
Week 4	Decimal and fractions, **Test and Assignment**
Week 5	Problems based on decimal and fractions, simplification
Week 6	Problems based on simplification
Week 7	Square root and cube root, **Test**
Week 8	Problems based on square root and cube root
Week 9	Surds and indices , problems on numbers
Week 10	Average and percentage, problems based on average and percentage
Week 11	Profit and loss, ratio and proportion, problems on ages and partnership
Week 12	Time and work, time and distance, problems based on above topic, **Mock Test**
Week 13	Problems on trains mixture problems
Week 14	Problems based on calendar and clock
Week 15	Revision

Name of the Assistant Professor: Dr. Nupur Srivastava **Class And Section: M.Sc Mathematics** **Subject: Disaster Management 16ENVO2** **Teaching Term: 22nd July 2024 to 22nd Nov 2024(Excluding Diwali Break)**	
Week 1	Causes and phases of disaster, Rapid onset and slow onset disaster, natural and responses to geo hazards, trend in climatology, meteorology and hydrology, Seismic activities, revision and **Test**
Week 2	Changes in coastal zone, Costal erosion, beach protection, revision class
Week 3	Costal revision due to natural and manmade structures revision
Week 4	Floods and cyclones, causes of flooding, Hazards associated with flooding flood forecasting, Flood management, Integrated flood management doubt class
Week 5	Flood control water related hazards, Structure and nature of tropical cyclones, doubt class
Week 6	Tsunami causes and physical characteristics, Mitigation of risks, **Assignment**
Week 7	Earthquakes causes and characteristics of ground motion, earthquake scales, Magnitude and intensity revision and test
Week 8	Earthquake hazards and risks, volcanic land forms, eruptions, early warning from satellites, risk mitigation
Week 9	Risk training, landslides revision and **Test**
Week 10	Mitigation efforts
Week 11	UN draft resolution on strengthening of coordination of Humanitarian
Week 12	**Mock Test**
Week 13	Emergency assistance, international decade for natural disaster reduction
Week 14	Policy for disaster reduction, problems of financing and insurance
Week 15	Revision

Name of the Assistant Professor:Dr. Nupur Srivastava **Class And Section: M. Sc. 3rd semester** **Subject: Discrete Mathematics 17MAT 23DA1** **Teaching Term: 22nd July 2024 to 22nd Nov 2024(Excluding Diwali Break)**	
Week 1	Recurrance Relation And Generating Function, Some Number Sequences, Linear Homogeneous Recurrance Realations, Doubt Classes
Week 2	Non Homogeneous Recurrance Realtions, Generating Function, Exponential Generating Functions, Doubt Clases And **Test**
Week 3	Statement Symbolic Representation And Toutologies, Quantifiers Predicates And Validity, Doubt Classes And Revisions
Week 4	Lattice As Partially Ordered Sets Their Properties, Laatice As Algebric Systems, Doubt Classes
Week 5	Sub Lattices, Direct Products And Homomorphism, Some Special Lattices
Week 6	Complete, Complemted Lattices And Distributive Lattice, Doubt Class **Assignment**
Week 7	Boolean Alzebra A Slattices Various Bollean Identities, The Switching Alzebra And Examples Subalgebras, Direct Product And Homorphism
Week 8	Joint Irreducible Elements, Atoms And Minterms, Boolean Forms And Their Equivalence, Minterm Bollean Forms
Week 9	Sum Of Products, Conical Forms, Minimization Of Bollean Functions, Application Of Bollean Alzebra, Revision, **Test**
Week 10	Switching Theory Use Of And And Or And Not Gates, The Karnaugh Graph
Week 11	Finite State Macanics And Their Transition Diagrams, Equivalence Of Finite State, Machines, Reduced Machines, Homorphism, Finite Automata
Week 12	Acceptors, Non Deterministic, Finite Automata And Equivalence Of Its Power To That Determinstic Finite Automata, **Mock Test**
Week 13	More And Mealy Machines, Grammer And Language Contwxt Feee And Context Sensitive Grammer
Week 14	Derivation Of Sentential Forms Regular Sets And Expression
Week 15	Revision

Name of the Assistant Professor:Dr. Nupur Srivastava
Class And Section: M.Sc 1st semester
Subject: Mathematical analysis 24MAT201DS02
Teaching Term: 22nd July 2024 to 22nd Nov 2024(Excluding Diwali Break)

Week 1	Riemann -stieltijes integral, existence and properties,
Week 2	Integration and differentiation revision class
Week 3	The fundamental theorem of calculus
Week 4	Integration of vector valued function doubt class
Week 5	Rectifiable curve
Week 6	Sequence and series of functions, pointwise and uniform convergence Cauchy criterion for uniform convergence
Week 7	Uniform convergence and continuity, uniform convergence and differentiation
Week 8	Weiertrass approximation theorem, **Assignment**
Week 9	Power series uniform convergence and uniqueness theorem, able theorem
Week 10	Tauber theorem , function of several variables linear transformation
Week 11	Euclidian space derivatives in an open subset, chain rule and **Test**
Week 12	Partial derivativities, continuously differentiable mapping, young theorem, **Mock Test**
Week 13	Schwaz theorem, Taylor theorem, higher order differentials explicit and implicit function inverse function ,**Test**
Week 14	Stationary values of implicit function Jacobian and its properties
Week 15	Revision

Name of the Assistant Professor: Dr. Nupur **Class And Section: BA and B.Sc. 3rd semester** **Subject: Statics BM 233** **Teaching Term: 22nd July 2024 to 22nd Nov 2024(Excluding Diwali Break)**	
Week 1	Introduction of subject, forces resultant of forces
Week 2	Angle of force lami theorem kind of friction,triangle law of forces, theorem and problems
Week 3	Polygon law of forces, theorem of resolve part revision and **Test**
Week 4	Parallel forces, resultant of like and unlike forces, analog of lami theorem
Week 5	Problems revision and doubt class
Week 6	Moment of force about a point problems
Week 7	Center of gravity, lamina cg of thin uniform rod parallogram lamina circular lamina ,problems and doubt class
Week 8	Forces in 3 dimensions, component of couple ,poinsot central axis , invariants ,wrenches
Week 9	Null line and null planes
Week 10	Stable and unstable neutral equilibrium ,theorems and problems
Week 11	Sign of moment of couple ,equilibrium of couple ,theorems doubt class, **Assignment**
Week 12	Equilibrium of couples ,theorem and problems, revision class, **Mock Test**
Week 13	Analytical conditions of equilibrium ,trigonometrical theorem
Week 14	Theorems and problems
Week 15	Doubt class Revision

Name of the Assistant Professor:Dr. Nupur Srivastava **Class And Section: M. Sc. 3rd semester** **Subject: Fluid Dyanamics, 17MAT 23C3** **Teaching Term: 22nd July 2024 to 22nd Nov 2024(Excluding Diwali Break)**	
Week 1	Kinematics, Lagrange and Eulerian methods, Stream lines, path lines and streak lines, Velocity potential, Irrotational and rotational motion, Vorticity, and circulation, Equation of continuity.
Week 2	Boundary surfaces, Acceleration at a point of fluid. test
Week 3	Componentsof acceleration in cylindrical and spherical polar coordinates
Week 4	Pressure at a point of a moving fluid, Euler equation of motion. Equationof motion incylindrical and spherical polar co ordinates
Week 5	Bernoulis equation, impulsive motion, kelvin circulation theorem. Vortocity equation, Energy equation, for incompressible flow
Week 6	Kelvin minimum energy theorem. Kinetic energy of infinite fluid,test
Week 7	Unoqueness theorem, Axially symmetric flows, Liquid streaming part a fixed sphere, Motion of sphere through a liquid at rest at infinity. Equation of motion of sphere, Kinetic energy generated by impulsive motion.
Week 8	Motion of two concentric spheres. Three dimensional sources, sink and doublets, **Assignment**
Week 9	Image of sources sink and doublets in rigid impermiable infinite plane and in impermiable spherical surface
Week 10	Two-dimensional motion, Use of cylindrical polar co ordinates,**Test**
Week 11	stream function, axisymmetric flow, **Test**, and doubt session
Week 12	Stoke stream function, stoke stream functiom of basic flows revision of topics and doubt session, **Mock Test**
Week 13	Irrotational motion in two dimesnsions, Complex velocity potential, Mine thomsoncircle, doubts classes
Week 14	Two dimensional sources sinks and doublets and their omages, Blasisus theorem
Week 15	Revision

Name of the Assistant Professor: Dr. Pinki Rani **Class And Section: B.Sc. 5th Sem** **Subject: Physics (Quantum Mechanics) PHY 502** **Teaching Term: 22nd July 2024 to 22nd Nov 2024(Excluding Diwali Break)**	
Week 1	Failure of classical mechanics, Introduction of quantum mechanics, Quantum theory of radiation, photon, photoelectric effect
Week 2	Einstein photoelectric equation, Compton effect (theory and result)
Week 3	Inadequancy of old quantum theory, D-Broglie hypothesis
Week 4	Davisson and Germer experiment, GP Thomson experiment
Week 5	Phase velocity group velocity, Heisenberg's uncertainty principle
Week 6	Uncertainty principle from D Broglie wave, Gamma ray microscope, Electron diffraction from a slit
Week 7	Applications of uncertainty principle, **Test**
Week 8	Introduction of Schrodinger wave equation and time dependent Schrodinger equation, **Assignment**
Week 9	Eigen values and Eigen functions, Physical significance of wave function, Normalization of wave function
Week 10	Operators, Observables, expectation values of dynamical quantities, probability current density
Week 11	Application of Schrodinger wave equation, Free particle in one dimensional box
Week 12	Solution of Schrodinger wave equation, Eigen function, Eigen values, quantization of energy and momentum, nodes and anti nodes, zero point energy, **Mock Test**
Week 13	One dimensional potential step Reflection coefficient Transmission coefficient
Week 14	One dimensional potential barrier Reflection coefficient Penetration of leakage coefficient Penetration depth
Week 15	Revision, **Test**

Name of the Assistant Professor:Dr. Pinki Rani **Class And Section: B.Sc. 3rd Sem** **Subject: Physics (Optics-1) PHY 302** **Teaching Term: 22nd July 2024 to 22nd Nov 2024(Excluding Diwali Break)**	
Week 1	Introduction of Optics, Speed of transverse and longitudinal waves.
Week 2	Introduction of Fourier Analysis, Fourier analysis of complex waves, **Test**
Week 3	Applications of Fourier analysis Solution of rectangular and triangular waves.
Week 4	Solution of Half Wave rectifier output Solution of Full Wave Rectifier output
Week 5	Introduction of Fourier Transform and its properties.
Week 6	Applications of Fourier Transform: f(x)= Gaussian Function f(x)= 1 for $\|x\| < a$ 0 for $\|x\| > a$
Week 7	Matrix methods in paraxial Optics, matrices, sign conventions
Week 8	Co-ordinates of paraxial ray Effect of translation and reflection matrix
Week 9	Derivation of thin lens and thick lens formulae, **Assignment**
Week 10	Unit plane, Nodal planes, System of thin lenses, chromatic, spherical coma
Week 11	Astigmatism and distortion aberrations and their remedies, **Test**
Week 12	Interference of waves Types of interference, coherent sources, phase difference and path difference, **Mock Test**
Week 13	Expression for fringe width Fresnel's biprism
Week 14	Determination of thickness of a transparent sheet using fresnel's biprism, Lloyd's mirror, phase change on reflection
Week 15	Revision

Name of the Assistant Professor: Dr. Pinki Rani **Class And Section: B.Sc. 1st Sem** **Subject: Electrical Circuit and Instrumentation Skills** **Teaching Term: 22nd July 2024 to 22nd Nov 2024(Excluding Diwali Break)**	
Week 1	Basic electricity principles, ohm's law, series, parallel and series-parallel combinations, AC and DC electricity
Week 2	Familiarisation with multimeter, voltmeter and ammeter, principles of measurement of DC voltage and DC current and resistance, specification of a multimeter and their significance
Week 3	Electronic voltmeter, principles of voltage measurement, block diagram, specification of an electronic volt meter, multimeter, and their significance
Week 4	AC milli-volt meter, types of AC milli-voltmeter: amplifier rectifier and rectifier amplifier, block diagram specification and significance of AC milli-voltmeter
Week 5	Block diagram of basic CRO, construction of CRT, electron gun
Week 6	Timebase operation, synchronization. Specification of a CRO and their significance, use of CRO, **Test**
Week 7	Special features of dual trace, Introduction of digital oscilloscope, Digital storage oscilloscope
Week 8	Digital instruments, principal and working of digital metres, comparison of analogue and digital instruments, **Test**
Week 9	Digital multimeter, block diagram and working of digital multimeter, working principle of time interval
Week 10	Frequency and period measurement using universal counter, frequency counter
Week 11	Time base stability, accuracy, resolution, voltmeter, **Assignment**
Week 12	Solid state devices: resistors, inductor, and capacitors, **Mock Test**
Week 13	Diode and rectifiers, components in series or in shunt, response of inductors and capistors with DC or AC sources generators and transformers
Week 14	AC/DC generators, inductance, capacitance, and impedance
Week 15	Electric motors, DC or AC sources to control heaters and motors, speed and power of an AC motor

Name of the Assistant Professor: Ms. Sudha Diwakar **Class And Section: B.Sc Biotech 3rd Sem** **Subject: Organic Chemistry** **Teaching Term: 22nd July 2024 to 22nd Nov 2024(Excluding Diwali Break)**	
Week 1	Introduction of Monohydric alcohols : nomenclature, methods of formation by reduction of aldehydes Ketones, carboxylic acid and esters .Hydrogen bonding. & Acidic nature. Reactions of alcohols
Week 2	H ydrogen bonding. & Acidic nature. Reactions of alcohols. Interconversion of alcohols.
Week 3	Dihydric alcohols — nomenclature and methods of formation. & chemical reactions of vicinal glycols, oxidative cleavage [Pb(OAc)4 and HIO4] and pinacol-pinacolone rearrangement
Week 4	Synthesis of epoxides & Acid and base-catalyzed ring opening of Epoxide and orientation of epoxide ring opening,reactions of Grignard and organolithium reagents with epoxides
Week 5	Introduction of Phenols & Its Nomenclature & structure and bonding. Preparation of phenols, physical properties & acidic character of Phenol
Week 6	Comparative acidic strengths of alcohols and phenols, resonance stabilization of phenoxide ion & Reactions of phenols — electrophilic aromatic substitution
Week 7	Mechanisms of Reimmer-Tiemann reaction, Kolbe's reaction and Schotten and Baumann reactions. **Assignment and Test**
Week 8	Introduction of Ultraviole t (UV) absorption spectroscopy & Absorption laws (Beer-Lambert law), molar absorptivity, presentation and analysis of UV spectra
Week 9	Types of electronic transitions, effect of conjugation. Concept of chromophore and auxochrome
Week 10	Bathochromic, hypsochromic, hyperchromic hypochromic shifts & UV spectra of conjugated enes and ketones, **Test**
Week 11	Woodward- Fischer rules, calculation of lamdamax of simple conjugated dienes and unsaturated ketones . Numerial practice.
Week 12	Applications o f UV Spectroscopy in structure elucidation of simple organic compound. **Mock Test**
Week 13	Introduction of Carboxylic Acids & Acid Derivatives & Nomenclature of Carboxylic acids, structure and bonding. Physical properties, acidity of carboxylic acids. effects of substituents on acid strength
Week 14	Preparation of carboxylic acids .Hell V olhard-Zelinsky reaction. Reduction of carboxylic acids. Mechanism of decarboxylation
Week 15	Structure, nomenclature and preparation of acid chlorides, esters, amides and acid anhydrides.

Name of the Assistant Professor: Ms. Sudha Diwakar **Class And Section: B.Sc Biotech 5th sem** **Subject: Organic Chemistry** **Teaching Term: 22nd July 2024 to 22nd Nov 2024(Excluding Diwali Break)**	
Week 1	Introduction Of Carbohydrates-I Classification And Nomenclature Of Carbohydrates
Week 2	Preparation Of Glucose And Physical Properties
Week 3	Mechanism Of Osazone Formation. Inter Conversion Of Glucose And Fructose
Week 4	Chain Lengthening And Chain Shortening Of Aldoses. Configuration Of Monosaccharide.
Week 5	Erythro And Threo Diastereomers. Conversion Of Glucose In To Mannose. Mechanism Of Mutarotation
Week 6	Open Chain And Cyclic Structure Of D(+)-Glucose & D(-) Fructose. Mechanism Of Mutarotation.. Formation Of Glycosides, Ethers And Esters.& Determination Of Ring Size Of Glucose And Fructose
Week 7	Introduction To Disaccharides : Physical Properties Haworth Structure And Fischer Structure Of Maltose Sucrose And Lactose.
Week 8	Polysaccharides : Starch And Cellulose.Introduction :Organometallic Compounds Grignard Reagents-Formation And Structure.
Week 9	Chemical Properties Of Grignard Reagent. Organolithium Compounds: Formation And Chemical Reactions. **Assignment And Test**
Week 10	Organo Zinc Compounds: Formation And Chemical Reactions.
Week 11	NMR Spectroscopy Principle Of Nuclear Magnetic Resonance The PMR Spectrum ,Number Of Signals And Peak Areas
Week 12	Peak Areas, Equivalent And Non Equivalent Protons Positions Of Signals. Numerical Practice, **Mock Test**
Week 13	Chemical Shift, Shielding And Deshielding Of Protons. **Test**
Week 14	Proton Counting, Splitting Of Signals And Coupling Constants, Magnetic Equivalence Of Protons.. -
Week 15	Revision

Name of the Assistant Professor: Ms. Sudha Diwakar **Class And Section: B.Sc Biotech 3rd sem** **Subject: Inorganic Chemistry** **Teaching Term: 22nd July 2024 to 22nd Nov 2024 (Excluding Diwali Break)**	
Week 1	Coordination Compounds Werner's Theory Iupacnomenclature Of Coordination Compounds.Isomerism
Week 2	EAN Rule , Chelates, VBT Theory.
Week 3	**Assignment And Test**. Revision Of Questions Of VBT.
Week 4	Solvents And Thier Physical Properties.Types Of Solvent.
Week 5	Characteristics Of Liquid NH_3 And Liquid SO2
Week 6	Transition Elements, Position In The Periodic Table. Physical Properties: Atomic Radii And Ionization Enthalpy
Week 7	Colour , Magnetic Properties, Complex Formation, Oxidation State , Catalyst
Week 8	Reducing Character, Interstitial Compounds, Electrode Potential Reactivity
Week 9	Comparison Of 3d With 4d And 5d Series
Week 10	Structure Of Titanium Dioxide ,Vanadium Oxy Chloride
Week 11	Ferric Chloride, Copper Chloride
Week 12	Nickel Carbonyl. Revision Of Structures, **Mock Test**
Week 13	**Test** And Revision
Week 14	Questions Practice
Week 15	Revision

Name of the Assistant Professor: Dr. Vandana
Class And Section: M.sc Mathematics (P)
Subject: Mathematical Statistics
Teaching Term: 22nd July 2024 to 22nd Nov 2024(Excluding Diwali Break)

Week 1	Probability: Definition And Various Approaches Of Probability, Addition Theorem, Boole Inequality
Week 2	Conditional Probability And Multiplication Theorem, Independent Events
Week 3	Mutual And Pairwise Independence Of Events, Bayes Theorem And Its Applications.
Week 4	Random Variable And Probability Functions:Definition And Properties Of Random Variables
Week 5	Discrete And Continuous Random Variables, Probability Mass And Density Functions, Distribution Function. Concepts Of Bivariate Random Variable: Joint, Marginal And Conditional Distributions, **Test**
Week 6	Mathematical Expectation: Definition And Its Properties. Variance, Covariance, Moment Generating Function- Definitions And Their Properties.
Week 7	Discrete Distributions:Uniform, Bernoulli, Binomial, Poisson Distributions
Week 8	Geometric Distributions With Their Properties, **Test**
Week 9	Continuous Distributions: Uniform, Exponential And Normal Distributions With Their Properties.
Week 10	Testing Of Hypothesis: Parameter And Statistic, Sampling Distribution And Standard Error Of Estimate
Week 11	Null And Alternative Hypotheses, Simple And Composite Hypotheses, Critical Region, **Assignment**
Week 12	Level Of Significance, One Tailed And Two Tailed Tests, Two Types Of Errors, **Mock Test**
Week 13	Tests Of Significance: Large Sample Tests For Single Mean
Week 14	Single Proportion, Difference Between Two Means And Two Proportion
Week 15	Revision

Name of the Assistant Professor:Ms. Reeta Kumari **Class And Section: B.Sc (Non-Medical) 1st semester** **Subject: Mechanic and Theory of Relativity** **Teaching Term: 22nd July 2024 to 22nd Nov 2024(Excluding Diwali Break)**	
Week 1	Basics of mechanics: mechanics of single and system of particles ,conservation law of linear momentum ,angular momentum and mechanical energy for a particle and a system of particles.
Week 2	Centre of mass and equation of motion ,constraint motion. Work and kinetic energy theorem.
Week 3	Conservative and nonconservative forces potential energy and edge diagram.Stable and unstable equilibrium. Elastic potential energy.
Week 4	Force and gradient of potential energy. Work and potential energy. Work done by non conservative forces. Law of conservation of energy
Week 5	Generalized notation: degrees of freedom and generalized coordinates, transformation equations generalized displacement, velocity, acceleration, momentum, force and potential.
Week 6	Components of elastic and acceleration in cylindrical and spherical coordinate systems. Hamilton's variational principle, **Test**
Week 7	Legrands equation of motion from hamilton's principle linear harmonic oscillator simple pendulum, AtWood's machine.
Week 8	Rotation of rigid body, movement of inertia torque angular momentum, kinetic energy of rotation. Theorems of perpendicular and parallel axes with proof, **Test**
Week 9	Moment of inertia of solid sphere, hollow sphere spherical shell, solid cylinder, hollow cylinder and solid bar of rectangular cross section.
Week 10	Acceleration of body rolling down on an inclined plane. Kinetic energy of rotation. Motion involved both translation and rotation, **Assignment**
Week 11	Special theory of relativity: Non inertial frames and fictitious forces. Uniformly rotating frame. Law of physics in rotating coordinate systems. Centrifugal force. coral is force and its applications
Week 12	Michelson-Morley experiment and its outcome. Postulates of a special theory of relativity. Lorentz transformation, **Mock Test**
Week 13	Simultaneity and order of events. Lorentz contraction. Time dilation. Relativistic transformation of velocity, frequency and wave number. Relativistic addition of velocities.
Week 14	Variation of mass with velocity. Massless particles. Mass-energy equivalence. Relativistic Doppler effect. Relativistic kinematics. Transformation of energy and momentum energy. Energy-Momentum for vector
Week 15	Revision

Name of the Assistant Professor: Ms. Reeta Kumari **Class And Section: B.Sc (Non Medical)5th semester** **Subject: Solid State Physics , PH-501** **Teaching Term: 22nd July 2024 to 22nd Nov 2024(Excluding Diwali Break)**	
Week 1	Crystalline And Glassy Forms, Liquid Crystals. Crystal Structure, Periodicity.
Week 2	Lattice And Bases Crystal Translation Vectors And Axes
Week 3	Unit Cell And Primitive Cells, Winger Primative Cell.
Week 4	Symmetry Operations For A Two Dimensional Crystal, **Test**
Week 5	Bravais Lattice In Two And Three Dimensions.
Week 6	Crystal Plains And Miller In Indices, Interplannaer Spacing.
Week 7	Crystal Structure Of Zinc Sulphide, Sodium Chloride And Diamond.
Week 8	X-Ray Diffraction, Bragg's Law, **Assignment**
Week 9	Experimental X-Ray Diffraction Methods And K-Space
Week 10	Reciprocal Lattice And Its Physical Significance, Reciprocal Lattice Vectors.
Week 11	Recipro Lattice To A Simple Cubic Lattice, **Test**
Week 12	Reciprocal Lattice To BCC And FCC, **Mock Test**
Week 13	Specific Heat Of Solids, Einstein's Theory Of Specific Heat
Week 14	Debey Model Of Specific Heat Of Solids
Week 15	Revision

Name of the Assistant Professor: Ms. Reeta Kumari **Class And Section: B.Sc (Non-Medical) 3rd semester** **Subject: Computer Programming and Thermodynamics ,PH-301** **Teaching Term: 22nd July 2024 to 22nd Nov 2024(Excluding Diwali Break)**	
Week 1	Computer Organisation, Binary Representation, Algorithm Development
Week 2	Flowcharts And Their Interpretation.
Week 3	Fortran Preliminaries, Integer And Floating Points, Arithmetic Expression, **Test**
Week 4	Built In Function , Executable And Non Executable Statement ,Input And Output Statement.
Week 5	If, Do And Go To Statement, Dimension Array, Statement Functions And Functions Of Program.
Week 6	Second Of Thermodynamics, Carnot Theorem, Absolute Scale Of Temperature.
Week 7	Absolute Zero Entropy, Show That Dq/Dt = 0, T-S Diagram.
Week 8	Nernst Heat Law, Joule's Free Expension, Joule Thomson Porus Plug Experiment.
Week 9	Joule Thomson Effect, Liquification Of Gases, **Test**
Week 10	Air Pollution Due To Internal Combustion Engine, **Assignment**
Week 11	Derivation Of Clausius-Clapeyron Latent Heat Equation. Phase Diagram And Triple Point Of Substance.
Week 12	Development Of Maxwell Thermodynamical Relations, **Mock Test**
Week 13	Application Of Maxwell Relation In Derivation Of Relations Between Entropy, Specific Heats And Thermodynamic Variables.
Week 14	Thermodynamic Functions: Internal Energy, Helmoltz Function, Enthalpy Gibbs Function And Relations Between Them.
Week 15	Revision

Name of the Assistant Professor: Ms. Bhawna **Class And Section: Multi Disciplinary Course (Botany)1st Year** **Subject: Organic Farming** **Teaching Term: 22nd July 2024 to 22nd Nov 2024(Excluding Diwali Break)**	
Week 1	Concept And Components Of Organic Farming, Aims And Objectives, Need Of Organic Farming, Historical Development Of Organic Farming In India
Week 2	Status Of Organic Farming In India, Advantages And Disadvantages Of Organic Farming, **Assignment**
Week 3	Organic Farming Processes- Concept Of Farming System, Developing Organic Farms, Important Steps And Methods, Pure Organic Farming And Integrated Farming System, **Test**
Week 4	Plant Nutrients Essential, Their Role In Plant Growth And Development, Nutrient Uptake And Utilization By Plant.
Week 5	Nutrient Management In Organic Farming : Balance Nutrient Supply For Organic Farming System Using Nutrients From Organic Sources.
Week 6	Preparation, Nutrient Content And Methods Of Use/For Following- Rural Composite,Mulching, City Composite, Oil Cakes, Animal Waste,.
Week 7	Vermi Composites, Vermi Wash, Beejamrit, Green Manures, Bio Fertilizers.
Week 8	Nitrogenous, Phosphatic Potassic, Availability Of Nutrients From Above Sources, Recycling Of Organic Matter In Organic Agriculture Transformation Of Organic Substances In Soil.
Week 9	Disease And Pest Management In Organic Farming – Integrated Pest And Disease Managements, Organic. Pesticide, Bio Pesticides, In Organic Pesticides, Disadvantages Of Their Use .
Week 10	Seed, Seedling And Soil Treatment Measures, Feasibility Of Complete Dependence On Organic Sources. Wheat Management In Organic Farming. **Test**
Week 11	Use Of Neem And Other Plant Products In Organic Farming, Organic Agri-Horti Culture In Urban And Semi Urban Areas.
Week 12	Certification, Standardization, Marketing- Quality Control And Certification Procedures Of Organic Products, **Mock Test**
Week 13	Organic Standards In India. Government Schemes Related To Organic Farming In India.
Week 14	Potential Demand And Marketing Of Organic Products. Organic Farming And Food Security In India.
Week 15	Revision

Name of the Assistant Professor: Ms.Bhawna **Class And Section: B.Sc life Science 1st year** **Skill Enhancement Course (Botany)** **Subject: Biofertilizers and Biopesticides** **Teaching Term: 22nd July 2024 to 22nd Nov 2024(Excluding Diwali Break)**	
Week 1	Bio fertilizers: Definition, scope, status and importance: Advantagest & limitation of bio fertilizers compared to chemical fertilizers.
Week 2	Type of bio fertilizers, Structure and characterstics,features of bacterial bio fertilizer Azospirillum, azotobacter, rhizobium
Week 3	Structure and characterstics features of actinomyctes(Frankia), cynobacterial (anabaena, Nostoc)
Week 4	Structure and characterstics features of hapalosiphon and fungal VAM and ectomycorrhiza bio fertilizers, **Test**
Week 5	Production of bio fertilizers: strain selection, sterilization and microbial growth,Fermentation, mass production of carrier based and liquid bio fertilizers, **Assignment**
Week 6	Factore affeccting the proction of bio fertilizers, quality control of bio fertilizers, **Test**
Week 7	Application methods and dosage of bio fertilizers, effect of bio fertilizers on soil fertilitity, plant growth and yield,
Week 8	Bio fertilizers storage , shelf life, quality control and marketing, regulatory frame work and certification for bio fertilizers
Week 9	Application technology for seeds , seed links, tubers, sets, etc.
Week 10	Factor influencing the efficacy of bio fertilizers , economic feasibility and cost benefit analaysis of using bio fertilizers
Week 11	Future prospect and potential of bio fertilizer in sustainable agriculture and environmental protection, Bio Pesticides: Definition, claffication; advantages & limitation of bio pesticides compare to chemical pesticides.Modes of action
Week 12	Mechanicsm of bio pesticides, Bio Pesticides: Definition, claffication; advantages & limitation of bio pesticides compare to chemical pesticides.Modes of action, **Mock Test**
Week 13	characteristics and application of microbial pesticides , characterstics and application of botinical pesticides
Week 14	characteristics and application of bio chemical , bio control agents and their effacicy on seed bond and soil bond plant pathogenes
Week 15	Revision

Name of the Assistant Professor: Dr Jyoti Kapil **Class And Section: B.sc Biotech II YR** **Subject: BT 301 Medical Microbiology** **Teaching Term: 22nd July 2024 to 22nd Nov 2024**	
Week 1	Normal microflora of human body, nosocomial infections, carriers, Morphology, pathogenesis, symptoms, laboratory diagnosis, preventive measures and chemotherapy caused by gram positive bacteria
Week 2	Gram positive bacteria: S. aureus, S. pyogenes, B. anthracis, C. perferinges, C. tetani, C. botulinum
Week 3	C.diphtheriae M. tuberculosis M. leprae Morphology, pathogenesis, symptoms, laboratory diagnosis, preventive measures and chemotherapy caused by gram negative bacteria: E. coli
Week 4	N. gonorrhoea, N. meningitidis, P. aeruginosa, S. typhi, S. dysenteriae,
Week 5	M. pneumoniae, Rickettsiaceae, Chlamydiae, M. pneumoniae.
Week 6	Y. pestis, B. abortus, H. inflenzae, V. cholerae, T. pallidum, **Test**
Week 7	Diseases caused by viruses- Picornavirus, Orthomyxoviruses, Herpes virus
Week 8	Paramyxoviruses, Rhabdoviruses, Reoviruses, Pox virus, **Assignment**
Week 9	Papova virus, Retro viruses -HIV/AIDS and Hepatitis viruses
Week 10	Fungal and Protozoan infections Dermatophytosis (Trichophyton, Microsporun and Epidermophyton) Sub cutaneous infection - Sporothrix
Week 11	Cryptococcus infection, Systemic infection -Histoplasma, Coccidioides, Malaria
Week 12	Opportunistic fungal infections -Candidiasis, Aspergillosis, Leishmaniasis, **Mock Test**
Week 13	Gastrointestinal infections - Amoebiasis, Giardiasis, Blood-borne infections
Week 14	Septic shock, septicemia, pathogenicity, virulence factors, toxins, biosafety levels.
Week 15	Revision

Name of the Assistant Professor: Dr Jyoti Kapil
Class And Section: B.Sc. Biotech III YR

Subject: BT 503 Immunology
Teaching Term: 22nd July 2024 to 22nd Nov 2024

Week 1	Immune Response - An overview, components of mammalian immune system, molecular structure of Immunoglobulins or Antibodies
Week 2	Humoral & Cellular immune responses, T-lymphocytes & immune response - cytotoxic T-cell, helper T- cell, suppressor T-cells
Week 3	T-cell receptors, genome rearrangements during B-lymphocyte differentiation, Antibody affinity maturation
Week 4	Germ line theory. Class switching, assembly of T-cell receptor genes by somatic recombination, **Test**
Week 5	Somatic hypermutation. Regulation of immunoglobulin gene expression – clonal selection theory, allotypes & idiotypes,
Week 6	Allelic exclusion, immunologic memory, heavy chain gene transcription, genetic basis of antibody diversity, **Assignment**
Week 7	Hypotheses (germ line & somatic mutation), Antibody diversity. Allelic exclusion,
Week 8	Major Histocompatibility complexes – class I & class II MHC antigens, antigen processing. Immunodeficiency- AIDS.
Week 9	Immunity to infection – immunity to different organisms, Hypersensitivity types I -IV, Hypersensivity Diseases, **Test**
Week 10	Auto- immune diseases- Rheumatoid arthritis, Systemic lupus erythematosus, Multiple sclerosis, Type 1 diabetes, Psoriasis
Week 11	Vaccines & Vaccination – adjuvants, cytokines, DNA vaccines, recombinant vaccines,
Week 12	Bacterial vaccines, viral vaccines, vaccines to other infectious agents, **Mock Test**
Week 13	Passive & active immunization. Introduction to immunodiagnostics – RIA, ELISA.
Week 14	Pathogen defense strategies, avoidance of recognition
Week 15	Revision

Name of the Assistant Professor: Dr Jyoti Kapil **Class And Section: B.sc Biotech I Year** **Subject: USBOT4 Basics of Biomolecules** **Teaching Term: 22nd July 2024 to 22nd Nov 2024**	
Week 1	Amino Acids and Proteins: Common structural features of 20 amino acids Classification by R group, on basis of shape. Essential amino acids
Week 2	Primary Structure-Amino acid sequence, Ramachandran plot secondary, tertiary & quaternary structures of proteins, Hemoglobin structure
Week 3	Classification - polar group, side chain, Zwitter ion structures, acid-base properties and titration curves of amino acids **Test**,
Week 4	Physico-chemical properties of amino acids -solubility, boiling and melting points, reactions like Edman's, Sanger's, ninhydrin.
Week 5	Basic introduction to terms: domains & motifs-Hairpin,collagen triple helix structure,kertin and collagen structure
Week 6	Forces that stabilize the protein's structure (electrostatic forces, hydrogen and disulfide bonds, hydrophobic associations).
Week 7	Determination of amino acid sequences of proteins –Edma degradation, Sanger reaction terminal amino acid sequences
Week 8	Carbohydrates: Definition, classification, Nomenclature of carbohydrates, Isomerism-optical, stereoisomerism, **Test**
Week 9	Structure Linear, Haworth, chair form, Function and properties of Monosaccharides-Reducing, non-reducing sugar reactions, barfoed reaction
Week 10	Fehling Molisch reagent test, Osazone formation, Kiliani formation Function and properties of Disaccharides, **Assignment**
Week 11	Structure and function of Lactose,Sucrose,Maltose,Cellobiose Trehalose
Week 12	Polysaccharides Types-Homopoly sacchrides Heteropoly saccharides – Starch ,Glycogen, inulin structure and function, **Mock Test**
Week 13	Structure and function -Cellulose, Hemicellulose, Pectin, Chitin
Week 14	Mucopoly saccharides, Glycoproteins and their biological functions
Week 15	Revision

Name of the Assistant Professor: Ms. Neha **Class And Section: B.Sc Medical Final Year** **Subject: Paper-1 Plant Physiology** **Teaching Term: 22nd July 2024 to 22nd Nov 2024(Excluding Diwali Break)**	
Week 1	Plant water relation- Importance of water to plant life, physical properties of water, imbibition, diffusion, osmosis
Week 2	Absorption and transport of water, transpiration, physiology of stomata
Week 3	Essential macro and micro elements and their role,deficiency symptoms
Week 4	Mineral uptake, Revision, **Assignment**
Week 5	Transport of organic substances, mechanism of phloem transport, source sink relationship, factor affecting translocation
Week 6	Photosynthesis significance, historical aspect, photosynthetic pigment, action spectra and enhancement effect
Week 7	Concept of two photosystem, Z-Spectra,photophosohorylation, Calvin cycle
Week 8	C4 pathway, CAM plants, photorespiration, **Test**
Week 9	Definition and phases of growth and development, seed dormancy, plant movement
Week 10	Concept of photoperiodism, physiology of flowering, florigen concept
Week 11	Physiology of senescence, fruit ripening, **Test**
Week 12	History of their discovery, mechanism of action and physiological effect of auxin, gibberellins, **Mock Test**
Week 13	Cytokinin, Ethylene, Abscissic acid, photomorphogenesis
Week 14	Phytochromes and their discovery, physiological role and mechanism of action
Week 15	Revision

Name of the Assistant Professor: Ms. Neha **Class And Section: B.Sc Medical 3rd year** **Subject: Paper-II Plant Ecology** **Teaching Term: 22nd July 2024 to 22nd Nov 2024(Excluding Diwali Break)**	
Week 1	Definition, Scope and importance of Ecology
Week 2	Levels of organization in Ecology, introduction of environment and environmental factors, climatic factors water and humidity
Week 3	Climatic factors wind ,light and temperature, edaphic factors(soil profile)
Week 4	Physiochemical properties of soil, topographic factors and biotic factors
Week 5	**Test** Adaptation of plants to water stress and salinity, morphological and anatomical features of hydrophytes
Week 6	Morphological and anatomical features of xerophytes , Morphological and anatomical features of halophytes
Week 7	Basic concept and characteristics of population, biotic potential **Assignment**
Week 8	Growth curves , ecotypes and ecads **Test**
Week 9	Community ecology ; concept and characteristics (qualitative and quantitative), methods of analysis
Week 10	Ecological succession, Ecosystem structure and functions
Week 11	Biogeochemical cycles ; carbon, nitrogen, phosphorus and hydrological, Phytogeographical regions of India, vegetation type of India.
Week 12	**Mock Test**
Week 13	Water pollution, green house effect and green house gases, impact of global warming, carbon dating
Week 14	Ozone layer depletion , biomagnification, , environmental pollution (air pollution).
Week 15	Revision

Name of the Assistant Professor: Ms. Sonia **Class And Section: B.Sc(N.M) 5th sem** **Subject: Real Analysis** **Teaching Term: 22nd July 2024 to 22nd Nov 2024(Excluding Diwali Break)**	
Week 1	Riemann integration
Week 2	Continue Riemann integration
Week 3	Improper integral-1st kind & 2nd kind
Week 4	Improper integral-3rd kind
Week 5	integral as a function of a parameter
Week 6	Metric space, **Test**
Week 7	Open sphere
Week 8	Closed sphere
Week 9	Completeness in metric space, **Assignment**
Week 10	Continuity in metric space, **Test**
Week11	Continuity in metric space
Week 12	Compactness in metric space, **Mock Test**
Week 13	Connectedness in metric space
Week 14	Connectedness in metric space
Week 15	Revision

Name of the Assistant Professor: Ms. Sonia **Class And Section: M.Sc.(Maths)** **Subject: Complex Analysis** **Teaching Term: 22nd July 2024 to 22nd Nov 2024(Excluding Diwali Break)**	
Week 1	Function of complex variable, continuity, Differentiability, Analytic function & their properties
Week 2	C-R equation & it's polar form, power series, Radius of convergence, differentiability of sum of a power series, Branchesof many valued function with special reference of argz, logz & z^a
Week 3	Path in a region, contour, complex integration, cauchy theorem, cauchy integra formula
Week 4	Extention of cauchy integral formula for multiple connected domain Poisson integral formula, higher order derivative
Week 5	Complex integral as a function of its upper limit, Morera theorem, cauchy inequality, Liouville theorem, Taylor theorem
Week 6	Revision **Test**,
Week 7	Calculus of residues, cauchy residue theorem
Week 8	Evaluation of integrals , conformal mapping, **Test**
Week 9	Space of analytic function and their completness, Hurwitz theorem, Montel theorem
Week 10	Remann mapping theorem, **Assignment**
Week 11	Zeros of an analytic function, laurent series, isolated singularity
Week 12	Cassorati Weierstrass theorem, limit point of zeros & poles, **Mock Test.**
Week 13	Maximum modulus principle, Schwartz lemma, meromorphic function,
Week 14	Argument principle, Rouche theorem, Fundamental theorem of algebra, inverse function theorem
Week 15	Revision

Name of the Assistant Professor: Dr Sonam Ahuja **Class And Section: B.Sc(Physical Science) 5th Sem** **Subject: Groups & Rings** **Teaching Term: 22nd July 2024 to 22nd Nov 2024(Excluding Diwali Break)**	
Week 1	Definition of a group with example and simple properties of groups, Subgroups and subgroup criteria
Week 2	Generation of groups, cyclic groups, Cosets, Left & right cosets Applications of Cosets
Week 3	Index of a subgroup Coset Decomposition Lagrange's theorem & its consequences
Week 4	Normal subgroups Quotient groups & it's Applications, **Test**
Week 5	Homomorphisms, isomorphisms,automorphisms and inner automorphisms of a group
Week 6	Automorphisms of cyclic groups,Permutation groups, Even & odd permutations
Week 7	Alternating groups Cayley's theorem & related Applications , **Test**
Week 8	Centre of a group & derived group of a group
Week 9	Introduction to rings, subrings, integral domains & fields, **Assignment**
Week 10	Characteristics of a ring , Ring homomorphisms, Ideals : (Principal ,prime & maximal)
Week 11	Quotient Rings Field of quotients of an integral domain
Week 12	Euclidean rings, Polynomial rings, Polynomials over the rational field, **Mock test**
Week 13	The Eisenstein's criterion of irreducibility Polynomial rings over commutative rings
Week 14	Unique Factorization domain R unique factorization domain implies so is R{X1,X2,. . . . . Xn}
Week 15	Revision

Name of the Assistant Professor: Dr Sonam Ahuja **Class And Section: BSc (Phy Sc) + BSc(Home Sc) + BCA 1st yr** **Subject: Introduction to Statistics(Minor)** **Teaching Term: 22nd July 2024 to 22nd Nov 2024(Excluding Diwali Break)**	
Week 1	Statistics: Definition, Scope, Concepts of Statistical Population and Sample.
Week 2	Data: Quantitative and Qualitative, Attributes & their Applications
Week 3	Scales of Measurement: Nominal, Ordinal, Interval and Ratio. Presentation: Tabular and Graphical, including Histogram and Ogives.
Week 4	Measures of Central Tendency: Mathematical and Positional including Mean, Median & Mode with their applications
Week 5	Measures of Dispersion: Range, Quartile Deviation, Mean Deviation & their applications, **Test**
Week 6	Standard Deviation, Coefficient of Variation, Moments, Skewness and Kurtosis, Box Plot.
Week 7	Unit 3: Bi-variate Data: Definition, Scatter Diagram, Simple Correlation, **Test**
Week 8	Partial and Multiple Correlation (Three Variables Only), Rank Correlation.
Week 9	Simple Linear Regression, Principle of Least Squares & their applications, **Assignment**
Week 10	Fitting of Polynomials and Exponential Curves with all related applications.
Week 11	Unit 4: Attributes: Notations and Terminology, Contingency Table, Class Frequencies, Ultimate Class Frequencies, Consistency
Week 12	Association of Attributes, Independence, Measure of Association for 2 x 2 Table, **Mock test**
Week 13	Chi-Square, Karl Pearson's and Tschuprow's Coefficient of Association
Week 14	Contingency & all applications of unit 4
Week 15	Revision

Name of the Assistant Professor: Dr Sonam Ahuja **Class And Section: M.Sc (Maths) 3rd Sem** **Subject: Analytical Number Theory** **Teaching Term: 22nd July 2024 to 22nd Nov 2024(Excluding Diwali Break)**	
Week 1	Distribution of Primes, Fermat and Mersenne Numbers, Farey Series
Week 2	Results concerning Farey Series, Approximation of irrational numbers by rationals
Week 3	Hurwitz Theorem, Irrationality of e and pi. Applications **Test**,
Week 4	The arithmetic in Zn, The group Un, Primitive roots and their existence
Week 5	The group Up^n (p-odd) & U2^n, The group of quadratic residues Qn
Week 6	Quadratic residues for prime power moduli and arbitrary moduli, **Test**
Week 7	Applications and algebraic structure of Un & Qn
Week 8	Riemann Zeta Function and it's convergence, Applications to prime numbers
Week 9	Zeta Function as Euler product and Evaluation of zeta function for s= 2,2K
Week 10	Diophantine equations ax + by = c, x^2 + y^2 = z^2 and x^4 + y^4 = z^4
Week 11	The representation of number by two or four squares, Waring problem, Four square Theorem, **Assignment**
Week 12	The numbers g(k) & G(k) Lower bounds for g(k) & G(k), **Mock test**
Week 13	Arithmetic functions such as Euler, divisor and sum, U(n), N(n), I(n) functions Definitions and examples and simple properties, Perfect numbers
Week 14	Mobius inversion Formula, The Mobius function , The order and average order of the euler, divisor and sum functions .
Week 15	Revision

Name of the Assistant Professor: Dr. Jasvinder **Class And Section: BSc. Bioechnology second year** **Subject: Plant Diversity II** **Teaching Term: 22nd July 2024 to 22nd Nov 2024(Excluding Diwali Break)**	
Week 1	General characters of pteridophytes, Affinities with bryophytes & gymnosperms
Week 2	Classification, Economic importance
Week 3	Study of life histories of fossil Pteridophytes – Rhynia
Week 4	Life histories of Selaginella- (Heterospory and seed habit), Equisetum.
Week 5	Life histories of Pteris, **Test**
Week 6	Life histories of Lycopodium
Week 7	General characters, **Assignment**
Week 8	Classification, geological time scale
Week 9	Theories of fossil formation, types of fossils
Week 10	Fossil gymnosperms-Williamsonia & Glossopteris
Week 11	Telome and steel concept
Week 12	Life histories of Cycas, **Mock test**
Week 13	Life histories of Pinus
Week 14	**Test**, Economic importance of gymnosperms
Week 15	Revision

Name of the Assistant Professor: Dr. Jasvinder Kour **Class And Section: BSc. Ist year** **Subject: Basic of Biotechnology (Minor Subject)** **Teaching Term: 22nd July 2024 to 22nd Nov 2024 (Excluding Diwali Break)**	
Week 1	Interdisciplinary pursuite, Main area of application of Biotechnology
Week 2	Biotechnology research in India and biotechnology in context of developing world.
Week 3	Public Perception of Biotechnology product.
Week 4	Immune system (immune cells, type of immunity and General structure of (Immunoglobins)
Week 5	Hybridoma technology and monoclonal antibody
Week 6	In vitro fertilization and embryo transfer in brief. **Test**
Week 7	Gene and genome, protiens and proteome,
Week 8	History and overview of genetic manipulation
Week 9	DNA fingerprinting, **Assignment**
Week 10	Forensic analysis
Week 11	An overview of environmental Biotechnology, Scope. **Test**
Week 12	Market of biological control of environment, **Mock test**
Week 13	Brief account of Bioremediation
Week 14	Waste treatment of biotechnology
Week 15	Revision

Name of the Assistant Professor: Dr. Jasvinder Kour **Class And Section: BSc. Biotech III Year** **Subject: Recombinant Dna Technology** **Teaching Term: 22nd July 2024 to 22nd Nov 2024(Excluding Diwali Break)**	
Week 1	Gene Recombination and Gene transfer: Bacterial Conjugation,
Week 2	Transformation, Transduction, Episomes, Plasmids, Microinjection.
Week 3	Electroporation, Microprojectile, Shot Gun method, Ultrasonication, **Test.**
Week 4	Liposome fusion, Microlaser. Changing genes: site-directed mutagenesis and Protein engineering:
Week 5	Primer extension is a simple method for site directed mutation, PCR based site directed mutagenesis,
Week 6	Random mutagenesis, Use of Phage display techniques to facilitate the selection of mutant peptides,
Week 7	Gene shuffling, production of chimeric proteins, Genetic engineering in animals: Production of transgenic mice
Week 8	ES cells can be used for gene targeting in mice, Applications of gene targeting, Using Yeast to study Eukaryotic gene function,
Week 9	Therapeutic products produced by genetic engineering-blood proteins
Week 10	Human hormones, immune modulators and vaccines, **Assignment**
Week 11	Transgenic animals, Production of proteins of Pharmaceutical value. **Test.**
Week 12	Genetic engineering in plants: Use of Agrobacterium tumefaciens and Arhizogenes, **Mock test**
Week 13	Ti plasmids, Strategies for gene transfer to plant cells,
Week 14	Direct DNA transfer to plants, Gene targeting in plants, Use of plant viruses as episomal expression vectors
Week 15	Revision

Name of the Assistant Professor: Dr. Priti **Class And Section: B.Sc. Biotechnology 1st year** **Subject Basics of Biomolecules (DSC - A1)** **Teaching Term: 22nd July 2024 to 22nd Nov 2024 (Excluding Diwali Break)**	
Week 1	Lipids: Classification, nomenclature and properties of fatty acids. Essential fatty acids
Week 2	Structure and properties of phospholipids, sphingolipids
Week 3	Glycolipids, gangliosides, prostaglandins, **Test**
Week 4	Terpenoids and isoprenoids - definition and representative structures, steroids
Week 5	Concept of acid value, saponification value and iodine value
Week 6	Nucleic acids introduction and basics, **Test**
Week 7	Chemical structure and base composition of nucleic acids
Week 8	Chargaff's rules, Watson Crick Model (B-DNA)
Week 9	Other forms of DNA (A and Z-DNA).
Week 10	Nucleosides & Nucleotides, **Assignment**
Week 11	Biologically important nucleotides.
Week 12	Structural polymorphism of RNA, **Mock test**
Week 13	Denaturation of DNA.
Week 14	Renaturation of DNA
Week 15	Revision

Name of the Assistant Professor: Dr. Priti **Class And Section: B.Sc. Biotechnology 2nd year** **Subject: Plant Physiology (BT 303)** **Teaching Term: 22nd July 2024 to 22nd Nov 2024(Excluding Diwali Break)**	
Week 1	The Shoot And Root Apical Meristem And Its Histological Organization, Simple & Complex Permanent Tissues
Week 2	Primary Structure Of Shoot & Root, Secondary Growth, Growth Rings,
Week 3	Leaf Anatomy (Dorsi-Ventral And Isobilateral Leaf)
Week 4	Plant Water Relations And Micro & Macro Nutrients Plant Water Relations: Importance Of Water To Plant Life, Diffusion, Osmosis, Plasmolysis, Imbibition, Guttation, **Test**
Week 5	Transpiration, Stomata & Their Mechanism Of Opening & Closing, **Test**
Week 6	Micro & Macro Nutrients –Introduction And Different Types Of Nutrients
Week 7	Criteria For Identification Of Essentiality Of Nutrients, Roles And Deficiency Systems Of Nutrients
Week 8	Mechanism Of Uptake Of Nutrients, Mechanism Of Food Transport, **Assignment**
Week 9	Photosynthesis- Photosynthesis Pigments, Concept Of Two Photo Systems, Photphosphorylation, Calvin Cycle, CAM Plants, Photorespiration, Compensation Point
Week 10	Nitrogen Metabolism- Inorganic & Molecular Nitrogen Fixation, Nitrate Reduction And Ammonium Assimilation In Plants
Week 11	Growth And Development: Definitions, Phases Of Growth, Growth Curve
Week 12	Growth Hormones (Auxins, Gibberlins, Cytokinins, Abscisic Acid, Ethylene), **Mock Test**
Week 13	Growth Hormones: Physiological Role And Mode Of Action
Week 14	Seed Dormancy And Seed Germination, Concept Of Photo Periodism And Vernalization
Week 15	Revision

Name of the Assistant Professor: Dr. Priti **Class And Section: B.Sc. Biotechnology 3rd year** **Subject: Bioinformatics (BT 501)** **Teaching Term: 22nd July 2024 to 22nd Nov 2024(Excluding Diwali Break)**	
Week 1	Introduction, History and applications of Bioinformatics
Week 2	The notion of Homology, Sequence Information Sources, EMBL, GENBANK, EMBL, DDBJ
Week 3	Entrez, Unigene, Understanding the structure of each source and using it on the web
Week 4	Protein Information Sources, PDB, SWISSPROT, TREMBL, **Test**
Week 5	Understanding the structure of each source and using it on the web, **Assignment**
Week 6	Introduction of Data Generating Techniques and Bioinformatics problem posed by them- Restriction Digestion
Week 7	Chromatograms, Blots, PCR, Microarrays, Mass Spectrometry, **Test**
Week 8	Sequence and Phylogeny analysis, Detecting Open Reading Frames, Outline of sequence Assembly
Week 9	Mutation/Substitution Matrices, Pairwise Alignments, Introduction to BLAST, using it on the web, Interpreting results
Week 10	Multiple Sequence Alignment, Phylogenetic Analysis
Week 11	Searching Databases: SRS, Entrez,
Week 12	Sequence Similarity Searches-BLST, FASTA, Data Submission, **Mock Test**
Week 13	Genome Annotation: Pattern and repeat finding,
Week 14	Gene identification tools : introduction and different types of tools
Week 15	Revision

Name of the Assistant Professor:Ms. Priyanka Bhatia **Class And Section: B.Sc Med final year** **Subject: Organic Chemistry** **Teaching Term: 22nd July 2024 to 22nd Nov 2024(Excluding Diwali Break)**	
Week 1	Introduction To NMR Principle Of NMR,PMR Spectrum,Number Of Signals,Peak Area
Week 2	Equivalent And Non Equivalent Protons,Positions Of Signals,Chemical Shift,Shielding And Deshielding Of Protons
Week 3	Proton Counting,Splitting Of Signals, Coupling Constants And Magnetic Equivalence Of Protons Discussion Of PMR Spectra Of The Molecules: Ethyl Bromide, N Propyl Bromide,Isopropyl Bromide And Acetophenone.
Week 4	**Test** Discussion Of Spectra Of 1,1-Dibromoethane, 1,1,2 Tribromoethane,Ethanol,Acetaldehyde,Ethylacetate,Toluene,Benzaldehyde.
Week 5	Introduction To Carbohydrates -1 Classification And Nomenclature,Monosaccharides,Mechanism Of Osazone Formation
Week 6	Interconversion Of Glucose And Fructose ,Chain Lengthening ,Chain Shortening Of Aldoses,Configuration Of Monosaccharides.
Week 7	Erythro And Threo Diastereomers ,Conversion Of Glucose Into Mannose, Formation Of Glycosides,Ethers And Esters.Determination Of Ring Size Of Glucose And Fructose, **Test**
Week 8	Open Chain And Cyclic Structure Of D(+)- Glucose And D(-)Fructose Mechanism Of Mutarotation. Structure Of Ribose And Deoxyribose.
Week 9	Discussion About Disaccharides(Maltose,Sucrose,Lactose) And Its Structure Properties, **Assignment**
Week 10	Discussion About Polysaccharrides ,Its Structure And Properties.
Week 11	Introduction To Organo Magnesium Conpounds: The Grignard Reagents-Formation,Structure And Chemical Reactions
Week 12	Organo Zinic Compounds: Formation And Chemical Reactions. **Mock Test**
Week 13	Organo lithium Compounds: Formation And Chemical Reactions
Week 14	Revision Of Unit-2,3
Week 15	Revision

Name of the Assistant Professor:Ms. Priyanka Bhatia **Class And Section: B.Sc NM final year** **Subject: Organic Chemistry** **Teaching Term: 22nd July 2024 to 22nd Nov 2024(Excluding Diwali Break)**	
Week 1	Introduction To NMR Principle Of NMR,PMR Spectrum,Number Of Signals,Peak Area.
Week 2	Equivalent And Non Equivalent Protons,Positions Of Signals,Chemical Shift,Shielding And Deshielding Of Protons
Week 3	Proton Counting,Splitting Of Signals, Coupling Constants And Magnetic Equivalence Of Protons Discussion Of PMR Spectra Of The Molecules: Ethyl Bromide, N Propyl Bromide,Isopropyl Bromide And Acetophenone.
Week 4	Discussion Of Spectra Of 1,1-Dibromoethane, 1,1,2-Tribromoethane,Ethanol,Acetaldehyde,Ethylacetate,Toluene,Benzaldehyde.
Week 5	Introduction To Carbohydrates -1 Classification And Nomenclature,Monosaccharides,Mechanism Of Osazone Formation, **Test**
Week 6	Interconversion Of Glucose And Fructose ,Chain Lengthening ,Chain Shortening Of Aldoses,Configuration Of Monosaccharides.
Week 7	Erythro And Threo Diastereomers ,Conversion Of Glucose Into Mannose, **Test**
Week 8	Open Chain And Cyclic Structure Of D(+)- Glucose And D(-)Fructose Mechanism Of Mutarotation. Structure Of Ribose And Deoxyribose.
Week 9	Discussion About Disaccharides(Maltose,Sucrose,Lactose) And Its Structure Properties.
Week 10	Discussion About Polysaccharrides ,Its Structure And Properties, **Assignment**
Week 11	Introduction To Organomagnesium Conpounds: The Grignard Reagents-Formation,Structure And Chemical Reactions
Week 12	Organo Zinic Compounds:Formation And Chemical Reactions, **Mock Test**
Week 13	Organolithium Compounds:Formation And Chemical Reactions.
Week 14	Formation Of Glycosides,Ethers And Esters.Determination Of Ring Size Of Glucose And Fructose.
Week 15	Revision

Name of the Assistant Professor: Ms. Shweta Chaudhary **Class And Section: B. Sc. Medical 2nd Year** **Subject: Biology and Diversity of Seeded Plants - I** **Teaching Term: 22nd July 2024 to 22nd Nov 2024(Excluding Diwali Break**	
Week 1	General Characteristics, origin and evolution of Gymnosperms
Week 2	Geological Time Scale and Evolution of seed habit
Week 3	Pilger and Melchiors system of classification of Gymnosperms.
Week 4	Fossil and Fossilization, Reconstruction of the fossil plants. **Test**
Week 5	Cycas – Morphology, anatomy of root, stem, leaf/leaflet
Week 6	Cycas – reproductive parts and mode of reproduction, **Test**
Week 7	Cycas – Life cycle and Economic importance
Week 8	Pinus – Morphology, anatomy of root, stem, leaf/leaflet
Week 9	Pinus– reproductive parts and mode of reproduction, **Assignment**
Week 10	Pinus – Life cycle and Economic importance
Week 11	Ephedra – Morphology, anatomy of root, stem, leaf/leaflet
Week 12	Ephedra – reproductive parts and mode of reproduction, **Mock Test**
Week 13	Ephedra – Life cycle and Economic importance
Week 14	General Characteristics, origin and evolution of Angiosperms
Week 15	Revision

Name of the Assistant Professor:Ms. Priyanka Bhatia **Class And Section: B.Sc NM second year** **Subject: Inorganic Chemistry** **Teaching Term: 22nd July 2024 to 22nd Nov 2024(Excluding Diwali Break)**	
Week 1	Introduction to Chemistry of d-Block elements Definition of transition elements,position in the periodic table,electronic configuration
Week 2	General characteristic and properties of d -Block elements,comparison of properties of 3d elements with 4d and 5d elements with reference to only ionic radii.
Week 3	Discussion about oxidation states and e m.f (Latimer and Frost diagrams)
Week 4	Structures and properties of some compounds of transition element Titanium dioxide,Vanadium oxydichoride,Ferric chloride,Copper chloride, Tetracarbonylnickel.
Week 5	**Test** Introduction to Coordination Compounds
Week 6	Werner's theory of coordination compounds,Effective atomic number
Week 7	Chelates and chelating ligands,Factors affecting the stability of coordination comupounds.
Week 8	Nomenclature of coordination compounds,Isomerism in coordination compounds .
Week 9	Valence Bond theory of transition metal complexes, **Assignment**
Week 10	**Test** Introduction to Non aqueous solvents
Week 11	Revision of Unit-1
Week 12	Physical properties of solvents ,types of solvents and their general charcateristics, **Mock Test**
Week 13	Revision of Unit-2
Week 14	Reactions in non aqueous solvents with reference to liquid ammonia and liquid sulpur dioxide Test of Unit -3
Week 15	Revision

Name of the Assistant Professor: Ms. Garima Mehta **Class And Section: B.Sc (1 st year) 1st semester** **Subject: Functions and Algebra** **Teaching Term: 22nd July 2024 to 22nd Nov 2024(Excluding Diwali Break)**	
Week 1	Relation, Functions Along With Domain And Range , Composition Of Functions.
Week 2	Invertibility And Inverse Of Functions, One To One Correspondance And The Cardinality Of A Set.
Week 3	Symmetric, Skew -Symmetric , Hermitian And Skew Hermitian Matrices.
Week 4	Unitary And Orthogonal Matrices, Idemptotent, Involuntary, Nilpotent Matrices, **Test**
Week 5	Rank Of Matrix, Row Rank And Column Rank Of A Matrix, Elementary Operations On Matrices.
Week 6	Inverse Of Matrix, Normal Form, Linear Dependence And Independence Of Row And Column Of Matrices, **Assignment**
Week 7	Applications Of Matrices To A System Of Linesr Equations, Theorms On Consistency Of A System Of Linear Equations.
Week 8	Eigen Values, Eigen Vectors And The Characteristics Equation Of A Matrix, Minimal Polynomial Of A Matrix, **Test**
Week 9	Cayley -Hamilton Theorm And It's Use In Finding The Inverse Of A Matrix, Diagonalization Of Matrix.
Week 10	Polynomial, Synthetic Division, Fundamental Theorm Of Algebra, Relation Between The Roots And The Coefficients Of An Equation .
Week 11	To Find The Condition That The Roots Of The Given Equation Satisfy A Given Relation, Common Roots Of Two Equations, Repeated Roots Of An Equation.
Week 12	Roots With Sign Changed, Reciprocal Roots, Transformation Of The Cubic And Biquadratic, **Mock Test**
Week 13	Transformation In General, Equation Of Squared Differences Of A Cubic.
Week 14	Descarte`S Rule Of Signs, Complex Roots.
Week 15	Cubic Equation, Carbon Method Of Solving A Cubic Equation, Descartes Solution Of Biquadratic, Ferrari's Method.

Name of the Assistant Professor: Ms.Garima Mehta **Class And Section: M.Sc Previous year** **Subject: Analytical Number Theory** **Teaching Term: 22nd July 2024 to 22nd Nov 2024(Excluding Diwali Break)**	
Week 1	Distribution of primes, Fermat and Mersenne numbers.
Week 2	Farey series and some results concerning Farey series.
Week 3	Approximation of irrational numbers by rationals, **Test**
Week 4	Hurwitz theorem, Irrationality of e and π.
Week 5	The arithmetic in Zn, The group Un, **Test**
Week 6	Primitive roots and their existence, the group Up^ n (p-odd) and U2 ^n.
Week 7	The group of quadratic residues Qn , Quadratic residues for prime power moduli and arbitrary moduli.
Week 8	The algebraic structure of Un and Qn .
Week 9	Riemann Zeta Function and its convergence, Application to prime numbers, **Assignment**
Week 10	Zeta (s) as Euler product, Evaluation of zeta(2) and zeta (2k).
Week 11	Diophantine equations ax + by = c, x2+y2 = z2 and x4+y4 = z4, The representation of number by two or four squares.
Week 12	Waring problem, Four square theorem, The numbers g(k) & G(k), Lower bounds for g(k) & G(k), **Mock Test**
Week 13	Arithmetic functions phi(n), tau(n), sigma(n) and sigma k(n), U(n), N(n), I(n).
Week 14	Definitions and examples and simple properties, Perfect numbers, Mobius inversion formula.
Week 15	The Mobius function n, The order and average order of the function phi(n), tau(n) and sigma(n).

Name of the Assistant Professor: Ms.Garima Mehta **Class And Section: MDC statistics** **Subject: Basic Statistics** **Teaching Term: 22nd July 2024 to 22nd Nov 2024(Excluding Diwali Break)**	
Week 1	Statistics: Definition, Scope & Limitations, Concepts of Statistical Population and Sample.
Week 2	Data: Quantitative and Qualitative.
Week 3	Methods of Collection, **Test**
Week 4	Scales of Measurement: Nominal, Ordinal, Interval and Ratio.
Week 5	Tabular and Graphical Representation of Data: Classification, Tabulation.
Week 6	Diagrammatic Representation using Bar Graph, Line Graph, Dot Plot, Pie Chart, Pareto Chart.
Week 7	Histogram, Frequency Polygon, Ogives, **Test**
Week 8	Stem and Leaf Plot, Box and Whisker Plot, and Scatter Plot.
Week 9	Measures of Central Tendency: Mathematical and Positional, Measures of Dispersion, **Assignment**
Week 10	Range, Quartile Deviation, Mean Deviation, Standard Deviation.
Week 11	Coefficient of Variation, Moments, Skewness and Kurtosis.
Week 12	Analysis and Consistency of Categorical Data, **Mock Test**
Week 13	Independence and Association of Attributes, Bivariate Data: Definition, Scatter Diagram.
Week 14	Simple, Partial and Multiple Correlation.
Week 15	Rank Correlation; Simple Linear Regression .

Name of the Assistant Professor : Ms. Garima Mehta **Class And Section: Minor Mathematics** **Subject: Basic Mathematics** **Teaching Term: 22nd July 2024 to 22nd Nov 2024(Excluding Diwali Break)**	
Week 1	Matrices: definition of matrix.
Week 2	Types of matrices.
Week 3	Algebra of matrices.
Week 4	Determinants: properties of determinants, calculations of values of determinants up to third order.
Week 5	Adjoint of a matrix through elementary rows and columns operation, **Test**
Week 6	Solutions of system of linear equations having unique solutions and involving not more than three variables.
Week 7	Differentiation partial derivative up to second order, **Test**
Week 8	Homogeneity of functions and Euler's theorem, **Assignment**
Week 9	Total differentials ,differentiation of implicit function with the help of total differentials.
Week 10	Maxima and minima, cases of one variable involving second or higher order derivatives.
Week 11	Cases of two variable involving not more than one constraint, Integration as an anti derivative process.
Week 12	Method of integration by substitution substitution, by parts and by use of partial fractions, **Mock Test**
Week 13	Definite integration, Finding areas in simple cases.
Week 14	Leontiff input output model.
Week 15	Revision

Name of the Assistant Professor: Ms. Deepti Ahuja **Class And Section: B.Sc. 3rd Sem (M+NM)** **Subject: Physical Chemistry** **Teaching Term: 22nd July 2024 to 22nd Nov 2024(Excluding Diwali Break)**	
Week 1	Alcohols- Monohydric Alcohols Nomenclature, Method Of Information By Reduction Of Aldehyde And Ketone, Carboxylic Acid And Esters.
Week 2	Hydrogen Bonding, Acidic Nature, Reaction Of Alcohol Dihydric Alcohols-Nomenclature, Method Of Formation, Chemical Reaction Of Vicinal Glycol.
Week 3	Mala Parade Reaction, Pinacole-Pinecolone Rearrangement Epoxides Synthesis Of Epoxides,Acid-Base Catalyzed Ring Opening Of Epoxides
Week 4	Orientation Of Epoxide Ring Opening, Reactions Of Grignard And Organolithium Reagents With Epoxides. **Test**
Week 5	Phenols - Nomenclature, Structure And Bonding. Preparation Of Phenols, Physical Properties And Acidic Character. Comparative Acidic Strengths Of Alcohols And Phenols, Resonance Stabilization Of Phenoxide Ion.
Week 6	Reactions Of Phenols — Electrophilic Aromatic Substitution, Mechanisms Of Fries Rearrangement, Claisen Rearrangement, **Assignment**
Week 7	Reimer-Tiemann Reaction, Kolbe's Reaction And Schotten And Baumann Reactions. **Test**
Week 8	Ultraviolet T (UV) Absorption Spectroscopy- Absorption Laws (Beer Lambert Law), Molar Absorptivity, Presentation And Analysis Of UV Spectra, Types Of Electronic Transitions, Effect Of Conjugation. Concept Of Chromophore And Auxochrome. Bathochromic, Hypochromic, Hyperchromic And Hypochromic Shifts.
Week 9	UV Spectra Of Conjugated Enes And Enones, Woodward- Fieser Rules, Calculation Of Max Of Simple Conjugated Dienes And Unsaturated Ketones
Week 10	Applications Of UV Spectroscopy In Structure Elucidation Of Simple Organic Compounds.
Week 11	Carboxylic Acids & Acid Derivatives -Nomenclature Of Carboxylic Acids, Structure And Bonding, Physical Properties, Acidity Of Carboxylic Acids, Effects Of Substituents On Acid Strength.
Week 12	Preparation Of Carboxylic Acids. Reactions Of Carboxylic Acids. Hell-Volhard-Zelinsky Reaction. Reduction Of Carboxylic Acids. Mechanism Of Decarboxylation, **Mock Test**
Week 13	Hell-Volhard-Zeinsky Reaction. Reduction Of Carboxylic Acids. Mechanism Of Decarboxylation. Structure , Nomenclature And Preparation Of Acid Chlorides, Esters, Amides And Acid Anhydrides. Relative Stability Of Acyl Derivatives.
Week 14	Physical Properties, Interconvers Ion Of Acid Derivatives By Nucleophilic Acyl Substitution. Mechanisms Of Es Terifica Tion And Hydrolysis (Acidic And Basic)
Week 15	Revision

Name of the Assistant Professor: Ms. Anita **Class And Section: B.Sc. (Physical Science) 1st Semester** **Subject: Chemistry** **Teaching Term: 22nd July 2024 to 22nd Nov 2024(Excluding Diwali Break)**	
Week 1	Chemical Bonding And Molecular Structure: Ionic Bond, Lattice Energy, Born-Haber Cycle And Its Applications, Fajan's Rules, Hydration Energy, Bond Moment, Dipole Moment And Percentage Ionic Character.
Week 2	Resonance And Resonance Energy: Study Of Some Inorganic And Organic Compounds. Molecular Orbital Approach: LCAO Method, Bonding And Antibonding Mos And Their Characteristics For S-S, S-P And P-P Combination Of Atomic Orbitals, Non-Bonding Combination Of Orbitals,
Week 3	MO Treatment Of Homonuclear Diatomic Molecules Of 1st And 2nd Periods (Including Idea Of S-P Mixing) And Heteronuclear Diatomic Molecules Such As O2-, O22-, N2-, CO, NO+, CN-. Comparison Of VB And MO Approaches, Test And Assignments
Week 4	P-Block Elements Oxides – Structures Of Oxides Of N, P. Oxyacids – Structure And Relative Acid Strengths Of Oxyacids Of Nitrogen And Phosphorus. Structure Of White, Yellow And Red Phosphorus. Oxyacids Of Sulphur – Structures And Acidic Strength
Week 5	H2O2–Structure, Properties And Uses. Basic Properties Of Halogen, Interhalogen Compounds-Types And Properties, Halogen-Acids And Oxyacids Of Chlorine – Structure And Comparison Of Acidic Strength.
Week 6	Acids And Bases: Brönsted–Lowry Concept, Conjugate Acids And Bases, Relative Strengths Of Acids And Bases, Effects Of Substituent And Solvent, Differentiating And Levelling Solvents, **Assignment**
Week 7	Lewis Acid-Base Concept, Classification Of Lewis Acids And Bases, Lux-Flood Concept, Gaseous States: Maxwell's Distribution Of Velocities And Energies (Derivation Excluded), Calculation Of Root Mean Square Velocity, Average Velocity, **Test**
Week 8	Most Probable Velocity, Collision Diameter, Collision Number, Collision Frequency And Mean Free Path, Deviation Of Real Gases From Ideal Behavior
Week 9	Derivation Of Van Der Waals Equation Of State And Its Applications In The Calculation Of Boyle's Temperature (Compression Factor), Explanation Of Behavior Of Real Gases Using Van Der Waals Equation
Week 10	Critical Phenomenon: Critical Temperature, Critical Pressure, Critical Volume And Their Determination, PV Isotherms Of Real Gases, Continuity Of States
Week 11	Isotherms Of Van Der Waals Equation, Relationship Between Critical Constants And Van Der Waals Constants, Compressibility Factor. Law Of Corresponding States, **Test**
Week 12	Basics Of Organic Chemistry And Stereochemistry: Electronic Displacements And Its Applications, Reaction Intermediates And Concept Of Aromaticity. Concept Of Isomerism, **Mock Test**
Week 13	Types Of Isomerism, Optical Isomerism, Optical Activity, Elements Of Symmetry, Molecular Chirality, Enantiomers, Stereogenic Centre, Properties Of Enantiomers, Chiral And Achiral Molecules With Two Stereogenic Centres, Diastereomers
Week 14	Threo And Erythro Diastereomers, Meso Compounds, Resolution Of Enantiomers, Inversion, Retention And Racemization, Relative And Absolute Configuration, Sequence Rules, R & S System Of Nomenclature.
Week 15	Revision

Name of the Assistant Professor: Dr. Mamta Singh **Class And Section: B.Sc Life Science(Major) 1st Sem, A and B** **Subject: Animal Diversity - I** **Teaching Term: 22nd July 2024 to 22nd Nov 2024(Excluding Diwali Break)**	
Week 1	Discussion About The Syllabus And Books Unit 1:Phylum- Protozoa:General Characters And Classification Up To Order Level
Week 2	Type Study Of Plasmodium :Vivax - Asexual Cycle And Schizogony In Man Sexual Cycle Of Plasmodium In Mosquito
Week 3	Parasitic Protozoans: Life History, Mode Of Infection And Pathogenicity Of Entamoeba, Trypanosoma
Week 4	**Test** Phylum- Porifera:General Characters And Classification Up To Order Level
Week 5	Canal System In Sponges-Asconoid And Syconoid Types Leuconoid Type
Week 6	Spicules In Sponges-All Types Development And Significances Of Spicules **Test**,
Week 7	Phylum - Coelenterata:General Characters And Classification Up To Order Level Corals And Coral Reefs, **Assignment**
Week 8	Phylum - Helminths:General Characters And Classification Up To Order Level Type Study - Fasciola Hepatica-External Morphology,Body Wall,Digestive System
Week 9	Excretory,Nervous And Reproductive System Development And Life History, Phylum - Mollusca:General Characters And Classification Up To Order Level,Torsion And Detorsion In Gastropoda
Week 10	Helminths Parasites: Brief Account Of Life History, Mode Of Infection And Pathogenesity Of Ancylostoma, Wuchereria Phylum - Annelida:General Characters And Classification Up To Order Level Metamerism In Annelids
Week 11	Phylum – Arthropoda: General Characters And Classification Up To Order Level Type Study – Periplaneta(Cockroach) -External Morphology,Body Wall,Digestive System,Respiratory System
Week 12	Circulatory,Excretory,And Nervous System Sense Organs And Reproductive Systems Of Periplaneta, **Mock Test**
Week 13	Phylum - Echinodermata:General Characters And Classification Up To Order Level Type Study -Asteries (Sea Star)-External Morphology, Body Wall, Endoskeleton.
Week 14	Digestive System, Water Vascular System, Locomotion, Circulatory System, Reproductive System, Respiration, Excretory And Nervous System, Life History And Development Of Starfish
Week 15	Revision

Name of the Assistant Professor: Dr. Mamta Singh **Class And Section: B.Sc Life Science 1st Sem(Minor)** **Subject: Human Evolution** **Teaching Term: 22nd July 2024 to 22nd Nov 2024(Excluding Diwali Break)**	
Week 1	Discussion about the syllabus and books Origins of Evolutionary Thought: Linnaeus
Week 2	Wallace/Darwin: Theory of evolution by Natural Selection.
Week 3	The forces of evolution and the formation of species.
Week 4	Natural selection, **Test**
Week 5	Genetic drift, Gene flow, Founder effect.
Week 6	Human variation and race.
Week 7	Human adaptation, **Assignment**
Week 8	Life History, Primate sociality
Week 9	Social Behavior and Culture: as an insight of the origin of sociality in humans.
Week 10	The hominin record.
Week 11	Early hominins and Australopithecus.
Week 12	Evolution of Human behaviour Neanderthals and contemporaries, **Mock Test**
Week 13	As an insight of the origin of sociality in humans.
Week 14	Revision
Week 15	**Test**

Name of the Assistant Professor: Ms. Anita **Class And Section: B.Sc. 3rd Sem NM** **Subject: Physical Chemistry** **Teaching Term: 22nd July 2024 to 22nd Nov 2024(Excluding Diwali Break)**	
Week 1	Thermodynamics 1 Definition of thermodynamic term, Types of system Intensive and Extensive Propertes, State and path Functions , Thermodynamic Process , Concept of heat and work
Week 2	Zeroth Law , First Law , Internal Energy and Enthalpy , Heat Capacities at constant volume and Constant Pressure , and their relationship
Week 3	Joules Law , Joule Thomson coefficient , for ideal gas and real gas , Inversion Temperature **Test**
Week 4	DH for expansion of ideal Gas under Isothermal and Adiabetic Conditions for Reversible Process
Week 5	Thermodynamic dependency of Enthalpy , Kirchoff's Equation Bond Energy , Calculation of Bond Energy
Week 6	Thermodynamics II – Calculation of W,q,dU, **Assignment**
Week 7	Chemical Equilibrium Equilibrium constant and free energy, concept of chemical potential,
Week 8	Thermodynamic derivation of law of chemical equilibrium. Temperature dependence of equilibrium constant.
Week 9	Principle and its applica tions Clapeyron equation and Clausius equation **Test**
Week 10	Distributioln Law Nernst distribution law– its thermodynamic derivation
Week 11	Applications of distribution law: (i) Determination of degree of hydrolysis and hydrolysis constant of aniline hydrochloride.
Week 12	ii) Determination of equilibrium constant of potassium tri-iodide complex and process of extraction, **Mock Test**
Week 13	Modification of distribution law when solute undergoes dissociation, association and chemical combination.
Week 14	Van't Hoff reaction isochore, Van't Hoff reaction isotherm.
Week 15	Revision

Name of the Assistant Professor: Dr. Annu Kalra **Class And Section: M.Sc Chemistry, 3rd semester** **Subject: (Inorganic Special I)** **Teaching Term: 22nd July 2024 to 22nd Nov 2024 (Excluding Diwali Break)**	
Week 1	Introduction to Vibrational Spectroscopy and concept of Symmetry, Shape of AB2 type molecule, Shape of AB3 type molecule, Shape of AB4 type molecule,
Week 2	Shape of AB5 type molecule, Modes of Bonding of Ambidentate ligands, Ethylenediamine complexes,
Week 3	Modes of Bonding of Ambidentate ligands, Ethylenediamine complexes, Diketonate complexes, Application of Raman Spectroscopy for the study of myoglobin and Haemoglobin, Revision of above topics, **Test**
Week 4	Principle of ESR spectroscopy, Presentation of the spectrum, Hyperfine coupling. Hyperfine splitting in various structures, Factors affecting magnitude of g, Zero field splitting, Revision of above topics
Week 5	Kramer's Degeneracy, Application of ESR to complexes having one and more than one unpaired electrons, Application to inorganic free radicals, Study of electron exchange reactions, Revision of above topics, **Test**
Week 6	Principle of Mossbauer Spectroscopy, Spectral display, Isomer shift, Factors affecting the magnitude of Isomer shift, Quadrupole interactions, Magnetic Hyperfine interactions
Week 7	Application of MB spectroscopy to the study of bonding and structure of Fe(II) complexes, Bonding and structure of Fe(III) complexes , Bonding and structure of Sn(II) complexes, Bonding and structure of Sn(IV) complexes, Detection of oxidation states, Nature of M-L bond, **Assignment**
Week 8	Revision of above topics, Principle of Mass spectrometry, Representation of spectrum, Interaction of molecules with high energy electrons, Interpretation of mass spectrum
Week 9	Effect of isotopes on the appearance of mass spectrum, Finger print application, Molecular weight determination, Evaluation of heat of sublimation of high melting solids, Revision of above topics,

Week 10	P-31 NMR, Chemical shifts, Coupling constants, F-19 spectrum of fluoroacetone, F-19 spectrum of 1-bromo-1-fluoroethane, F-19 spectum of dimethyl phosphorus trifluoride
Week 11	F-19 spectrum of bromine pentafluoride, P-31 spectrum of HPF2, P-31 spectrum of HPO(OH)2, P-31 spectrum of H2PO(OH) , P-31 spectrum of cis-Pt(Pet3)2Cl2, Application of P-31 NMR for structural determination of complexes with phosphorus ligands
Week 12	Contact shift, Its origin and application, Pseudo contact shift, Diamagnetic complexes, Spectra of free ligands, Lanthanide shift reagents, Magnetic susceptibility measurements, **Mock Test**
Week 13	Solid state NMR, Wide line NMR, Magnetic Angle spinning, Applications-magnetic resonance imaging, Introduction to NQR spectroscopy, Nuclear quadrupole moment, Electric field gradient and asymmetry parameter
Week 14	Nuclear quadrupole transitions-Axially symmetric molecules, Nuclear quadrupole transitions-non-symmetric molecules, Effect of external magnetic field, Applications-Chemical bonding and structure, Solid state effects, Hydrogen bonding, Experimental Aspects of NMR
Week 15	Revision of full syllabus

Name of the Assistant Professor: Dr. Annu Kalra **Class And Section: B.Sc 1st semester (life science and physical science)** **Subject: Skill Enhancement Course** **Teaching Term: 22nd July 2024 to 22nd Nov 2024(Excluding Diwali Break)**	
Week 1	Composition of soil, concept of pH and pH measurement of soil
Week 2	Composition of soil, concept of pH and pH measurement of soil
Week 3	Complexometric titrations, Chelation and chelating agents
Week 4	Use of indicators, estimation of calcium and magnesium ions in soil
Week 5	Definition of pure water and sources responsible for contamination of water
Week 6	Water sampling methods, water purification methods, **Test**
Week 7	Determination of dissolved oxygen in a water sample, Chemistry in cosmetics: preparation and uses of hair dye
Week 8	preparation and uses of soaps and shampoo, **Test**
Week 9	preparation and uses of suntan lotions and face powder and lipsticks
Week 10	Preparation and uses of talcum powder and nail enamels, **Assignment**
Week 11	General introduction of pesticides (natural and synthetic), benefits and adverse effects, changing concepts of pesticides
Week 12	Brief introduction of SAR, synthesis and technical manufacture, uses of organochlorines and organophosphates, basic principles of pH metry, **Mock Test**
Week 13	Potentiometric and conductometric titrations, applications: determination of degree of dissociation
Week 14	Determination of Ka of acids and bases, buffer action, Henderson Hazel equation
Week 15	Revision of full syllabus

Name of the Assistant Professor: Ms. Rajni **Class And Section: M.Sc. Chemistry I Sem** **Subject: Organic Chemistry** **Teaching Term: 22nd July 2024 to 22nd Nov 2024(Excluding Diwali Break)**	
Week 1	Nature of Bonding in Organic molecules: Delocalized chemical bonding, conjugation, cross-conjugation, resonance, hyperconjugation and tautomerism.
Week 2	Aromaticity in benzenoid and non-benzenoid compounds, Huckel's rule, energy level of π-molecular orbitals, annulenes, antiaromaticity, homoaromaticity, PMO approach, alternant and non-alternant hydrocarbons.
Week 3	Bonds weaker than covalent, addition compounds, crown ether complexes and cryptands, inclusion compounds
Week 4	Bonds weaker than covalent, addition compounds, cyclodextrins, catenanes and rotaxanes. **Assignment**
Week 5	Stereochemistry: Chirality, elements of symmetry, molecules with more than one chiral center, diastereomerism, methods of resolution, optical purity. **Test**
Week 6	Prochirality, enantiotopic and diastereotopic atoms, groups and faces, asymmetric synthesis, Cram's rule and its modifications, Prelog's rule, conformational analysis of decalins.
Week 7	Optical activity in the absence of chiral carbon (Biphenyls, Allenesand Spiranes), chirality due to helical shape. Geometrical isomerism in alkenes and oximes, methods of determining the configuration. Unit
Week 8	Reaction Mechanism: Structure and Reactivity: types of mechanisms, thermodynamic and kinetic requirements, kinetic and thermodynamic control
Week 9	Hammond's postulate, Curtin-Hammett principle, potential energy diagrams, transition states and intermediates, methods of determining mechanisms, isotope effects. Generation, structure, stability and reactivity of carbocations
Week 10	Generation, structure, stability and reactivity of carbanions, free radicals, carbenes and nitrenes.
Week 11	Effect of structure on reactivity, Hammett equation and linear free energy relationship, substituent and reaction constants, Taft equation, **Test**
Week 12	Elimination Reactions: The E1, E2 and E1cB mechanisms, orientation of the double bond. Effect of substrate structures, attacking base, leaving group and medium on reactivity. Mechanism and orientation in pyrolytic elimination, **Mock Test**
Week 13	Addition to Carbon-Carbon Multiple Bonds: Mechanistic and stereochemical aspects of addition reactions involving electrophiles, nucleophiles and free radicals, orientation and reactivity, addition to cyclopropane ring.
Week 14	Hydrogenation of double and triple bonds, hydrogenation of aromatic rings, hydroboration reaction, Michael reaction, Sharpless asymmetric epoxidation. Revision and Doubts
Week 15	Revision of Complete Syllabus

Name of the Assistant Professor: Ms. Rajni **Class And Section: B.Sc. I Sem** **Subject: Minor Course-Basic Concepts of Chemistry** **Teaching Term: 22nd July 2024 to 22nd Nov 2024(Excluding Diwali Break)**	
Week 1	Fundamentals of Organic Chemistry- Electronic displacements: Inductive effect, electromeric effect, resonance
Week 2	Hyperconjugation, Cleavage of bonds: homolysis and heterolysis. Introduction of Reaction intermediates
Week 3	Reaction intermediates: carbocations, carbanions, free radicals
Week 4	Reaction intermediates: carbenes, Electrophiles and nucleophiles. Aromaticity: benzenoids and Huckel's rule.
Week 5	Atomic Structure- Atomic models, Rutherford's model and its limitations, Bohr's model and its applications , **Test**
Week 6	Dual nature of matter and light, de Broglie's relationship, Heisenberg uncertainty principle, concept of orbitals, quantum numbers
Week 7	shapes of s, p and d orbitals, rules for filling electrons in orbitals - Aufbau principle, Pauli's exclusion principle and Hund's rule & Test
Week 8	Electronic configuration of atoms, stability of half-filled and completely filled orbitals. **Assignment**
Week 9	Periodic Table and Atomic Properties -Brief history of the development of periodic table, modern periodic law and the present form of periodic table
Week 10	Periodic trends in properties of elements -atomic radii, ionic radii, inert gas radii, ionization enthalpy, electron gain enthalpy
Week 11	Electronegativity, valency. Nomenclature of elements with atomic number greater than 100. , **Test**
Week 12	Mole Concept- Atomic mass, mole concept and molar mass, Avogadro's number and its significance, percentage composition, **Mock Test**
Week 13	Empirical and molecular formula, chemical reactions, ways of expressing concentration of solutions (molarity, normality, molality, mole percentage, strength),
Week 14	Stoichiometric calculations involving reactants and products. & Doubt Class
Week 15	Revision

Name of the Assistant Professor: Ms. Manisha **Class And Section: M.Sc. Chemistry I Sem** **Subject: Physical Chemistry** **Teaching Term: 22nd July 2024 to 22nd Nov 2024(Excluding Diwali Break)**	
Week 1	Introduction to laws of thermodynamics,Law of mass action and its thermodynamics derivation, **Test**
Week 2	Classius Clapeyon equation and its applications, Phase diagram for two completely missible component system,Eutectic systems, calculation of eutectic point, **Assignment**
Week 3	Systems forming solid compounds AxBy with congrument melting point,phase diagram and thermodynamic treatement of solid solutions
Week 4	Rate law for consecutive & parallel reactions(first orders),ionic reactions, single and double sphere models, influence of solvent and ionic strength, chain reactions
Week 5	Hydrogen-bromine reactions &hydrogen – chlorine reactions, ortho-para hydrogen conversion. Chain length, apparent activation energy of chain reactions, Photochemical reactions **Test**,
Week 6	Hydrogen-chlorine reactions), Rice herzfeld mechanism of organic molecules decomposition (ethane, acetaldehyde), enzyme kinetics, Michaelis-Menton treatment, Lineweaver-Burk plot and Eadie–Hofstee methods. Competitive and noncompetitive inhibition.
Week 7	Electrochemistry: Debye-Huckel theory of ion-ion interaction and activity coefficient, applicability and limitations of Debye-Huckel limiting law, its modification for finite-sized ions, effect of ion-solvent interaction on activity coefficient. Physical significance of activity coefficients
Week 8	Equivalent conductivity (λeq) vs. concentration c1/2 as a function of solvent, effect of ion association upon conductivity (Debye-Huckel-Bjerrum equation). Ion Transport in solutions: Ionic movement under the influence of an electric field
Week 9	mobility of ions, ionic drift velocity and its relation with current density, Einstein relation between absolute mobility and diffusion coefficient, Stokes-Einstein relation, Nernst-Einstein equation, Walden's rule. References
Week 10	Quantum Mechanics: Elementary idea of quantum mechanics, Schrodinger wave equation for a particle in one dimensional box and its pictorial representation
Week 11	Schrodinger wave equation for a particle in a three dimensional box, concept of degeneracy, Schrodinger wave equation for a linear harmonic oscillator & its solution by polynomial method
Week 12	Quantum Mechanics: Elementary idea of quantum mechanics, Schrodinger wave equation for a particle in one dimensional box and its pictorial representation, **Mock Test.**
Week 13	Mean activity coefficient of an electrolyte. Debye-Huckel-Onsager treatment for aqueous solution and its limitations. Debye-Huckel Onsager theory for non-aqueous solutions, solvent effect on the mobility at infinite dilution
Week 14	Assignment of Debye-Huckel Onsager theory for non-aqueous solutions, solvent effect on the mobility at infinite dilution
Week 15	Revision of Complete Syllabus

Name of the Assistant Professor: Ms. Manisha **Class And Section: B.Sc. Chemistry IIIrd Sem** **Subject: Physical Chemistry** **Teaching Term: 22nd July 2024 to 22nd Nov 2024(Excluding Diwali Break)**	
Week 1	Definition Of Thermodynamic Terms: System,Surrounding Etc. Types Of Systems, Intensive And Extensive Properties. State And Path Functions And Their Differentials. Thermodynamic Process.
Week 2	Concept Of Heat And Work. Zeroth Law Of Thermodynamics, First Law Of Thermodynamics: : Statement, Definition Of Internal Energy And Enthalpy..
Week 3	Heat Capacity, Heat Capacities At Constant Volume And Pressure And Their Relationship.
Week 4	Calculation Of W.Q. Du & Dh For The Expansion Of Ideal Gases Under Isothermal And Adiabatic Conditions For Reve Rsible Process, **Test**
Week 5	Temperature Dependence Of Enthalpy, Kirchoffs Equation
Week 6	Equilibrium Constant And Free Energy, Concept Of Chemical Potential, Thermodynamic Derivation Of Law Of Chemical Equilibrium.
Week 7	Temperature Dependence Of Equilibrium Constant; Van't Hoff Reaction Isochore, Van't Hoff Reaction Isotherm. Le-Chatetier's Principle And Its Applica Tions
Week 8	Clapeyron Equation And Clausius – Clapeyron Equation Its Applications. SE
Week 9	Nernst Distribution Law – Its Thermodynamic Derivation, Modification Of Distribution Law When Solute Undergoes Dissociation,
Week 10	Association And Chemical Combination. Applications Of Distribution Law: (I) Determination Of Degree Of Hydrolysis
Week 11	Hydrolysis Constant Of Aniline Hydrochloride. (Ii) Determination Of Equilibrium Constant Of Potassium Tri-Iodide Complex And Process Of Extraction
Week 12	Joule's Law – Joule – Thomson Coefficient For Ideal Gass And Real Gas: And Inversion Temperature, **Mock Test**
Week 13	Bond Energies And Applications O F Bond Energies
Week 14	**Assignment**, **Test**
Week 15	Revision Of Complete Syllabus

Name of the Assistant Professor: Ms. Manisha **Class and Section: B.Sc Medical 1st sem** **Subject: Value Added (EVS)** **Teaching Term: 22nd July 2024 to 22nd Nov 2024(Excluding Diwali Break)**	
Week 1	Introduction To Environmental Studies: Multidisplanary Nature Of Environmental Studies. Scope And Importance; Concept Of Sustainability And Sustainable Development.
Week 2	Ecosystem- Introduction, Types, Characteristic Features, Structure & Function Of The Following Ecosystem- A) Forest Ecosystem, B) Grassland Ecosystem,
Week 3	C) Desert Ecosystem, D) Aquatic Ecosystems, (Ponds, Streams, Lakes, Rivers, Oceans, Estuaries)
Week 4	REVISION UNIT-I **Test**
Week 5	Renewable And Non-Renewable Resources- Natural Resources And Associated Problem, A) Forest Resources: Use And Over-Exploitation, Deforestation, Timber Extraction, Mining, Dams And Their Effects On Forest And Tribal People. B) Water Resources: Use And Over Utilization Of Surface And Ground Water, Floods, Drought, Conflicts Over Water, Dams-Benefits And Problems.
Week 6	C) Mineral Resources: Use And Exploitation, Environmental Effects Of Extracting And Using Minerals Resources. D) Food Resources: World Food Problems, Changes Caused By Agriculture And Overgrazing, Effects Of Modern Agriculture, Fertilizers-Pesticides Problems, Water Logging, Salinity, Case Study
Week 7	F) Energy Resources: Growing Energy Needs, Renewable And Non- Renewable Energy Sources, Use Of Alternate Energy Resources. F) Land Resources: Land As A Resources, Land Degradation, Man Induced Landslides, Soil Erosion, And Desertification. Role Of An Individual In Conservation Of Natural Resources. Equitable Useof Resources For Sustainable Lifestyles.
Week 8	REVISION UNIT-II **Test**
Week 9	Biodiversity And Its Conservation: Introduction-Definition: Genetic, Species And Ecosystem Diversity. Bio Geographical Classification Of India.
Week 10	Value Of Biodiversity: Consumptive Use, Productive Use, Social Ethical, Aesthetic And Option Values Biodiversity At Global, National And Local Levels. Biodiversity-Threats To Biodiversity: Habitat Loss, Poaching Of Wildlife ,
Week 11	Man-Wildlife Conflicts. Endangered And Endemic Species Of India. Conservation Of Biodiversity: In-Situ And Ex-Situ Conservation Of Biodiversity.
Week 12	**Mock Test** **Assignment**
Week 13	Environmental Pollution:- Definition, Cause, Effects And Control Measures Of- A) Air Pollution, B) Water Pollution, C) Soil Pollution, D) Marine Pollution, E) Noise Pollution,
Week 14	F) Thermal Pollution, G) Nuclear Hazards H) Solid Waste.
Week 15	Revision

Name of the Assistant Professor : Ms.Manisha, Ms. Sonia Bisht **Class And Section: B.Sc (Physical Science) I Sem** **Subject: MDC, Computer** **Teaching Term: 22nd July 2024 to 22nd Nov 2024(Excluding Diwali Break)**	
Week 1	Introduction :Historical evolution of computing, Computers and their classification;working of compuer ;Block Diagram and its components, Introduction to Internet, WWW, Web Browsers
Week 2	Characteristics, Benefits and Limitations of Compuers ,Human being Vs. Computer, Evolution of Internet
Week 3	Computer Codes and their types,Input and Output Devices:Introduction of I/O concepts, Hardcopy and soft copy Devices, Applications of Internet, Connecting to Internet
Week 4	Keyboard, mouse,joysticks, trackballs, digitizer, voice –recognition, scanners , Internet Tools
Week 5	Terminals, point of scle terminals,macine vision systems , printer & its types, Introduction to E-mail, Setting up an E-mail account
Week 6	**Assignment, Test**.,Composing and sending E-mails, E- mail Etiquette and Best Practices
Week 7	Memory & Mass Storage Devices: Charecteristics of memory systems,type of memory, RAM, ROM,assignment, Managing E-mails, Security and Privacy, Advanced E-mail features
Week 8	Magnetic disks-floppy disk, hard-disk:optical disks;Magnetic tapes;Concepts of Virtual and Cache memory, E-mail in Professional Settings
Week 9	Software and operating System Concepts: Introduction, Software and its types,Language translators, Troubleshooting Commom E-mail Issues
Week 10	Operating sysrem and its Functions,Measuring System Performance,Assemblers, Compilers And Interpreters,test.,Computer applications in Artificial Inteligence, Banking **Test**,
Week 11	Batch Processing, Multiprogramming, Multi-tasking, Multiprocessing ,Time Sharing, Dos,Unix/Linux, Education, Marketing, Desktop publishing
Week 12	Problem Solving ang Programming Languages: Concept of problem solving, Problem definition, Programming Languages And their classification,CAD/CAM, **Mock Test**
Week 13	Problem solving with computer,Concept of a programming and design techniques ,computer program lifecycle and program development process, Data communication: Introduction to computer,forms of data transmission, modem and its types, communication channels, data transmission modes, Project Management
Week 14	Computernetworks:Introduction to Computer Network, Types of Computer Network, Network protocols, Application of network, Military, Sports, Research & Development
Week 15	Revision of Complete Syllabus

Name of the Assistant Professor: Ms. Pooja Khatana **Class and Section: B.Sc (Medical) 5th Semester** **Subject: Inorganic Chemistry** **Teaching Term: 22nd July 2024 to 22nd Nov 2024(Excluding Diwali Break)**	
Week 1	Metal-Ligand Bonding In Transition Metal Complexes, Limitation Of Valence Bond Theory
Week 2	An Elementary Idea Of Crystal Field Theory, Crystal Field Splitting In Octahedral Complexes
Week 3	Crystal Field Splitting In Tetrahedral And Square Planar Complexes, Factors Affecting Crystal Field Spliting
Week 4	REVISION UNIT-I **Assignment**
Week 5	Thermodynamics And Kinetic Aspects Of Metal Complexes, A Brief Outline Of Thermodynamic Stability Of Metal Complexes
Week 6	A Brief Outline Of Thermodynamic Stability Of Metal Complexes Factor Affecting The Stability, **Test**
Week 7	Factor Affecting The Stability, Substitution Reactions Of Square Planar Complexes Of Pt(II)
Week 8	REVISION UNIT-II **Test**
Week 9	Magnetic Properties Of Transition Metal Complexes, Types Of Magnetic Behaviour
Week 10	Methods Of Determining Magnetic Susceptibility, Spin Only Formula, L-S Coupling
Week 11	Orbital Contribution To Magnetic Moments, Application Of Magnetic Moment Data For 3d Metal Complexes
Week 12	Application Of Magnetic Moment Data For 3d Metal Complexes, **Mock Test**
Week 13	Electronic Spectra Of Transition Metal Complexes, Types Of Electronic Transition, Selection Rules For D-D Transitions
Week 14	Spectroscopic Ground States, Spectrochemical Series, Orgel-Energy Level Diagrams For D1 And D9 States
Week 15	Discussion Of The Electronic Spectrum Of [Ti(H2O)6}3+ Complex Ions REVISION

Name of the Assistant Professor: Dr. Annu Kalra , Ms. Pooja khatana, Dr. Purnima Verma **Class and Section: M.Sc Chemsitry 3RD sem** **Subject: Environmental Chemistry-II** **Teaching Term: 22nd July 2024 to 22nd Nov 2024(Excluding Diwali Break)**	
Week 1	Water Quality Parameters And Standards: Analytical Methods For Measuring Do, Bod, Cod,
Week 2	Fluoride, Oils And Grease And Metals (As, Cd, Hg, Pb, Zn Cu, Cr), Biochemical Effects Of As, Cd, Hg, Pb, Cr, Cn And Pesticides
Week 3	Lithosphere: Soil Composition, Micro And Macro Nutrients, Soil Pollution-Fertilizers, Pesticides.
Week 4	Revision Unit-I **Assignment** **Test**
Week 5	Industrial Pollution:- Cement, Sugar, Distillery, Drug, Paper And Pulp, Thermal Power Plants
Week 6	Nuclear Power Plants, Metallurgy, Polymers, Drugs Etc.
Week 7	Radionuclide Analysis. Disposal Of Wastes And Their Management.
Week 8	Revision **Test**
Week 9	Green Chemistry:- Importance, Principles Of Green Chemistry, Thrust Areas, Applications Of Non-Conventional Techniques In Organic Synthesis: Ultrasonic,
Week 10	Microwave And Grinding, Solid State Synthesis And Synthesis Under Solvent Free Conditions, Use Of Ionic Liquids
Week 11	Persistant Organic Pollutants: Aldrin, Chlordane, Dieldrin,, Dioxins
Week 12	Ddt, Endrin, Furans, Helptachlor, **Mock Test**
Week 13	Hexachlorobenzene, Mirex, Polychlorinated Biphenyls Toxaphene
Week 14	Revision Unit-III
Week 15	Imporatant Question Discussion And Quick Revision.

Name of the Assistant Professor: Ms. Pooja Khatana **Class and Section: M.Sc (F) Year** **Subject: Nuclear & Radiochemistry** **Teaching Term: 22nd July 2024 to 22nd Nov 2024(Excluding Diwali Break)**	
Week 1	Basics Of Nuclear Chemistry, Nuclear Binding Energy
Week 2	Nuclear Stability Rules And Decay Of Unstable Nuclei, Nuclear Structure, Nuclear Forces
Week 3	Liquid Drop Model, Shell Model And Collective Model **Test**,
Week 4	Justifications And Applications, Nuclear Stability Rules And Decay Of Unstable Nuclei.
Week 5	Interaction Of Radiation With Matter, Physical And Chemical Effects Of Radiation On Matter, **Test**
Week 6	Chemical Effects Of Radiation On Matter (Photoelectric Effect, Compton Effect And Pair Production)
Week 7	Radiochemical Techniques, Naa- Principle, Application And Limitation
Week 8	Ida - Principle, Application And Limitation Radiometric Titrations
Week 9	Gas-Filled Counters – Ionization Chamber
Week 10	Detection Of Nuclear Radiation, Various Methods Of Detecting Nuclear Radiations
Week 11	Proportional Counter And G.M. Counters. Scintillation Detectors; Solid State Detectors
Week 12	**Assignment** **Mock Test**
Week 13	Nuclear Reactions, Energetics Of Nuclear Reactions; Various Types Of Nuclear Reactions Including Photonuclear, Thermonuclear And Spallation Reactions
Week 14	Mechanism Of Nuclear Reaction By Compound Nucleus Model, Nuclear Fission – Fission Probability; Energy Release; Theories Of Fission
Week 15	Nuclear Fussion: Brief Idea About Breeder Reactors,; Accelerators And Cyclotron Revision

Name of the Assistant Professor: Ms. Sonia Bisht **Class And Section: B.Sc. (Life Science) 1st Semester, Section-A & B** **Subject: Chemistry** **Teaching Term: 22nd July 2024 to 22nd Nov 2024(Excluding Diwali Break)**	
Week 1	Chemical Bonding And Molecular Structure: Ionic Bond, Lattice Energy, Born-Haber Cycle And Its Applications, Fajan's Rules, Hydration Energy, Bond Moment, Dipole Moment And Percentage Ionic Character.
Week 2	Resonance And Resonance Energy: Study Of Some Inorganic And Organic Compounds. Molecular Orbital Approach: LCAO Method, Bonding And Antibonding Mos And Their Characteristics For S-S, S-P And P-P Combination Of Atomic Orbitals, Non-Bonding Combination Of Orbitals,
Week 3	MO Treatment Of Homonuclear Diatomic Molecules Of 1st And 2nd Periods (Including Idea Of S-P Mixing) And Heteronuclear Diatomic Molecules Such As O2-, O22-, N2-, CO, NO+, CN-. Comparison Of VB And MO Approaches, **Test**
Week 4	P-Block Elements Oxides – Structures Of Oxides Of N, P. Oxyacids – Structure And Relative Acid Strengths Of Oxyacids Of Nitrogen And Phosphorus. Structure Of White, Yellow And Red Phosphorus. Oxyacids Of Sulphur – Structures And Acidic Strength
Week 5	H2O2–Structure, Properties And Uses. Basic Properties Of Halogen, Interhalogen Compounds-Types And Properties, Halogen-Acids And Oxyacids Of Chlorine – Structure And Comparison Of Acidic Strength.
Week 6	Acids And Bases: Brönsted–Lowry Concept, Conjugate Acids And Bases, Relative Strengths Of Acids And Bases, Effects Of Substituent And Solvent, Differentiating And Levelling Solvents, **Assignment**
Week 7	Lewis Acid-Base Concept, Classification Of Lewis Acids And Bases, Lux-Flood Concept, Gaseous States: Maxwell's Distribution Of Velocities And Energies (Derivation Excluded), Calculation Of Root Mean Square Velocity, Average Velocity, **Test**
Week 8	Most Probable Velocity, Collision Diameter, Collision Number, Collision Frequency And Mean Free Path, Deviation Of Real Gases From Ideal Behavior
Week 9	Derivation Of Van Der Waals Equation Of State And Its Applications In The Calculation Of Boyle's Temperature (Compression Factor), Explanation Of Behavior Of Real Gases Using Van Der Waals Equation
Week 10	Critical Phenomenon: Critical Temperature, Critical Pressure, Critical Volume And Their Determination, PV Isotherms Of Real Gases, Continuity Of States
Week 11	Isotherms Of Van Der Waals Equation, Relationship Between Critical Constants And Van Der Waals Constants, Compressibility Factor. Law Of Corresponding States,
Week 12	Basics Of Organic Chemistry And Stereochemistry: Electronic Displacements And Its Applications, Reaction Intermediates And Concept Of Aromaticity. Concept Of Isomerism, **Mock Test**
Week 13	Types Of Isomerism, Optical Isomerism, Optical Activity, Elements Of Symmetry, Molecular Chirality, Enantiomers, Stereogenic Centre, Properties Of Enantiomers, Chiral And Achiral Molecules With Two Stereogenic Centres, Diastereomers
Week 14	Threo And Erythro Diastereomers, Meso Compounds, Resolution Of Enantiomers, Inversion, Retention And Racemization, Relative And Absolute Configuration, Sequence Rules, R & S System Of Nomenclature.
Week 15	Revision

Name of the Assistant Professor: Ms. Sonia Bisht **Class And Section: M.Sc. Chemistry 3rd Semester** **Subject: Inorganic Special-III** **Teaching Term: 22nd July 2024 to 22nd Nov 2024(Excluding Diwali Break)**	
Week 1	Metal Ions in Biological Systems: General Introduction, General survey of essential and trace metals
Week 2	Disturbing factors in metabolic process and causes of diseases, Different classes of drugs
Week 3	Alkali and alkaline earth metals in biological systems: Ionophores, active transport of cations across membranes, sodium pump, **Assignment**
Week 4	Calcium pump, Calcium carriers, role of carriers in muscle contraction, blood clotting and hormones, **Test**
Week 5	Interaction of metal ions with Nucleotides: metal ions in nucleotide systems, effect of metal ions on nuclei acids, Oxygen carriers
Week 6	Porphyrins, metalloporphyrins, Hemoproteins, structure of hemoglobin, functions of hemoglobin, Structure of myoglobin, functions of myoglobin
Week 7	synthetic oxygen carrier model systems, Doubt Class, **Test**
Week 8	Nitrogen fixation: Biological nitrogen fixation, Nitrogenase, model for nitrogenase
Week 9	metal-N2 complexes, photosynthesis and chlorophyll Metal transport and storage: Transferrin, Ferritin, Siderophores
Week 10	Metalloenzymes*:* Zinc Enzymes, Carboxypeptidase & Carbonic anhydrase, Iron Enzymes – Catalase, peroxidase & cytochrome P- 450
Week 11	Copper Enzymes – Superoxide dismutase, blue copper- proteins, Coenzymes – Vitamins B12, Carbonic anhydrase, Revision
Week 12	Environmental Chemistry**:** Atmosphere, Chemical composition of atmosphere, Atmospheric structure, Earth's radiation balance, oxides of N, C, S and their effects, **Mock Test**
Week 13	Greenhouse effect, Acid rain, photochemical smog, air quality standards, depletion of ozone
Week 14	particulate matter in atmosphere, mechanism of aerosol formation in air, Noise pollution and their health hazards
Week 15	Revision

Name of the Assistant Professor: Ms. Sonia Bisht **Class And Section: B.A 1st Semester, Political Science** **Subject: Disaster Management (SEC)** **Teaching Term: 22nd July 2024 to 22nd Nov 2024(Excluding Diwali Break)**	
Week 1	Disaster Management: Meaning, Concepts, Principles
Week 2	Scope, Objectives and Approaches, Elements of Disaster Management
Week 3	Disaster Management: Hazard Assessment, Vulnerability Assessment
Week 4	Risk Assessment, Protective Measures and Public Information, **Test**
Week 5	Disaster Preparedness: Disaster Plan, **Assignment**
Week 6	Damage Inspection, repair and Recovery Procedures
Week 7	Communication and Control Centers
Week 8	Disaster Forecasting, Warning and Prediction
Week 9	Disaster Relief: Rapid Damage, **Test**
Week 10	Search and Rescue operations
Week 11	Evacuation and Shelter, Food and Medical Supply
Week 12	Mass Media Coverage, Relief Aid, Maintaining Public Order, **Mock Test**
Week 13	Reconstruction Planning: Meaning and Significance, Test and Assignment
Week 14	Economic and Social Rehabilitation
Week 15	Revision of complete Syllabus

Name of the Assistant Professor: Dr. Purnima Verma **Class and Section: M.Sc Chemsitry 1st sem** **Subject: Inorganic Chemistry** **Teaching Term: 22nd July 2024 to 22nd Nov 2024(Excluding Diwali Break)**	
Week 1	Metal-Ligand Bonding- Crystal Field Theory, Spectrochemical Series, Calculation Of CFSE For Low And High Spin Complexes Of 3d- Series Element
Week 2	Application Of CFSE, Limitations Of Crystal Field Theory, Jahn-Teller Effect And Its Applications, Ligand Field Theory,
Week 3	Molecular Orbital Theory, M.O Diagram Of Diagram Of Octahedral And Square Planer Complexes Including Both Sigma & Pi Bonding, Factor Affecting Delta E
Week 4	Reaction Mechanism Of Octahedral Transition Metal Complexes-1-Inert And Labile Complexes, Mechanism For Ligand Replacement Reactions
Week 5	Formation Of Complexes From Aqua Ions, Ligand Displacement Reactions In Octahedral Complexes-Acid Hydrolysis, **Test**
Week 6	Base Hydrolysis, Anation Reaction, Water Ligand Exchange Reactions, Factor Affecting Ligand Substitution In Octahedral Complexes(Leaving – Group Effects, Effects Of Spectator Ligands, Steric Effects),
Week 7	Optic Rotation , Cotton Effect, Racemization Of Tris-Chelate Complexes, Electrophilic Attack Of Ligands Thermodynamics Aspects- Factors Affecting Stability Of Metal Complexes, Irving-Williams Series
Week 8	Reaction Mechanism Of Square-Planer Transition Metal Complexes – II - Mechanism Of Ligand Displacement Reaction In Square-Planer Complexes And Related Numerical, **Assignment**
Week 9	Oxidative Addition & Reductive Elimination Reaction, Trans Effect And Theories Of Trans Effect, Application Of Trans Effect..
Week 10	Electron Transfer Processes- Types And Mechanism- Outer Sphere Electron Transfer And Inner Sphere Electron Transfer Reaction, Electron Exchange Reactions,
Week 11	Factors Effecting Rate Of Electron Transfer Reactions And Role Of Non-Bridging Ligand On Rate Of Electron Transfer
Week 12	Isopoly And Heteropoly Acids And Salts Of Mo & W- Isoploy Acids And Isopoly Ions, Preparation And Structure Of Paramolybdate And Octamolybdate, Heteropoly Acids (Only Classification Into Six Groups), **Mock Test**
Week 13	Keggin's Structure Of 1:11 & 1:12 Heteropoly Acids And Structure Of 1:6 Heteropoly Acids And Heteropoly Blue. Crystal Structure- Structure Of Some Binary And Ternary Crystalline Soilds Such As Fluorite, Anti-Fluorite,Rutile
Week 14	Anti-Rutile, Crystobalite, Layered Laatice- Cdi_2, Bii_3, Reo_3, Mn_2O_3, Nias, Corundum, Pervoskite, Ilmenite, Calcite, Normal Spinel & Inverse Spinel Mineral , Well Equation And Tolerance Factor, **Test**
Week 15	Imporatant Question Discussion And Quick Revision.

Name of the Assistant Professor: Dr. Purnima Verma
Class and Section: B.Sc NM 1st sem
Subject: Value Added (EVS)
Teaching Term: 22nd July 2024 to 22nd Nov 2024(Excluding Diwali Break)

Week 1	Introduction To Environmental Studies: Multidisplanary Nature Of Environmental Studies. Scope And Importance; Concept Of Sustainability And Sustainable Development.
Week 2	Ecosystem- Introduction, Types, Characteristic Features, Structure & Function Of The Following Ecosystem- A) Forest Ecosystem, B) Grassland Ecosystem,
Week 3	C) Desert Ecosystem, D) Aquatic Ecosystems, (Ponds, Streams, Lakes, Rivers, Oceans, Estuaries)
Week 4	Revision, **Test**
Week 5	Renewable And Non-Renewable Resources- Natural Resources And Associated Problem, A) Forest Resources: Use And Over-Exploitation, Deforestation, Timber Extraction, Mining, Dams And Their Effects On Forest And Tribal People. B) Water Resources: Use And Over Utilization Of Surface And Ground Water, Floods, Drought, Conflicts Over Water, Dams-Benefits And Problems.
Week 6	C) Mineral Resources: Use And Exploitation, Environmental Effects Of Extracting And Using Minerals Resources. D) Food Resources: World Food Problems, Changes Caused By Agriculture And Overgrazing, Effects Of Modern Agriculture, Fertilizers-Pesticides Problems, Water Logging, Salinity, Case Study
Week 7	Energy Resources: Growing Energy Needs, Renewable And Non- Renewable Energy Sources, Use Of Alternate Energy Resources, **Test**
Week 8	F) Land Resources: Land As A Resources, Land Degradation, Man Induced Landslides, Soil Erosion, And Desertification. Role Of An Individual In Conservation Of Natural Resources. Equitable Useof Resources For Sustainable Lifestyles.
Week 9	Biodiversity And Its Conservation: Introduction-Definition: Genetic, Species And Ecosystem Diversity. Bio Geographical Classification Of India.
Week 10	Value Of Biodiversity: Consumptive Use, Productive Use, Social Ethical, Aesthetic And Option Values Biodiversity At Global, National And Local Levels. Biodiversity-Threats To Biodiversity: Habitat Loss, Poaching Of Wildlife ,
Week 11	Man-Wildlife Conflicts. Endangered And Endemic Species Of India. Conservation Of Biodiversity: In-Situ And Ex-Situ Conservation Of Biodiversity
Week 12	**Assignment** **Mock Test**
Week 13	Environmental Pollution:- Definition, Cause, Effects And Control Measures Of- A) Air Pollution, B) Water Pollution, C) Soil Pollution, D) Marine Pollution, E) Noise Pollution, F) Thermal Pollution, G) Nuclear Hazards H) Solid Waste.
Week 14	Role Of An Individual In Prevention Of Pollution. Disaster Management: Floods, Earthquake, Cyclone And Landslides. Water Conservation And Its Strategies. Climate Change- Greenhouse Gases, Acid Rain And Global Warming.
Week 15	Imporatant Question Discussion And Quick Revision.

Name of the Assistant Professor: Ms. Chanchal **Class And Section: BSc (Physical Science)** **Subject: Fundamentals of Computing and Problem Solving using C** (MINOR) **Teaching Term: 22nd July 2024 to 22nd Nov 2024(Excluding Diwali Break)**	
Week 1	Computing Fundamentals: Overview Of Computing Principles And History, Generations Of Computers, Block Diagram Along With Its Components, Classification Of Computers, Applications Of Computers In Various Fields.
Week 2	Input/Output Devices, Memory: Concept Of Primary & Secondary Memory, Cache Memory, Secondary Storage Devices. Basics Of Networking & Operating System
Week 3	Introduction To Computer Networking, Network Types, Network Topologies, Internet And Its Applications; Operating System And Its Functions **Test**
Week 4	Introduction To Software Development Methodologies: Basics Of Algorithmic Thinking And Problem-Solving Strategies. Planning The Computer Program: Problem Definition, Program Design, Debugging,
Week 5	Types Of Errors In Programming, Techniques Of Problem Solving-Flowcharting, Algorithms Introduction To The C Programming Language History Of C, Importance Of C, Elements Of C: C Character Set
Week 6	Identifiers And Keywords, Data Types, Constants And Variables,: Assignment Statement, Symbolic Constant, Structure Of A C Program, Printf(), Scanf()Functions, Operators & Expression,
Week 7	Type Casting And Conversion, Operator Hierarchy & Associativity **Test**
Week 8	Decision Making & Branching: Decision Making With IF Statement, IF-ELSE Statement, Nested IF Statement, ELSE-IF Ladder, Switch Statement, Go To Statement. Decision Making & Looping: While.
Week 9	Do-While And For Loop, Jumps In Loops, Break, Continue Statement, Nested Loops. Functions And Modular Programming Concepts: Standard Mathematical Functions, Input/Output: Unformatted & Formatted I/O Function In C,
Week 10	Input Functions, Output Functions, String Manipulation Functions. User Defined Functions: Introduction/Definition, Function Prototype, Local And Global Variables, Passing Parameters, Recursion **Assignment**
Week 11	Arrays & Pointers: Definition, Types, Initialization, Processing An Array, Passing Arrays To Functions Declaration And Initialization Of String, Input/Output Of String Data,
Week 12	Introduction To Pointers. Advance Concepts Of C Programming: Pointers And Memory Management In C; File Input/Output Operations In C; Dynamic Memory Allocation And Deallocation; Advanced Control Structures: Switch, Break, And Continue Statements, **Mock Test**
Week 13	Practical Applications Of C Programming In Software Development: Algorithmic Problem-Solving Using C Programming Constructs; Design And Implementation Of C Programs; Debugging And Testing Techniques For C Programs;
Week 14	Best Practices And Coding Standards In C Programming (Revision + Assignment)
Week 15	Revision

Name of the Assistant Professor: Ms. Chanchal **Class And Section: BSc(life science)** **Subject: Fundamentals of Computing and Problem Solving using C** (MINOR) **Teaching Term: 22nd July 2024 to 22nd Nov 2024(Excluding Diwali Break)**	
Week 1	Computing Fundamentals: Overview of computing principles and history, Generations of Computers, Block Diagram along with its components, Classification of computers, Applications of computers in various fields.
Week 2	Input/Output Devices, Memory: Concept of primary & secondary memory, Cache Memory, Secondary storage devices. Basics of Networking & Operating System
Week 3	Introduction to computer networking, Network types, Network topologies, Internet and its applications; Operating system and its functions, **Test**
Week 4	Introduction to software development methodologies: Basics of algorithmic thinking and problem-solving strategies. Planning the Computer Program: Problem definition, Program design, Debugging,
Week 5	Types of errors in programming, Techniques of Problem Solving-Flowcharting, Algorithms Introduction to the C programming language History of C, Importance of C, Elements of C: C character set
Week 6	identifiers and keywords, Data types, Constants and Variables,: Assignment statement, Symbolic constant, Structure of a C Program, printf(), scanf()Functions, Operators & Expression,
Week 7	Type casting and conversion, operator hierarchy & associativity
Week 8	Decision making & Branching: Decision making with IF statement, IF-ELSE statement, Nested IF statement, ELSE-IF ladder, switch statement, go to statement. Decision making & Looping: while.
Week 9	do-while and for loop, jumps in loops, break, continue statement, Nested loops. Functions and modular programming concepts: Standard Mathematical functions, Input/output: Unformatted & formatted I/O function in C.
Week 10	Input functions, output functions, string manipulation functions. User defined functions: Introduction/Definition, function prototype, Local and global variables, passing parameters, recursion, **Test**
Week 11	Arrays & Pointers: Definition, types, initialization, processing an array, passing arrays to functions declaration and initialization of string, Input/output of string data, **Assignment**
Week 12	Introduction to pointers. Advance Concepts of C Programming: Pointers and memory management in C; File input/output operations in C, **Mock Test**
Week 13	Practical applications of C programming in software development: Algorithmic problem-solving using C programming constructs; Design and implementation of C programs; Debugging and testing techniques for C programs;
Week 14	Best practices and coding standards in C programming Dynamic memory allocation and deallocation; Advanced control structures: switch, break, and continue statements.
Week 15	Revision

Name of the Assistant Professor: Dr. Priti **Class And Section:B.Sc. Biotechnology 1st year** **Subject: Environmental Sciences** **Teaching Term: 22nd July 2024 to 22nd Nov 2024 (Excluding Diwali Break)**	
Week 1	Natural resources and associated problems
Week 2	Forest resources, use and over exploitation, deforestation, timber extraction, mining, dams and their effects on forest and tribal people
Week 3	Water resources: use and over utilization of surface and ground water, floods, drought, conflicts over water Dams- benefits and their problems
Week 4	Mineral resources: use and exploitation, environmental effects, of extracting and using mineral resources, **Test**
Week 5	Food resources: world food problems, changes caused by agriculture
Week 6	Overgrazing effects of modern agriculture, fertilizer pesticide problems, water logging, salinity, case studies
Week 7	Energy resources: growing energy needs, renewable and non- renewable energy sources, use of alternate energy sources, **Test**
Week 8	Land resources: land as a resource, land degradation, man induced landslides, soil erosion, and desertification,
Week 9	Role of an individual in conservation of natural resources, equitable use of resources for sustainable lifestyle, **Assignment**
Week 10	Biodiversity and its conservation: introduction, definition, genetic, species and ecosystem diversity,
Week 11	Bio geographical classification, of India,
Week 12	Threats to biodiversity, habitat loss, poaching of wildlife, man-wildlife conflicts, **Mock Test**
Week 13	Endangered and endemic species of India
Week 14	Conservation of biodiversity: In-situ and ex-situ conservation of biodiversity
Week 15	Revision

Name of the Assistant Professor: Ms. Sudha Diwakar **Class And Section: BSc. Biotech Ist year** **Subject: Environmental Science** **Teaching Term: 22nd July 2024 to 22nd Nov 2024 (Excluding Diwali Break)**	
Week 1	Multi-displinary nature of environmental studies, scope and importance.
Week 2	Concept of sustainability and sustainable development.
Week 3	Ecosystem: Introduction Type, Characteristic features, **Test**
Week 4	Structure and function of the following ecosystem: A. Forest ecosystem
Week 5	B. Grassland ecosystem eco-system C. Desert ecosystem, **Assignment**
Week 6	D. Aquatic ecosystems (Ponds, Streams, Lakes, Rivers, Oceans, Estuaries)
Week 7	Environmental Pollution: Definition, Cause, Effect and control measures of: A. Air Pollution
Week 8	B. Water Pollution C. Soil Pollution, **Test.**
Week 9	D. Marine Pollution E.Noise Pollution
Week 10	F.Thermal G. Nuclear Pollution Hazards Pollution, H. Solid waste. Role of an individual in prevention of pollution.
Week 11	Disaster management: Flood, Earthquake, Cyclone and landslides.
Week 12	Water conservation and its strategies, **Mock Test**
Week 13	Climate change- greenhouse gases.
Week 14	Acid rain and global warming
Week 15	Revision

Name of the professor: Ms. Vandana Kumari **Class: M. Sc. (Mathematics) 3rd Sem** **Subject: Functional Analysis (17MAT23C1)**	
Week 1	Introduction to Syllabus Normed linear spaces Metric on Normed linear spaces **Assignment**
Week 2	Holder and Minkwoski's Inequality with proof Completeness of Quotient Space of Normed linear spaces Completeness of Phase Spaces Incomplete Normed Spaces with their examples and theorems Doubt Class
Week 3	Finite Dimensional Normed linear spaces Finite Dimensional Normed linear Subspaces Bounded linear transformation with its examples Equivalent formation of Continuity Their theorems
Week 4	Continuous linear functional Revision of Unit-1 **Test**
Week 5	Conjugate Spaces Hahn-Banach Extension theorem of real form Hahn Banach Extension theorem of complex form Applications of Hahn-Banach theorem
Week 6	Doubt class Presentation Reisz Representation Theorem for bounded linear functional on linear space Reisz Representation Theorem for bounded linear functional on C[a b]
Week 7	Revision of above theorem Second Conjugate Spaces Reflexive Spaces Uniform Boundedness principle
Week 8	Consequence of Uniform Boundedness principle Revision
Week 9	Open- Mapping Theorem Applications of Open Mapping Theorem Projections Closed Graph Theorem
Week 10	Doubt class Revision of Unit-3 **Test**
Week 11	Equivalent Norms Weak Convergence Strong Convergence Their Equivalence in finite dimensional spaces Their Theorems

Week 12	Revision of above topics Weak Sequential Compactness Solvability of linear equation in Banach Spaces Examples , **Mock Test**
Week 13	Revision of above topics Properties of compact operator Compactness of the limit of the sequence of compact operator Its Theorems
Week 14	Compact Operator and its relation with Continuous Operator Compactness of linear transformation on a finite dimensional space.
Week 15	Revision

Name of the Assistant Professor: Ms. Ranjana **Class And Section: B.Sc. Biotech III Year** **Subject: Inorganic Chemistry** **Teaching Term: 22nd July 2024 to 22nd Nov 2024(Excluding Diwali Break)**	
Week 1	Introduction Of Metal-Ligand Bonding In Transition Metal Complexes Limitations Of Valence Bond Theory,
Week 2	An Elementary Idea Of Crystal-Field Theory. Crystal Field Splitting In Octahedral. Crystal Field Splitting Tetrahedral
Week 3	Crystal Field Splitting Square Planar Complexes
Week 4	Factors Affecting The Crystal-Field Parameters. Factors Affecting The Stability Transition Metal Complexes. & **Assignment**
Week 5	A Brief Outline Of Thermodynamic Stability Of Metal Complexes &**Test**
Week 6	Substitution Reactions Of Square Planar Complexes Of Pt(II) & Magnetic Properties.
Week 7	Types Of Magnetic Behavior Of Transistion Metal Complexes. , Methods Of Determining Magnetic Susceptibility Spin Only Formula.
Week 8	L-S Coupling, Correlation Of S And Eff Values. Assignment II Orbital Contribution To Magnetic Moments
Week 9	Application Of Magnetic Moment Data For D-Metal Complexes. **Test**
Week 10	Electron Spectra Of Transition Metal Complexes., Types Of Electronic Transitions,
Week 11	Selection Rules For D-D Transitions, Spectroscopic Ground States, Spectrochemical Series
Week 12	Orgel-Energy Level Diagram For D1states And Orgel-Energy Level Diagram For D9 States, **Mock Test**
Week 13	Discussion Of The Electronic Spectrum Of [Ti(H2O)6]3+ Complex Ion.
Week 14	Doubt Classes
Week 15	Revision

Name of the Assistant Professor: Ms. Ranjana **Class And Section: B.Sc. Biotech III Year** **Subject: Inorganic Chemistry** **Teaching Term: 22nd July 2024 to 22nd Nov 2024(Excluding Diwali Break)**	
Week 1	Introduction Of Metal-Ligand Bonding In Transition Metal Complexes Limitations Of Valence Bond Theory,
Week 2	An Elementary Idea Of Crystal-Field Theory. Crystal Field Splitting In Octahedral. Crystal Field Splitting Tetrahedral
Week 3	Crystal Field Splitting Square Planar Complexes
Week 4	Factors Affecting The Crystal-Field Parameters. Factors Affecting The Stability Transition Metal Complexes. & **Assignment**
Week 5	A Brief Outline Of Thermodynamic Stability Of Metal Complexes &**Test**
Week 6	Substitution Reactions Of Square Planar Complexes Of Pt(II) & Magnetic Properties.
Week 7	Types Of Magnetic Behavior Of Transistion Metal Complexes. , Methods Of Determining Magnetic Susceptibility Spin Only Formula.
Week 8	L-S Coupling, Correlation Of S And Eff Values. Assignment II Orbital Contribution To Magnetic Moments
Week 9	Application Of Magnetic Moment Data For D-Metal Complexes. **Test**
Week 10	Electron Spectra Of Transition Metal Complexes., Types Of Electronic Transitions,
Week 11	Selection Rules For D-D Transitions, Spectroscopic Ground States, Spectrochemical Series
Week 12	Orgel-Energy Level Diagram For D1states And Orgel-Energy Level Diagram For D9 States, **Mock Test**
Week 13	Discussion Of The Electronic Spectrum Of [Ti(H2O)6]3+ Complex Ion.
Week 14	Doubt Classes
Week 15	Revision

Name of the Assistant Professor: Ms. Ranjana **Class And Section: B.Sc. Biotech II Year** **Subject: Physical Chemistry** **Teaching Term: 22nd July 2024 to 22nd Nov 2024(Excluding Diwali Break)**	
Week 1	Definition of thermodynamic terms: system,surrounding etc. Types of systems, intensive and extensive properties. State and path functions and their differentials.
Week 2	Thermodynamic process.Concept of heat and work. Zeroth Law of thermodynamics, First law of thermodynamics: statement, definition of internal energy and enthalpy.
Week 3	Heat capacity, heat capacities at constant volume and pressure and their relationship. **Assignment**
Week 4	Joule's law – Joule – Thomson coefficient for ideal gass and real gas: and inversion temperature.
Week 5	Calculation Of W.Q. Du & Dh For The Expansion Of Ideal Gases Under Isothermal And Adiabatic Conditions For Reve Rsible Process.
Week 6	**Test**, Temperature Dependence Of Enthalpy, Kirchoffs Equation. Bond Energies And Applications Of Bond Energies.
Week 7	Equilibrium Constant And Free Energy, Concept Of Chemical Potential, Thermodynamic Derivation Of Law Of Chemical Equilibrium.
Week 8	Temperature Dependence Of Equilibrium Constant; Van't Hoff Reaction Isochore, Van't Hoff Reaction Isotherm. **Test**
Week 9	Le-Chatetier's Principle And Its Applications. Clapeyron Equation.
Week 10	Clausius – Clapeyron Equation Its Applications .Nernst Distribution Law – Its Thermodynamic Derivation.
Week 11	Modification Of Distribution Law When Solute Undergoes Dissociation, Association And Chemical Combination.
Week 12	Test, Applications Of Distribution Law: (I) Determination Of Degree Of Hydrolysis And Hydrolysis Constant Of Aniline Hydrochloride, **Mock Test**
Week 13	Determination Of Equilibrium Constant Of Potassium Tri-Iodide Complex And Process Of Extraction
Week 14	Doubt Classes
Week 15	Revision

Name of the Assistant Professor: Ms. Shweta
Class And Section: B. Sc. Medical 2nd Year
Subject: Plant Anatomy II
Teaching Term: 22nd July 2024 to 22nd Nov 2024(Excluding Diwali Break)

Week 1	Tissues – Meristematic and permanent, Tissue system
Week 2	Shoot System – Shoot Apical Meristem and its Histological organization
Week 3	Cambium – Structure and Function, **Test**
Week 4	Secondary growth in dicot stem
Week 5	Characteristics of Growth rings, sap wood and heart wood and periderm
Week 6	Anomalous secondary growth, **Test**
Week 7	Leaf, types of Leaves, Phyllotaxy, **Assignment**
Week 8	Epidermis – Uniseriate and multiseriate
Week 9	Epidermal appendages and their morphological types
Week 10	Anatomy of Typical Monocot and Dicot Leaf
Week 11	Leaf Abscission, Stomatal apparatus and their morphological types
Week 12	Root System: Root Apical Meristem, **Mock Test**
Week 13	Root System: Histological organization and secondary growth
Week 14	Structural Modifications in Roots: Storage, Respiratory and Epiphytic
Week 15	Revision

Name of the Assistant Professor:Ms. Savita Nailwal **Class And Section: Bsc Medical Ist year** **Subject: Apiculture** **Teaching Term: 22nd July 2024 to 22nd Nov 2024(Excluding Diwali Break)**	
Week 1	Apiculture meaning, definition scope and history. Status of Apiculture Industry in India.
Week 2	Classification and Life Cycle of Honey Bee.
Week 3	Identification of Indigenous and exotic Honey bee species
Week 4	Cultivable species of Honey Bee with reference to India, **Test**
Week 5	Cultivable species of Honey Bee with reference to India Social organization of honey bees: the castes- queen, drone and workers.
Week 6	Nesting behavior of Honey bees, Bee foraging, Seasonal management, swarming in Honey bees, waggle dance, defense in honey bees.Disease and enemies of bees,control and preventive measures.
Week 7	Role of Bees in cross pollination in horticulture and agriculture.
Week 8	Methods of Artificial Bee keeping. Equipments used in Bee keeping.
Week 9	Equipments used in Bee keeping Industry .Methods of extraction of Honey and other products.
Week 10	Products of Apiculture Industry and their Uses (Honey, Bee Wax, Royal Jelly, Bee Venom, Propolis and Pollen) .
Week 11	Bee Keeping Industry: Present and future, **Assignment**
Week 12	Prospects of apiculture as self employment venture, **Mock Test**
Week 13	Economics of Apiculture: Expenditure, Net Income, and Additional benefits
Week 14	**Test**
Week 15	Revision

Name of the Assistant Professor:Ms. Savita Nailwal **Class And Section: Bsc Medical Ist year** **Subject: Basics of Zoology-I** **Teaching Term: 22nd July 2024 to 22nd Nov 2024(Excluding Diwali Break)**	
Week 1	Zoology: Definition and scope, introduction to Animal Kingdom, animal characters Non-Chordates and Invertebrates
Week 2	Non-Chordates and Invertebrates with examples, Invertebrate Phyla, Introduction to basic characters of animal with special reference to the non chordates
Week 3	Biodiversity: Introduction and Scope; General characters of Protozoa and Porifera, **Test**
Week 4	Study of Amoeba and sponges with special reference to its structure and economic importance
Week 5	General characters of Coelentrata and Annelida
Week 6	Ecological importance of corals; Economic importance of Leech
Week 7	Morphology of earthworm and its ecological role
Week 8	General characters of Arthropoda and Mollusca, **Assignment**
Week 9	Study of basic characters of insects and snails; Insects as pest: Grasshopper
Week 10	Economic importance of Honey Bee; Snails as pest in Paddy fields
Week 11	General characters of Echinodermata
Week 12	Study of basic characters of Star fish, **Mock Test**
Week 13	Study of basic characters of Star fish with reference to its role in ecosystem; Economic importance of Star Fish
Week 14	**Test**
Week 15	Revision

Name of the Assistant Professor: Ms. Savita Nailwal **Class And Section: BSc. Life science 1st year** **Subject: Environmental Science** **Teaching Term: 22nd July 2024 to 22nd Nov 2024 (Excluding Diwali Break)**	
Week 1	Multi-displinary nature of environmental studies, scope and importance. Concept of sustainability and sustainable development.
Week 2	Ecosystem: definition, structureand function of ecosystem; energy flow in an ecosystem:food chain,food web,major ecosystem types: forest ecosystem, grassland ecosystem .
Week 3	Desert ecosystem and aquatic ecosystem(lake,rivers, oceans)
Week 4	Revision unit-1 **Assignment**
Week 5	Renewable and non- renewable resources.1)land resources:land degradation and soil erosion. 2) forest resource: Importance of forest, deforestation:cause and impacts on environment.3)water resources:use and over- exploitation of surface and ground water.4) Energy resource: renewable and non renewable energy sources .
Week 6	Biodiversity and conservation: Definition and its types, Endangered and endemic species of india.Threats to biodiversity: Habitat loss, poaching biodiversity:in- situ and ex- situ conservation of biodiversity.
Week 7	Ecosystem and biodiversity services: Ecological, economic,social,ethical, aesthetic and informationl values.
Week 8	Revision of unit-2 **Test**
Week 9	Environmental pollution: type, causes,effects and controls;Air,water,soil and noise pollution Solid waste management: source, methods of disposal: landfill, incineration and composting.
Week 10	Climate change, global warming, ozone layer depletion,acid rain and impacts on human communities and agriculture . Environmental laws: environmental act,1986,aur act,1981,water act ,1974.
Week 11	Revision of unit-3 **Test**
Week 12	Human population growth: impact on environment,human health and welfare. Resettlement and rehabilitation of project affected person, **Mock Test**
Week 13	Disaster management: floods, earthquake, cyclones, landslide and drought.
Week 14	Environmental ethics: Role of Indian and other religions and cultures in environmental conservation.
Week 15	Revision

Name of the Assistant Professor: Dr Reeti Panchal
Class And Section: B.Sc. Medical IIIrd Semester
Subject: Mammalian Physiology I
Teaching Term: 22nd July 2024 to 22nd Nov 2024(Excluding Diwali Break)

Week 1	Introduction to syllabus, Introduction of Biomolecules Structure and classification of carbohydrates
Week 2	Function of carbohydrates Structure and classification of lipid Functions of lipids
Week 3	Structure of Proteins Functions of proteins
Week 4	Physical and chemical properties of proteins Classification of proteins
Week 5	Fibrous and globular proteins **Test, Assignment**
Week 6	Plasma Membrane Transport Across Plasma membrane Revision
Week 7	Passive transport Active transport **Test**
Week 8	Type of Muscles Ultra-Structure of Skeletal Muscles Mechanism of action of muscles
Week 9	Biochemical and physical events during muscles contraction Oxygen debt Cori Cycle
Week 10	Structure and type of bones Effect of ageing on skeletal system
Week 11	Bone Disorders Revision. Test
Week 12	Nomenclature of Enzyme Mechanism of action of Enzyme Isozyme Zymogen and Ribozyme, **Mock Test**
Week 13	Buffers Type of Nutrition and feeding Nutritional Value of Carbohydrates
Week 14	Nutritional Value of lipids Nutritional Value of Minerals Water Soluble Vitamins
Week 15	Fat Soluble Vitamins Absorption And Assimilation of nutrients, Revision

Name of the Assistant Professor: Dr Reeti Panchal **Class And Section: B.Sc. Medical IIIrd Semester** **Subject: Life and Diversity of Chordate-I** **Teaching Term: 22nd July 2024 to 22nd Nov 2024(Excluding Diwali Break)**	
Week 1	Introduction to syllabus. Principal of Classification Origin of Evolutionary tree
Week 2	Role of amnion in evolution Classification of Chordates Origin and evolution of Chordate
Week 3	Salient feature of Chordate Systematic position of protochordate Distribution and ecology of Protochordate
Week 4	Morphology and affinities of Protochordate Circulatory system of Herdmania Respiratory system of Herdmania
Week 5	Nervous system of Herdmania Excretory and Sense organ system of Herdmania Digestive and reproductive system of Herdmania
Week 6	Circulatory system of Amphioxus Respiratory system of Amphioxus **Test**
Week 7	Nervous system of Amphioxus Excretory and Sense organ system of Amphioxus Digestive and reproductive system of Amphioxus
Week 8	General Characters and classification of Cyclostomes Biodiversity, economic importance and conservation of Cyclostomes Ecological significance of Cyclostome
Week 9	Circulatory system of Petromyzon Respiratory system of Petromyzon Nervous system of Petromyzon
Week 10	Excretory and Sense organ system of Petromyzon Digestive and reproductive system of Petromyzon **Assignment, Test**
Week 11	General Classification of Pisces Special Characters of fishes Scale and Fins in fishes
Week 12	Parental care in fishes Fish migration Economic importance of fishes, **Mock Test**
Week 13	Circulatory system of *Labeo* Respiratory system of *Labeo*
Week 14	Excretory system in *Labeo* Nervous System in *Labeo*
Week 15	Digestive and reproductive system in *Labeo*