

LESSON PLAN

B.Sc I year

1. Outline learning objective
2. Develop the introduction
3. Plan the main body of the lesson
4. Plan to check for understanding
5. Develop a conclusion and a preview
6. Create realistic timeline

Chemistry

PAPER - I

Inorganic Chemistry M.M. 33 (60 Hrs each paper)

Period= 45 min

UNIT-1

S. N o.	Topic	No. of periods needed	Teaching Method	Lesson plan
1.	Atomic structure	8	Lecture, black board, discussion	<p>General objective: to develop Chemistry temperament</p> <p>Specific objective: to clear the concept of definition, scope and methodology of chemistry. Questions based on previous knowledge</p> <p>Synopsis: Bohr's theory, its limitation atomic spectrum of hydrogen atom. general idea of de-broglie matter waves Heisenberg uncertainty principal, Schrodinger wave equation, radial and angular wave functions and probability distribution curves, Quantum numbers, Atomic orbital and shape of s,p,d orbitals Aufbau and Pauli exclusion principles Hund's Multiplicity rule , electronic configuration of the elements</p> <p>Homework after each class</p>

2.	Periodic properties	8	Lecture, black board, PPT	<p>General objective: to develop chemistry temperament</p> <p>Specific objective: to clear the concept of definition, scope and methodology of chemistry</p> <p>Questions based on previous knowledge</p> <p>Synopsis:</p> <p>Discussion of the following periodic properties of the elements</p> <ul style="list-style-type: none"> • Atomic and ionic radii • Ionisation enthalpy • Electron gain enthalpy • Electronegativity • Effective nuclear charge, shielding or screening effect, Slater rules, variation of effective nuclear charge in periodic table. <p>Homework after each class</p>
	<p>Assessment of understanding:</p> <ol style="list-style-type: none"> 1. Unit test for 30 marks: subjective/objective/oral 2. group discussions 3. class room quiz competitions 			
	UNIT-2			
	Chemical bonding-I	12	Lecture, black board, PPT	<p>General objective: to develop chemistry temperament</p> <p>Specific objective: to clear the concept of definition, scope and methodology of chemistry</p> <p>Questions based on previous knowledge</p> <p>Synopsis:</p> <p>Ionic bond</p> <p>radius ratio and coordination number</p> <p>limitation of radius ratio rule</p> <p>lattice defects, semiconductor, lattice energy, Born Haber cycle'</p> <p>solvation energy and solubility of ionic solids, Fajan's rule</p> <p>ionic character in covalent compounds</p> <p>dipole moment and bond moment</p> <p>percentage ionic character from dipole moment and electro negativity difference, Metallic bond-free electron, valence bond and band theories.</p> <p>Homework after each class</p>

	Assessment of understanding: 1. Unit test for 20 marks: subjective/objective/oral 2. group discussions 3.class room quiz competitions			
	UNIT-3			
	Chemical bonding-II	16	Lecture black board, PPT	General objective: to develop chemistry temperament Specific objective: to clear the concept of definition, scope and methodology of chemistry, Questions based on previous knowledge Synopsis: Covalent bond Lewis structure, VBT and its limitation, Concept of hybridisation , Energetics of hybridisation, equivalent and non-equivalent hybrid orbitals, VSPER theory, Shapes of some molecules, Molecular orbital theory' Bond order and bond strength, Molecular orbital diagram of diatomic and simple polyatomic molecules N_2 , O_2 , F_2 , CO , NO . Homework after each class
	Assessment of understanding: 1. Unit test for 30 marks: subjective/objective/oral 2. group discussions 3.class room quiz competitions			
	UNIT-4			
1	s-block elements	10	Lecture black board	General objective: to develop chemistry temperament Specific objective: to clear the concept of definition, scope and methodology of chemistry Questions based on previous knowledge Synopsis: General concepts on group relationships and gradation properties. Comparative study, silent features of hydrides, salvation and complexation tendencies including their function in biosystems and introduction to alkyl and aryls, derivatives of alkali and alkaline earth metals. Homework after each class

2	p- block elements	10	Lecture black board	<p>General objective: to develop chemistry temperament</p> <p>Specific objective: to clear the concept of definition, scope and methodology of chemistry</p> <p>Questions based on previous knowledge</p> <p>Synopsis:</p> <p>General concepts on group relationships and gradation properties. halides, hydrides ,oxides and oxyacids of Boron, Aluminum,Nitrogen and Phosphorus, Boranes, Borazines, Fullerenes, Graphene and silicates, interhalogens and pseudohalogens</p> <p>Homework after each class</p>
	<p>Assessment of understanding:</p> <ol style="list-style-type: none"> 1. Unit test for 30 marks: subjective/objective/oral 2. group discussions 3.class room quiz competitions 			
	Unit-5			
1	Chemistry of noble gases	8	Lecture, black board	<p>General objective: to develop chemistry temperament</p> <p>Specific objective: to clear the concept of definition, scope and methodology of chemistry .Questions based on previous knowledge</p> <p>Synopsis:</p> <p>Chemical properties of the noble gases, chemistry of Xenon, structure, bonding in Xenon compounds</p> <p>Homework after each class</p>
2	Theoretical principles in qualitative analysis (H ₂ S Scheme)	8	Lecture, black board, discussion	<p>General objective: to develop chemistry temperament</p> <p>Specific objective: to clear the concept of definition, scope and methodology of chemistry, Questions based on previous knowledge</p> <p>Synopsis:</p> <p>Basic principles involved in the analysis of cations and anions and solubility products,common ion effect,</p>

				<p>principles involved in the separation of cations into groups and choice of group reagents. Interfering anions and need to remove them after group II.</p> <p>Homework after each class</p>
	<p>Assessment of understanding:</p> <ol style="list-style-type: none"> 1. Unit test for 30 marks: subjective/objective/oral 2. group discussions 3.class room quiz competitions 			

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Chemistry

PAPER - II

Organic Chemistry M.M. 33 (60 Hrs each paper)

Period= 45 min

UNIT-1

S. N o.	Topic	No. of periods needed	Teaching Method	Lesson plan
1.	Basics of organic chemistry	16	Lecture, black board, discussion	<p>General objective: to develop Chemistry temperament</p> <p>Specific objective: to clear the concept of definition, scope and methodology of chemistry. Questions based on previous knowledge</p> <p>Synopsis: hybridization, Shapes of molecules, Influence of hybridization on bond properties, Electronic displacements: Inductive, electromeric, resonance and mesomeric effects, hyperconjugation and their applications, Dipole moment, Electrophiles and nucleophiles, Nucleophilicity and basicity, Cleavage, Intermediates-generation ,shape and relative stability, Types of organic reactions</p> <p>Homework after each class</p>

	Assessment of understanding: 1. Unit test for 30 marks: subjective/objective/oral 2. group discussions 3.class room quiz competitions			
	UNIT-2			
	Introduction to stereochemistry	14	Lecture, black board, PPT	General objective: to develop chemistry temperament Specific objective: to clear the concept of definition, scope and methodology of chemistry Questions based on previous knowledge Synopsis: Optical isomerism optical activity, specific rotation, Chirality/ Asymmetry, Enantiomers, Molecules with two or more chiral centres, Diastereoisomers, meso compounds, Relative and absolute configuration, Fisher, Newmann and sawhorse projection formulae and their interconversions; erythrose and threose, D/L, d/l system of nomenclature, Cahn-Ingold-Prelog system of nomenclature (C.I.P rules) R/S nomenclature, Geometrical isomerism: cis-trans, syn-anti and E/Z notation. Homework after each class
	Assessment of understanding: 1. Unit test for 20 marks: subjective/objective/oral 2. group discussions 3.class room quiz competitions			
	UNIT-3			
	Conformational analysis of alkanes	16	Lecture black board, PPT	General objective: to develop chemistry temperament Specific objective: to clear the concept of definition, scope and methodology of chemistry, Questions based on previous knowledge Synopsis: Conformational analysis of alkanes, ethane, butane, cyclohexane and sugars, relative stability and energy diagrams. Types of cycloalkanes and their relative stability, Baeyer strain theory, theory of

				<p>strainless rings, Chair, Boat and twist boat conformation of cyclohexane with energy diagrams; Relative stability of mono-substituted cycloalkanes and disubstituted cyclohexane.</p> <p>Homework after each class</p>
	<p>Assessment of understanding:</p> <ol style="list-style-type: none"> 1. Unit test for 30 marks: subjective/objective/oral 2. group discussions 3.class room quiz competitions 			
	UNIT-4			
1	Carbon-Carbon sigma bonds	10	Lecture black board	<p>General objective: to develop chemistry temperament</p> <p>Specific objective: to clear the concept of definition, scope and methodology of chemistry Questions based on previous knowledge</p> <p>Synopsis:</p> <p>Chemistry of alkanes: Formation of alkanes, Wurtz Reaction, Wurtz-Fitting Reaction, Free radical substitutions: Halogenation-relative reactivity and selectivity</p> <p>Homework after each class</p>
2	Carbon-Carbon Pi bonds	10	Lecture black board	<p>General objective: to develop chemistry temperament</p> <p>Specific objective: to clear the concept of definition, scope and methodology of chemistry Questions based on previous knowledge</p> <p>Synopsis:</p> <p>Formation of alkenes and alkynes by elimination reactions, Mechanism of elimination reactions, Saytzeff and Hofmann eliminations.</p> <p>Reactions of alkenes: Electrophilic addition and mechanisms (Markownikoff/ Anti- Markownikoff addition), mechanism of oxymercuration-demercuration, hydroboration- oxydation, ozonolysis, reduction,syn and anti-hydroxylation, 1,2 and 1,4 addition reactions in conjugated dienes and Diels-Alder</p>

				<p>reaction; Allylic and benzylic bromination and mechanism, e.g. propane, 1-butene, toluene, ethyl benzene.</p> <p>Reactions of alkynes: Acidity, Electrophilic and Nucleophilic additions. Hydration to form carbonyl compounds. Alkylation of terminal alkynes.</p> <p>Homework after each class</p>
	<p>Assessment of understanding:</p> <ol style="list-style-type: none"> 1. Unit test for 30 marks: subjective/objective/oral 2. group discussions 3.class room quiz competitions 			
	Unit-5			
	Aromatic hydrocarbons	14	Lecture, black board	<p>General objective: to develop chemistry temperament</p> <p>Specific objective: to clear the concept of definition, scope and methodology of chemistry .Questions based on previous knowledge</p> <p>Synopsis:</p> <p>Aromaticity: Huckel's rule, aromatic character of arenes, cyclic carbocations/carbanions and heterocyclic compounds with suitable examples. Electrophilic aromatic substitution, halogenations, nitration ,sulphonation and Friedel-Craft's alkylation/acylation with their mechanism, Directive effects of the groups.</p> <p>Homework after each class</p>
	<p>Assessment of understanding:</p> <ol style="list-style-type: none"> 1. Unit test for 30 marks: subjective/objective/oral 2. group discussions 3.class room quiz competitions 			

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Chemistry

PAPER - III

Physical Chemistry M.M. 34 (60 Hrs each paper)

Period= 45 min

UNIT-1

S. No.	Topic	No. of periods needed	Teaching Method	Lesson plan
1.	Mathematical concepts for chemist	12	Lecture, black board, discussion	<p>General objective: to develop Chemistry temperament</p> <p>Specific objective: to clear the concept of definition, scope and methodology of chemistry. Questions based on previous knowledge</p> <p>Synopsis: Basic Mathematical concepts: Logarithmic relations, curve sketching, linear graphs, Properties of straight line, slope and intercept, Functions, maxima and minima, integrals, ordinary differential equations, vectors and matrices, determinants, Permutation and combination and probability theory, significant figures and their applications.</p> <p>Homework after each class</p>
	Assessment of understanding: 1. Unit test for 30 marks: subjective/objective/oral 2. group discussions 3.class room quiz competitions			

	UNIT-2			
	Gaseous state chemistry	16	Lecture, black board, PPT	<p>General objective: to develop chemistry temperament</p> <p>Specific objective: to clear the concept of definition, scope and methodology of chemistry Questions based on previous knowledge</p> <p>Synopsis: Kinetic molecular model of a gas: postulates and derivation o the kinetic gas equation, collision frequency, collision diameter; mean free path, Maxwell distribution and its use in evaluating molecular velocities (average, root mean square and most probable) and average kinetic energy, law of equipartition of energy, degrees of freedom and molecular basis of heat capacities, Joule Thompson effect, Liquification of gases. Behaviour of real gases; Deviations from ideal gas behaviour, compressibility factor(Z) and its variation with pressure and temperature for different gases, Causes of deviation from ideal behaviour, vander waals equation of state, its derivation and application in explaining real gas behaviour , calculation of Boyle temperature, Isotherms of real gases and their comparison with vander waals isotherms, continuity of states, critical stare, relation between critical constants and vander waals constants, Law of corresponding states.</p> <p>Homework after each class</p>
	Assessment of understanding: 1. Unit test for 20 marks: subjective/objective/oral 2. group discussions 3.class room quiz competitions			
	UNIT-3			
1	Liquid state chemistry	8	Lecture black board, PPT	<p>General objective: to develop chemistry temperament</p>

				<p>Specific objective: to clear the concept of definition, scope and methodology of chemistry, Questions based on previous knowledge</p> <p>Synopsis: Intermolecular forces, magnitude of intermolecular force, structure of liquids, Properties of liquids, viscosity and surface tension.</p> <p>Homework after each class</p>
2	Colloids and surface chemistry	8	Lecture black board, PPT	<p>General objective: to develop chemistry temperament</p> <p>Specific objective: to clear the concept of definition, scope and methodology of chemistry, Questions based on previous knowledge</p> <p>Synopsis: Classification, Optical, Kinetic and electrical properties of colloids, Coagulation, Hardy Schulze law, flocculation value, Protection, Gold number, Emulsion, micelles and types, Gel, Syneresis and thixotrophy, Application of colloids.</p> <p>Homework after each class</p>
	<p>Assessment of understanding:</p> <ol style="list-style-type: none"> 1. Unit test for 30 marks: subjective/objective/oral 2. group discussions 3.class room quiz competitions 			
	UNIT-4			
1	Solid state chemistry	14	Lecture black board	<p>General objective: to develop chemistry temperament</p> <p>Specific objective: to clear the concept of definition, scope and methodology of chemistry Questions based on previous knowledge</p> <p>Synopsis: Nature of solid state, law of constancy of interfacial angles, law of rational indices, Miller indices, elementary ideas of symmetry , symmetry elements and symmetry operations, qualitative idea of point and space groups, seven crystal systems and fourteen Bravais lattices, X- ray diffraction, Bragg's law, a simple</p>

				account of rotating crystal method and powder pattern method, Crystal defects. Homework after each class
	Assessment of understanding: 1. Unit test for 30 marks: subjective/objective/oral 2. group discussions 3.class room quiz competitions			
	Unit-5			
1	Chemical Kinetics	12	Lecture, black board	General objective: to develop chemistry temperament Specific objective: to clear the concept of definition, scope and methodology of chemistry .Questions based on previous knowledge Synopsis: Rate of reaction, Factor influencing rate of reaction, rate law, rate constant, order and molecularity of reactions, rate determining step, Zero, First and second order reactions, Rate and rate law, methods of determining order of reaction, Chain reactions. Temperature dependence of reaction rate, Arrhenius theory, Physical significance of activation energy. Collision theory, demerits of collision theory, non mathematical concept of transition state theory. Homework after each class
2	Catalysis	10	Lecture, black board	General objective: to develop chemistry temperament Specific objective: to clear the concept of definition, scope and methodology of chemistry .Questions based on previous knowledge Synopsis: Homogeneous and heterogeneous catalysis, types of catalyst, characteristic of catalyst, Enzyme catalysed reactions, Micellar catalysed reactions, Industrial application of catalysis Homework after each class
	Assessment of understanding: 1. Unit test for 30 marks: subjective/objective/oral 2. group discussions 3.class room quiz competitions			

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Chemistry PAPER - I

Inorganic Chemistry M.M. 33 (60 Hrs each paper)

Period= 45 min

UNIT-1

S. No.	Topic	No. of periods needed	Teaching Method	Lesson plan
	Chemistry of transition series elements	10	Lecture, black board, discussion	<p>General objective: to develop Chemistry temperament</p> <p>Specific objective: to clear the concept of definition, scope and methodology of chemistry. Questions based on previous knowledge</p> <p>Synopsis:</p> <p>Transition elements: Position in periodic table, electronic configuration, General characteristics viz, atomic and ionic radii, variable oxidation states, ability to form complexes, formation of coloured ions, magnetic moment, General comparative treatment of 4d and 5d element.</p> <p>Homework after each class</p>
	Assessment of understanding: 1. Unit test for 30 marks: subjective/objective/oral 2. group discussions 3.class room quiz competitions			

	UNIT-2			
1	Oxidation and reduction	10	Lecture, black board, PPT	<p>General objective: to develop chemistry temperament</p> <p>Specific objective: to clear the concept of definition, scope and methodology of chemistry Questions based on previous knowledge</p> <p>Synopsis: Redox potential, electrochemical series and its applications, Principles involved in extraction of the elements.</p> <p>Homework after each class</p>
2	Coordination compounds	12	Lecture, black board, PPT	<p>General objective: to develop chemistry temperament</p> <p>Specific objective: to clear the concept of definition, scope and methodology of chemistry Questions based on previous knowledge</p> <p>Synopsis: Werner's theory, and it's experimental verification, IUPAC nomenclature of coordination compounds, Isomerism in coordination compounds, Stereochemistry of complexes with 4 and 6 coordination numbers, Chelates, polynuclear complexes.</p> <p>Homework after each class</p>
	Assessment of understanding: 1. Unit test for 20 marks: subjective/objective/oral 2. group discussions 3.class room quiz competitions			
	UNIT-3			
	Coordination chemistry	12	Lecture black board, PPT	<p>General objective: to develop chemistry temperament</p> <p>Specific objective: to clear the concept of definition, scope and methodology of chemistry, Questions based on previous knowledge</p> <p>Synopsis: VBT(inner and outer orbital complexes), electro neutrality principle and back bonding, Crystal field theory, Crystal field splitting and stabilization</p>

				<p>energy, CFSE in weak and strong fields, pairing energies, factors affecting the magnitude of 10 Dq. Octahedral vs tetrahedral coordination.</p> <p>Homework after each class</p>
	<p>Assessment of understanding:</p> <p>1. Unit test for 20 marks: subjective/objective/oral</p> <p>2. group discussions</p> <p>3.class room quiz competitions</p>			
	UNIT-4			
1	Chemistry of Lanthanide elements	10	Lecture black board	<p>General objective: to develop chemistry temperament</p> <p>Specific objective: to clear the concept of definition, scope and methodology of chemistry Questions based on previous knowledge</p> <p>Synopsis: Electronic structure, oxidation states and ionic radii and lanthanide contraction, complex formation, occurrence and isolation, lanthanide compounds.</p> <p>Homework after each class</p>
2	Chemistry of Actinides	8	Lecture black board	<p>General objective: to develop chemistry temperament</p> <p>Specific objective: to clear the concept of definition, scope and methodology of chemistry Questions based on previous knowledge</p> <p>Synopsis: General features and chemistry of actinides, chemistry of separation of Np, Pu and Am from Uranium, similarities between the later actinides and later lanthanides.</p> <p>Homework after each class</p>
	<p>Assessment of understanding:</p> <p>1. Unit test for 20 marks: subjective/objective/oral</p> <p>2. group discussions</p> <p>3.class room quiz competitions</p>			

	Unit-5			
1	Acids and bases	8	Lecture, black board	<p>General objective: to develop chemistry temperament</p> <p>Specific objective: to clear the concept of definition, scope and methodology of chemistry .Questions based on previous knowledge</p> <p>Synopsis: Arrhenius, Bronsted-Lowry, Conjugate acids and bases, relative strengths of acids and bases, the Lux-flood, solvent system and Lewis concepts of acids and bases.</p> <p>Homework after each class</p>
2	Non- aqueous solvents	10	Lecture, black board, discussion	<p>General objective: to develop chemistry temperament</p> <p>Specific objective: to clear the concept of definition, scope and methodology of chemistry, Questions based on previous knowledge</p> <p>Synopsis: Physical properties of a solvent, types of solvents and their general characteristics, reaction in non aqueous solvents with reference to liquid ammonia and liquid sulphur dioxide, HF, H₂SO₄.</p> <p>Homework after each class</p>
	<p>Assessment of understanding:</p> <ol style="list-style-type: none"> 1. Unit test for 20 marks: subjective/objective/oral 2. group discussions 3.class room quiz competitions 			

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Chemistry

PAPER - II

Organic Chemistry M.M. 33 (60 Hrs each paper)

Period= 45 min

UNIT-1

S. No.	Topic	No. of periods needed	Teaching Method	Lesson plan
1	Chemistry of organic halides Alkyl halides	8	Lecture, black board, discussion	General objective: to develop Chemistry temperament Specific objective: to clear the concept of definition, scope and methodology of chemistry. Questions based on previous knowledge Synopsis: Methods of preparation, Nucleophilic substitution reactions, mechanism with stereochemical aspects and effect of solvents etc; nucleophilic substitution , elimination reactions. Homework after each class
2	Aryl halides	8	Lecture, black board, discussion	General objective: to develop Chemistry temperament Specific objective: to clear the concept of definition, scope and methodology of chemistry. Questions based on previous knowledge

				Synopsis: Methods of preparation, including preparation from diazonium salts, Nucleophilic aromatic substitution; SN Ar, Benzyne mechanism. Relative activity of alkyl, allyl/benzyl, vinyl, aryl halides towards nucleophilic substitution reactions. Homework after each class
	Assessment of understanding: 1. Unit test for 20 marks: subjective/objective/oral 2. group discussions 3.class room quiz competitions			
	UNIT-2			
1	Alcohols	10	Lecture, black board, PPT	General objective: to develop chemistry temperament Specific objective: to clear the concept of definition, scope and methodology of chemistry Questions based on previous knowledge Synopsis: Nomenclature, preparation, properties and relative activity of alcohols. Dihydric alcohols-methods of formation, chemical reactions of vicinal glycols, oxidative cleavage and pinacol-pinacolone rearrangement. Trihydric alcohols-nomenclature, methods of formation, chemical reactions of glycerol. Homework after each class
2	Phenols	8	Lecture, black board, PPT	General objective: to develop chemistry temperament Specific objective: to clear the concept of definition, scope and methodology of chemistry Questions based on previous knowledge Synopsis: Structure and bonding in phenols, physical properties and acidic character, comparative acidic strength of alcohols and phenols, acylation and carboxylation, Mechanism of various reactions. Homework after each class

	Assessment of understanding: 1. Unit test for 20 marks: subjective/objective/oral 2. group discussions 3.class room quiz competitions			
	UNIT-3			
	Aldehydes and ketones	15	Lecture black board, PPT	General objective: to develop chemistry temperament Specific objective: to clear the concept of definition, scope and methodology of chemistry, Questions based on previous knowledge Synopsis: Nomenclature, structure and reactivity of carbonyl group. General methods of preparation of aldehydes and ketones. Mechanism of nucleophilic addition to carbonyl groupsie Benzoin, Perkin, Aldol and Knoevengal condensation. Condensation with ammonia and its derivatives, Witing reaction, Mannich reaction, Beckmann and Benzil-Benzilic rearrangement. Use of acetate as protecting group, oxidation of aldehydes, Various reduction reactions, Halogenation of enolizable ketones, An introduction to α,β unsaturated aldehydes and ketones. Homework after each class
	Assessment of understanding: 1. Unit test for 20 marks: subjective/objective/oral 2. group discussions 3.class room quiz competitions			
	UNIT-4			
1	Carboxylic acids	8	Lecture black board	General objective: to develop chemistry temperament Specific objective: to clear the concept of definition, scope and methodology of chemistry Questions based on previous knowledge Synopsis: Structure and bonding, physical and chemical properties and acidity of carboxylic acids. Effect of substituents on acid strength. Mechanism of decarboxylation.

				<p>Dicarboxylic acids: Method of formation and effect of heat, Hydroxy acids.</p> <p>Homework after each class</p>
2	Carboxylic acid derivatives	8	Lecture black board	<p>General objective: to develop chemistry temperament</p> <p>Specific objective: to clear the concept of definition, scope and methodology of chemistry</p> <p>Questions based on previous knowledge</p> <p>Synopsis: structure of acid chlorides, esters, amides and acid anhydrides, relative stability of acyl derivatives. Physical properties, interconversion of acid derivatives by nucleophilic acyl substitution, Mechanism of acid and base catalyzed esterification and hydrolysis.</p> <p>Homework after each class</p>
	<p>Assessment of understanding:</p> <ol style="list-style-type: none"> 1. Unit test for 20 marks: subjective/objective/oral 2. group discussions 3.class room quiz competitions 			
	Unit-5			
1	Organic compounds of Nitrogen	15	Lecture, black board	<p>General objective: to develop chemistry temperament</p> <p>Specific objective: to clear the concept of definition, scope and methodology of chemistry .Questions based on previous knowledge</p> <p>Synopsis: Preparation of nitroalkanes and nitroarenes, chemical reactions of nitroalkanes and nitroarenes, Mechanism of nucleophilic substitution in nitroarenes and their reduction in acidic, neutral and alkaline medium. Reactivity, structure and nomenclature of amines, physical properties, stereochemistry of amines. Separation of mixture of amines. basicity of amines, Preparation of alkyl and aryl</p>

				amines, Reactions of amines, electrophilic aromatic substitution of aryl amines, Reaction of amines with nitrous acid. Synthetic transformation of aryl diazonium salts, azo coupling. Homework after each class
	Assessment of understanding: 1. Unit test for 20 marks: subjective/objective/oral 2. group discussions 3.class room quiz competitions			

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Chemistry

PAPER - III

Physical Chemistry M.M. 34 (60 Hrs each paper)

Period= 45 min

UNIT-1

S. No	Topic	No. of periods needed	Teaching Method	Lesson plan
1.	Thermodynamics-1	10+10	Lecture, black board, discussion	<p>General objective: to develop Chemistry temperament</p> <p>Specific objective: to clear the concept of definition, scope and methodology of chemistry. Questions based on previous knowledge</p> <p>Synopsis: Intensive and extensive variables, state and path function; isolated, closed and open systems; Zero law of thermodynamics, first law: concept of heat, work, internal energy and statement of first law, enthalpy, Relation between heat capacities, calculation of q, w, U and H for reversible, irreversible and free expansion, inversion temperature of gases, expansion of ideal gases under isothermal and adiabatic condition.</p> <p>Homework after each class</p>

2	Thermochemistry		Lecture, black board, discussion	<p>General objective: to develop Chemistry temperament</p> <p>Specific objective: to clear the concept of definition, scope and methodology of chemistry. Questions based on previous knowledge</p> <p>Synopsis: Thermochemistry, Laws of thermochemistry, Heat of reactions, standard states, enthalpy of formation of molecules and ions and enthalpy of combustion and its applications, calculation of bond energy, bond dissociation energy and resonance energy from thermo-chemical data, effect of temperature and pressure on enthalpy of reactions, Adiabatic flame temperature, explosion temperature.</p> <p>Homework after each class</p>
	<p>Assessment of understanding:</p> <ol style="list-style-type: none"> 1. Unit test for 20 marks: subjective/objective/oral 2. group discussions 3.class room quiz competitions 			
	UNIT-2			
	Thermodynamics-II	12	Lecture, black board, PPT	<p>General objective: to develop chemistry temperament</p> <p>Specific objective: to clear the concept of definition, scope and methodology of chemistry Questions based on previous knowledge</p> <p>Synopsis: Second law of thermodynamics: spontaneous process, second law, statement of carnot cycle and efficiency of heat engine, Carnot's theorem, thermodynamic state of temperature. Concept of entropy, entropy change in different reactions, physical significance of entropy, molecular and statistical interpretation of entropy. Gibbs and Helmholtz free energy, variation of G and A with pressure, volume, temperature, Gibbs-Helmholtz equation, Maxwell relations, elementary idea of third law of thermodynamics, concept of residual entropy, calculation of</p>

				absolute entropy of molecule. Homework after each class
	Assessment of understanding: 1. Unit test for 20 marks: subjective/objective/oral 2. group discussions 3.class room quiz competitions			
	UNIT-3			
1	Chemical equilibrium	10	Lecture black board, PPT	General objective: to develop chemistry temperament Specific objective: to clear the concept of definition, scope and methodology of chemistry, Questions based on previous knowledge Synopsis: Intermolecular forces, magnitude of Criteria of thermodynamic, degree of advancement of reaction, chemical equilibria in ideal gases, Concept of Fugacity, thermodynamic derivation of relation between Gibbs free energy of reaction and reaction quotient. Coupling of exergonic and endergonic reactions. Equilibrium constants and their quantitative dependence on temperature, pressure and concentration. Thermodynamic derivation of relation between the various equilibrium constants, K_p , K_c and K_x . Le Chatelier principal (quantitative treatment) Equilibrium between ideal gas and a pure condensed phase. Homework after each class
2	Ionic equilibrium	10	Lecture black board, PPT	General objective: to develop chemistry temperament Specific objective: to clear the concept of definition, scope and methodology of chemistry, Questions based on previous knowledge Synopsis: Ionization of weak acids and bases, pH scale, common ion effect; dissociation constant of mono protic acids (exact

				<p>treatment). Salt hydrolysis- calculation of hydrolysis constant, degree of hydrolysis and pH for different salts. Buffer solutions; derivation of Hendersons equation and its applications, solubility and solubility product of sparingly soluble salts, application of solubility product principle.</p> <p>Homework after each class</p>
	<p>Assessment of understanding:</p> <ol style="list-style-type: none"> 1. Unit test for 20 marks: subjective/objective/oral 2. group discussions 3.class room quiz competitions 			
	UNIT-4			
1	Phase equilibrium	16	Lecture black board	<p>General objective: to develop chemistry temperament</p> <p>Specific objective: to clear the concept of definition, scope and methodology of chemistry Questions based on previous knowledge</p> <p>Synopsis: Phase rule, component and degree of freedom, derivation of Gibbs phase rule, Clausius- Claperon equation and its application to Solid-Liquid, Liquid-Vapour and solid-Vapour, limitation of phase rule, application of phase rule to one component system: water system and sulphur system. Application of phase rule to two component system, Pb-Ag system, desilverization of lead, Zn-Mg system, Ferric chloride-water system, congruent and incongruent, melting point and eutectic point. Three component system: Solid solution liquid pairs. Nernst distribution law, Henry's law, application, solvent extraction.</p> <p>Homework after each class</p>
	<p>Assessment of understanding:</p> <ol style="list-style-type: none"> 1. Unit test for 20 marks: subjective/objective/oral 2. group discussions 3.class room quiz competitions 			

Unit-5				
1	Photochemistry	12	Lecture, black board	<p>General objective: to develop chemistry temperament</p> <p>Specific objective: to clear the concept of definition, scope and methodology of chemistry .Questions based on previous knowledge</p> <p>Synopsis: Characteristics of electromagnetic radiation, interaction of radiation with matter, difference between thermal and photochemical processes, Lambert-Beer's law and its limitations, Physical significance of absorption coefficients. Laws of photochemistry: Grothus-Draper law, Stark- Einstein law, quantum yield, actinometry, examples of low and high quantum yields, photochemical equilibrium and the differential rate of photochemical reactions, Quenching, Role of photochemical reaction in biochemical process.Jablonski diagram, fluorescence, phosphorescence, nonradiative process, photosensitization, energy transfer process, Photostationary states, Chemiluminescence.</p> <p>Homework after each class</p>
	Assessment of understanding: 1. Unit test for 20 marks: subjective/objective/oral 2. group discussions 3.class room quiz competitions			

LESSON PLAN

B.Sc III year

1. Outline learning objective
2. Develop the introduction
3. Plan the main body of the lesson
4. Plan to check for understanding
5. Develop a conclusion and a preview
6. Create realistic timeline

Chemistry PAPER - I

Inorganic Chemistry M.M. 33 (60 Hrs each paper)

Period= 45 min

UNIT-1

S. No.	Topic	No. of periods needed	Teaching Method	Lesson plan
1	Metal- Ligand bonding in Transition metal complexes	16	Lecture, black board, discussion	<p>General objective: to develop Chemistry temperament</p> <p>Specific objective: to clear the concept of definition, scope and methodology of chemistry. Questions based on previous knowledge</p> <p>Synopsis: Limitation of VBT. an elementary idea of crystal field theory, Crystal field splitting in octahedral, tetrahedral and square planner complexes, factors affecting the crystal field parameters. Thermodynamics and kinetic aspect of metal complexes A brief outline of thermodynamic stability of metal complexes and factors affecting the stability, substitution reaction of square planner complexes.</p> <p>Homework after each class</p>
	Assessment of understanding: 1. Unit test for 20 marks: subjective/objective/oral 2. group discussions 3.class room quiz competitions			

	UNIT-2			
1	Magnetic properties of Transition metal complexes	18	Lecture, black board, PPT	<p>General objective: to develop chemistry temperament</p> <p>Specific objective: to clear the concept of definition, scope and methodology of chemistry Questions based on previous knowledge</p> <p>Synopsis: Types of magnetic behaviour, methods of determining magnetic susceptibility, spin only formula, L-S coupling, correlation of μ_s and μ_{eff} values, orbital contribution to magnetic moments, application of magnetic moment. Data for 3d metal complexes, Electronic spectra of transition metal complexes. Types of electronic transitions, selection rules for d-d transitions, spectroscopic ground states, spectrochemical series, Orgal energy level diagram for d^1 and d^2 states, discussion of electronic spectra of $[Ti(H_2O)_6]^{3+}$ complex ion.</p> <p>Homework after each class</p>
	<p>Assessment of understanding:</p> <ol style="list-style-type: none"> 1. Unit test for 20 marks: subjective/objective/oral 2. group discussions 3.class room quiz competitions 			
	UNIT-3			
1	Organometallic chemistry	16	Lecture black board, PPT	<p>General objective: to develop chemistry temperament</p> <p>Specific objective: to clear the concept of definition, scope and methodology of chemistry, Questions based on previous knowledge</p> <p>Synopsis: Definition, nomenclature and classification of Organometallic compounds. Preparation, properties, bonding and applications of alkyls and aryls of Li,Al,Hg,Sn and Ti. A brief account of metal-ethylenic complexes and homhgeneous hydrogenation, mononuclear carbonyls and nature of bonding in metal carbonyls.</p>

				Homework after each class
	Assessment of understanding: 1. Unit test for 20 marks: subjective/objective/oral 2. group discussions 3.class room quiz competitions			
	UNIT-4			
1	Bio-inorganic chemistry	14	Lecture black board	objective: to develop chemistry temperament Specific objective: to clear the concept of definition, scope and methodology of chemistry Questions based on previous knowledge Synopsis: Essential and trace elements in biological processes, metalloporphyrins with special reference to haemoglobin and myoglobin. Biological role of alkali and alkaline earth metal with special reference to Ca^{2+} , nitrogen fixation. Homework after each class
	Assessment of understanding: 1. Unit test for 20 marks: subjective/objective/oral 2. group discussions 3.class room quiz competitions			
	Unit-5			
1	Hard and soft acids and bases	16	Lecture, black board	General objective: to develop chemistry temperament Specific objective: to clear the concept of definition, scope and methodology of chemistry .Questions based on previous knowledge Synopsis: Classification of acids and bases as hard and soft. Pearson's HSAB concept, acid-base strength and hardness and softness, Symbiosis. Silicones and Phosphazenes, silicones and phosphazenes as examples of inorganic polymers, nature of bonding in triphosphazenes. Homework after each class

	<p>Assessment of understanding:</p> <ol style="list-style-type: none"> 1. Unit test for 20 marks: subjective/objective/oral 2. group discussions 3.class room quiz competitions
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LESSON PLAN

B.Sc III year

1. Outline learning objective
2. Develop the introduction
3. Plan the main body of the lesson
4. Plan to check for understanding
5. Develop a conclusion and a preview
6. Create realistic timeline

Chemistry

PAPER - II (Old course)

Organic Chemistry M.M. 33 (60 Hrs each paper)

Period= 45 min

UNIT-1

S. N o.	Topic	No. of periods needed	Teaching Method	Lesson plan
A.	Organometallic Compounds Organomesium compounds:	6	Lecture, black board, discussion	General objective: to develop Chemistry temperament Specific objective: to clear the concept of definition, scope and methodology of chemistry. Questions based on previous knowledge Synopsis: Grignard reagents- formation, structure and chemical reactions. Organozinc compounds: formation and chemical reactions. Organolithium compounds : formation and chemical reactions.
B.	Organosulphur compounds	6		Nomenclature, structural features, methods of formation and chemical reactions of thiols, thioethers, sulphonic acids, sulphonamides and sulphaguanidine.
C.	Organic synthesis via Enolates	4		Active methylene group, alkylation of diethylmalonate and ethylacetoacetate.

				<p>Synthesis of ethyl acetoacetate: the claisen condensation, Keto-enol tautomerism of ethylacetoacetate.</p> <p>Homework after each class</p>
	<p>Assessment of understanding:</p> <ol style="list-style-type: none"> 1. Unit test for 20 marks: subjective/objective/oral 2. group discussions 3.class room quiz competitions 			
	UNIT-2			
A.	<p>Biomolecules</p> <p>Carbohydrates</p>	10	Lecture, black board, PPT	<p>General objective: to develop chemistry temperament</p> <p>Specific objective: to clear the concept of definition, scope and methodology of chemistry Questions based on previous knowledge</p> <p>Synopsis: Configuration of monosaccharides, threo and erythro diastereomers. Formation of glycosides ethers and esters. Determination of ring size of monosaccharides. Cyclic structure of D(+) glucose, structure of ribose and deoxyribose. An introduction to disaccharides (maltose, sucrose and lactose) and polysaccharides (starch and cellulose) without involving structure determination.</p> <p>Classification and structure of protein levels of protein structure, Protein denaturation/ renaturation, constituents of amino acids, Ribonucleosides and ribonucleotides, double helical structure of DNA.</p> <p>Homework after each class</p>
B.	<p>Proteins and Nucleic acids</p>	6		
	<p>Assessment of understanding:</p> <ol style="list-style-type: none"> 1. Unit test for 20 marks: subjective/objective/oral 2. group discussions 3.class room quiz competitions 			
	UNIT-3			
A.	Synthetic polymers	8	Lecture black board, PPT	<p>General objective: to develop chemistry temperament</p> <p>Specific objective: to clear the concept of definition, scope and methodology of</p>

B.	Synthetic Dyes	8		<p>chemistry, Questions based on previous knowledge</p> <p>Synopsis: Addition or chain growth polymerization. Free radical vinyl polymerization, Ziegler-Natta polymerization, condensation or step growth polymerization, polyesters, polyamides, phenols-formaldehyde resins, urea-formaldehyde resins, epoxy resin and polyurethanes, natural and synthetic rubbers.</p> <p>Colour and constitution (Electronic Concept). Classification of dyes. Chemistry of dyes. Chemistry and synthesis of Methyl Orange, Congo Red, Malachite Green, Crystal Violet, Phenolphthalein, fluorescein, Alizarin and Indigo.</p> <p>Homework after each class</p>
	<p>Assessment of understanding:</p> <ol style="list-style-type: none"> 1. Unit test for 20 marks: subjective/objective/oral 2. group discussions 3. class room quiz competitions 			
	UNIT-4			
A.	Spectroscopy Mass spectroscopy	16	Lecture black board	<p>General objective: to develop chemistry temperament</p> <p>Specific objective: to clear the concept of definition, scope and methodology of chemistry</p> <p>Questions based on previous knowledge</p> <p>Synopsis: Mass spectrum fragmentation of functional groups. IR absorption band, their position and intensity, Identification of IR spectra. Beer Lambert's law, effect of conjugation, Visible spectrum and colour. Anthocyanin as natural colouring matter (Introduction only) Application of Mass, IR, UV Visible spectroscopy to organic molecules.</p> <p>Homework after each class</p>
B..	Infra-red spectroscopy			
C.	UV-Visible Spectroscopy			
D.				
E.				

	Assessment of understanding: 1. Unit test for 20 marks: subjective/objective/oral 2. group discussions 3.class room quiz competitions			
	Unit-5			
A.	NMR Spectroscopy	16	Lecture, black board	General objective: to develop chemistry temperament Specific objective: to clear the concept of definition, scope and methodology of chemistry .Questions based on previous knowledge Synopsis: Introduction to NMR, Shielding and Number of signal in PMR, Chemical shift and characteristic values, splitting of signals and coupling constant, Application to organic molecules.
B. C.	¹³ CMR Spectroscopy MRI			Principal and application Magnetic Resonance Imaging (MRI) Introductory Idea. Homework after each class
	Assessment of understanding: 1. Unit test for 20 marks: subjective/objective/oral 2. group discussions 3.class room quiz competitions			

LESSON PLAN

B.Sc III year

1. Outline learning objective
2. Develop the introduction
3. Plan the main body of the lesson
4. Plan to check for understanding
5. Develop a conclusion and a preview
6. Create realistic timeline

Chemistry

PAPER - III (Old course)

Organic Chemistry M.M. 33 (60 Hrs each paper)

Period= 45 min

UNIT-1

S. N o.	Topic	No. of periods needed	Teaching Method	Lesson plan
1.	QUANTUM MECHANICS	16	Lecture, black board, discussion	<p>General objective: to develop Chemistry to clear the concept of definition, scope and methodology of chemistry. Questions temperament</p> <p>Specific objective: based on previous knowledge</p> <p>Synopsis: Black body radiation, Plank's radiation law, photoelectric effect, Compton effect. DeBroglie's idea of matter waves, experimental verification Heisenberg's uncertainty principle, Sinosoidal wave equation, Operators : Hamiltonian operator, angular momentum operator, laplacian operators, postulate of quantum mechanics Eigen values, Eigen function. Schrodinger time independed wave equation physical significance of Eign value and function. Applications of schrodinger wave equation : particle in one dimensional box. Hydrogenation</p>

				(separation into three equation's) radial wave function and angular wave function.
	Assessment of understanding: 1. Unit test for 20 marks: subjective/objective/oral 2. group discussions 3.class room quiz competitions			
	UNIT-2			
1	QUANTUM MECHANICS-II	16	Lecture, black board, PPT	General objective: to develop chemistry temperament Specific objective: to clear the concept of definition, scope and methodology of chemistry Questions based on previous knowledge Synopsis: Quantum mechanical approach of molecular orbit theory; basic idea criteria for forming M.O and A.O, LCAO approximation, formation of H_2^+ ion, calculation of energy levels from wave functions banding and antibonding wave functions concept of orbitals and their characteristics, Hybrid orbital : SP , SP^2 , SP^3 , Calculation of coefficients A_d^s used in these hybrid orbitals. Introduction to valence bond model of H^2 , Comparison of M.O. and V.B. model, Huckle theory, application of huckel theory to ethane. propene etc.
	Assessment of understanding: 1. Unit test for 20 marks: subjective/objective/oral 2. group discussions 3.class room quiz competitions			
	UNIT-3			
1 A.	SPECTROSCOPY – I	16	Lecture black board, PPT	General objective: to develop chemistry temperament Specific objective: to clear the concept of definition, scope and methodology of chemistry, Questions based on previous knowledge Synopsis: Introduction, characterization of electromagnetic radiation, regions of the spectrum, representation of spectra width and intensity of spectral transition, rotational spectra of calculated diatomic molecules, energy level of rigid rotator,

B.				<p>selection rule, determination of bond length qualitative description of non rigid rotator isotopic effect.</p> <p>Vibrational spectra - Fundamental vibrational and their symmetry, vibrating diatomic molecules, energy levels of simple harmonic oscillator. Selection Rule, Pure vibrational Spectrm, determination of force constant, diatomic vibrating operator. Anharmonic Oscillator.</p>
C.				<p>Raman Spectra :Conceptof polarizability, quantum theory of Raman spectra stokes and antistokes lines, pure rotational and vibrational Raman spectra, Application of Raman spectra stokes and anti stokes lines, Applications of Raman spectra.</p>
	<p>Assessment of understanding:</p> <ol style="list-style-type: none"> 1. Unit test for 20 marks: subjective/objective/oral 2. group discussions 3.class room quiz competitions 			
	UNIT-4			
1	SPECTROSCOPY – II	16	Lecture black board	<p>General objective: to develop chemistry temperament</p> <p>Specific objective: to clear the concept of definition, scope and methodology of chemistry</p> <p>Questions based on previous knowledge</p> <p>Synopsis:</p> <p>Electronic Spectra : Electronic Spectra of diatomic molecule, Frank London Principle, types of electronic transitions. Applications of electronic spectra.</p> <p>Photo-chemistry : Interaction of radiation with matter, difference between thermal and photochemical processes. Laws of photochemistry. Grothus-Drapper law, Stark-Elinstein law, Jablonski diagram depicting various process occurring in the excited state, qualitative description of fluorescence, occurring in the excited state, qualitative descripton of fluorescence, phosphorescence, non-</p>
A.				
B.				

				radiative processes (internal conversion, intersystem crossing), quantum yield photosensitized reactions energy transfer processes (simple examples).
	Assessment of understanding: 1. Unit test for 20 marks: subjective/objective/oral 2. group discussions 3.class room quiz competitions			
	Unit-5			
1	THEMODYNAMICS	16	Lecture, black board	General objective: to develop chemistry temperament Specific objective: to clear the concept of definition, scope and methodology of chemistry .Questions based on previous knowledge Synopsis: Energy refered to absolute zero, third law of therodynamics Test of III law of Thermodynamics, Nerst heat theorem application and limitation of Nernst heat theorem. Physical properties and molecular structure, polarization of molecules, Classius-Masotti equation. orientation of dipoles in an electric field. Dipol moment, induced dipole moment, measurement of dipole moment. Temperature methods and refractivity methods. Dipole moment and molecular structure.Magnetic Properties : Parmagenetism diamagnetism, ferromagnetism. Determination of magnetic susceptibility, elucidation of molecular structure.
A.				
B.				
C.				
	Assessment of understanding: 1. Unit test for 20 marks: subjective/objective/oral 2. group discussions 3.class room quiz competitions			

LESSON PLAN**BSc I year**

1. Outline learning objective
2. Develop the introduction
3. Plan the main body of the lesson
4. Plan to check for understanding
5. Develop a conclusion and a preview
6. Create realistic timeline

ZOOLOGY

PAPER - I (paper code - 0813)
(CELL BIOLOGY & INVERTEBRATES) M.M. 50

UNIT-1

S. No.	Topic	No. of periods needed	Teaching Method	Lesson plan
1.	The Cell (Prokaryotic & Eukaryotic)	4	Animation, ppt-presentation, black board	<ol style="list-style-type: none"> 1. General objective: Scientific temperament 2. Specific objective: to clear the concept of cell biology 3. Questions based on previous knowledge 4. Synopsis: <ol style="list-style-type: none"> a. Introduction of cell b. Definition of cell c. Classification d. Diagram of prokaryotic and eukaryotic cells e. Difference between prokaryotic and eukaryotic cells 5. Homework after each class
2.	Methods in cell biology (Microscopy light & Electron)	3	Black board, ppt presentation, practical	<ol style="list-style-type: none"> 1. Based on previous General objective: Scientific temperament 2. Specific objective: to give brief introduction of microscopes

			demonstration of microscope	3. Questions knowledge 4. Synopsis: a) History of microscope b) Principle of microscope c) Ray diagram d) Types of Light microscope e) Electron Microscope f) Difference between TEM and SEM g) Difference between light microscopy and electron microscopy 5. Homework after each class
3.	Organisation of cell extra-nuclear and nuclear (Plasma membrane, mitochondria, Chromosomes, ER. Golgi bodies, Ribosomes)	6	Animations and videos, ppt-presentation s Black-board (whenever needed)	1. Based on previous General objective: Scientific temperament 2. Specific objective: to clear the working principles of microscopes 3. Questions knowledge 4. Synopsis: a) Introduction of cell organelles b) List of cell organelles and its discoverer c) Plasma member structure, function and its modification d) Endoplasmic reticulum: structure, function e) Mitochondria structure, function f) Golgi apparatus: structure and function g) Ribosomes: types in prokaryotes and eukaryotes, structure and function, sudberg unit h) Chromosome: structure, function, type, component. 5. Homework after each class
	Assessment of understanding: 1. Unit test for 30 marks: subjective/objective/oral 2. group discussions 3.class room quiz competitions			
	UNIT-2			
1.	Cell divisions (Mitosis & Meiosis)	3	Black board, ppt presentation , practical	1. General objective: Scientific temperament 2. Specific objective: to clear the concept of cell division

			demonstration of microscope	3. Questions based on previous knowledge 4. Synopsis: a) Introduction of cell division b) Definition of cell division c) Cell cycle d) Types: mitosis and meiosis e) Explanation with diagram f) Difference between mitosis and meiosis g) Abnormalities in Mitosis and Meiosis 5. Homework after each class
2.	An elementary idea of cell transformation and cancer	5	Black board, ppt presentation , practical demonstration of microscope	1. General objective: Scientific temperament 2. Specific objective: to clear the concept of cell transformation 3. Questions based on previous knowledge 4. Synopsis: a) Introduction of cell transformation/cancer b) Definition of cancer c) Types: Benign and malignant d) Difference between normal cell and transformed cell e) Carcinogen: physical, chemical, and biological 5. Homework after each class
3.	Immunity (elementary idea)	5	Black board, ppt presentation , practical demonstration of microscope	1. General objective: Scientific temperament 2. Specific objective: to clear the concept of cell transformation 3. Questions based on previous knowledge 4. Synopsis: a) Introduction of immunity b) Innate and acquired immunity c) First line of defence, second line of defence and Third line of defence d) Clonal selection theory e) Cell mediated immune response f) Antigen-antibody interaction g) Types of antibody

				h) Vaccines 5. Homework after each class
	Assessment of understanding: 1. Unit test for 20 marks: subjective/objective/oral 2. group discussions 3.class room quiz competitions			
	UNIT-3			
1.	General Characteristics & Classification of invertebrates up to orders with examples	6	Black board, ppt presentation , practical demonstration of microscope	1. General objective: Scientific temperament 2. Specific objective: to clear the concept of taxonomy 3. Questions based on previous knowledge 4. Synopsis: a) Introduction of classification b) Classification of invertebrate overview c) General characteristics 5. Homework after each class
2.	Protozoa - type study Paramecium, protozoa & disease	6	Black board, ppt presentation , practical demonstration of microscope	1. General objective: Scientific temperament 2. Specific objective: to clear the concept of protozoa phylum 3. Questions based on previous knowledge 4. Synopsis: a) Introduction of paramecium b) Morphology of paramecium c) Anatomy of paramecium d) Physiology of paramecium e) Type of reproduction f) Protozoa and disease 5. Homework after each class
3.	Porifera - type study Sycon	5	Black board, ppt presentation , practical demonstration of microscope	1. General objective: Scientific temperament 2. Specific objective: to clear the concept of Porifera phylum 3. Questions based on previous knowledge 4. Synopsis: a) Introduction of Sycon b) Morphology of Sycon c) Anatomy of Sycon d) Physiology of Sycon e) Life cycle

				5. Homework after each class
4.	Coelenterata - type study Obelia	5	Black board, ppt presentation, practical demonstration of microscope	1. General objective: Scientific temperament 2. Specific objective: To clear the concept of phylum-Coelenterata 3. Questions based on previous knowledge 4. Synopsis: a) Introduction of Obelia b) Morphology of Obelia c) Polymorphism d) Anatomy of Obelia e) Physiology of Obelia f) Life cycle and alteration of generation 5. Homework after each class
	Assessment of understanding: 1. Unit test for 30 marks: subjective/objective/oral 2. group discussions 3.class room quiz competitions			
	UNIT-4			
1.	Helminths - type study Fasciola	6	Black board, ppt presentation, practical demonstration of microscope	1. General objective: Scientific temperament 2. Specific objective: To clear the concept of phylum-Helminths 3. Questions based on previous knowledge 4. Synopsis: a) Introduction of Fasciola b) Morphology of Fasciola c) Anatomy of Fasciola d) Physiology of Fasciola e) Life cycle f) Types of larva 5. Homework after each class
2.	Annelida - type study Pheretima	6	Black board, ppt presentation, practical demonstration of microscope	1. General objective: Scientific temperament 2. Specific objective: To clear the concept of phylum-Annelida 3. Questions based on previous knowledge 4. Synopsis:

			e	a) Introduction of Pheretima b) Morphology of Pheretima c) Anatomy of Pheretima d) Physiology of Pheretima e) Life cycle f) Economic importance 5. Homework after each class
3.	Arthropoda - type study Palaemon	6	Black board, ppt presentation, practical demonstration of microscope	1. General objective: Scientific temperament 2. Specific objective: To clear the concept of phylum-Arthropoda 3. Questions based on previous knowledge 4. Synopsis: a) Introduction of Palaemon b) Morphology of Palaemon c) Anatomy of Palaemon d) Physiology of Palaemon e) Life cycle f) Economic importance 5. Homework after each class
	Assessment of understanding: 1. Unit test for 30 marks: subjective/objective/oral 2. group discussions 3.class room quiz competitions			
	Unit-5			
1.	Mollusca-pila (apple snail)	6	Black board, ppt presentation, practical demonstration of microscope	1. General objective: Scientific temperament 2. Specific objective: To clear the concept of phylum-Mollusca 3. Questions based on previous knowledge 4. Synopsis: a) Introduction of Pila (apple snail) b) Morphology of Pila c) Anatomy of Pila d) e) Physiology of Palaemon f) Life cycle g) Economic importance 5. Homework after each class
2.	Echinodermata- type study Asterias (starfish)	6	Black board, ppt	1. General objective: Scientific temperament

			presentation, practical demonstration of microscope	2. Specific objective: To clear the concept of phylum-Arthropoda 3. Questions based on previous knowledge 4. Synopsis: a) Introduction of Palaemon b) Morphology of Palaemon c) Anatomy of Palaemon d) Physiology of Palaemon e) Life cycle f) Economic importance 5. Homework after each class
3.	Protochordata - type study Balanoglossus	4	Black board, ppt presentation, practical demonstration of microscope	1. General objective: Scientific temperament 2. Specific objective: To clear the concept of phylum-Arthropoda 3. Questions based on previous knowledge 4. Synopsis: a) Introduction of Palaemon b) Morphology of Palaemon c) Anatomy of Palaemon d) Physiology of Palaemon e) Life cycle f) Economic importance 5. Homework after each class
	Assessment of understanding: 1. Unit test for 30 marks: subjective/objective/oral 2. group discussions 3.class room quiz competitions			

ZOOLOGY
PAPER - I (paper code - 0814)
(VERTEBRATES & EMBRYOLOGY) M.M. 50

UNIT-1

S. No.	Topic	No. of periods needed	Teaching Method	Lesson plan
1.	Origin and classification of Chordates.	2	Animation, ppt-presentation, black board	General objective: Scientific temperament Specific objective: to clear the concept of Origin and classification of Chordates Questions based on previous knowledge Synopsis: Definition of chordates Origin of chordates Modern classification of chordates Homework after each class
2.	Protochordata - type study Amphioxus	3	Black board, ppt presentation	General objective: Scientific temperament Specific objective: to clear the concept of representative animal of Protochordata Questions based on previous knowledge Synopsis: Definition of protochordata Ultra structure of amphioxus Anatomy of amphioxus Physiology of amphioxus Importance of amphioxus Homework after each class
3.	A comparative account of Petromyzon & Myxine	1	ppt-presentation Black-board (whenever needed)	General objective: Scientific temperament Specific objective: to clear the difference between cyclostomes Questions based on previous knowledge Synopsis:

				Habit and habitat of petromyzon and myxine Ultra structure of petromyzon and myxine Difference between petromyzon and myxine Homework after each class
	Assessment of understanding: 1. Unit test for 30 marks: subjective/objective/oral 2. group discussions 3.class room quiz competitions			
	UNIT-2			
1.	Fishes - Skin and scales	2	Black board, ppt presentation	General objective: Scientific temperament Specific objective: to clear the concept of skin and scales in fishes Questions based on previous knowledge Synopsis: Ultra-structure of fish skin Properties of fish skin Formation of placoid scales Types of scales in fishes Homework after each class
2.	Migration in fishes	2	Black board, ppt presentation	General objective: Scientific temperament Specific objective: to clear the concept of migration in fishes Questions based on previous knowledge Synopsis: Definition Types on the basis of need Movement of fish during migration Classification of fish migration Significance of fish migration Homework after each class
3.	Parental care in fishes and amphibians	2	Black board, ppt presentation	General objective: Scientific temperament Specific objective: to clear the concept of parental care Questions based on previous knowledge Synopsis: Definition

				Parental care in fishes Parental care in amphibians Significance of parental care Homework after each class
4.	Neoteny	1	PPT, Black board	General objective: Scientific temperament Specific objective: to clear the concept of neoteny Questions based on previous knowledge Synopsis: Definition Mechanism of Neoteny Neoteny in amphibians Significance of meoteny Homework after each class
5.	Reptilia - Poisonous & non poisonous shakes, Poison apparatus, snake venom.	2	PPT, Black board	General objective: Scientific temperament Specific objective: to clear the concept of Poisonous & non poisonous shakes, Poison apparatus, snake venom. Questions based on previous knowledge Synopsis: Definition Identification of poisonous and non poisonous snakes Structure of poison apparatus and types of venom Mechanism of snake bite Symptoms Treatment Homework after each class
Assessment of understanding: 1. Unit test for 20 marks: subjective/objective/oral 2. group discussions 3.class room quiz competitions				
UNIT-3				
1.	Aves - Flight adaptation in birds	2	Black board, ppt presentation	General objective: Scientific temperament Specific objective: to clear the concept of flight adaptation in birds Questions based on previous

				<p>knowledge</p> <p>Synopsis:</p> <p>Structure of birds</p> <p>Morphological adaption</p> <p>Anatomical adaptation</p> <p>Homework after each class</p>
2.	Discuss - Birds are glorified reptiles	1	Black board, ppt presentation	<p>General objective: Scientific temperament</p> <p>Specific objective: to clear the concept of birds as glorified reptiles</p> <p>Questions based on previous knowledge</p> <p>Synopsis:</p> <p>Similarities in structure and functions of birds and reptiles</p> <p>Archaeopteryx – linking group between birds and reptiles</p> <p>Homework after each class</p>
3.	Mammals- comparative account of prototheria, metatheria & Eutheria and Affinities.	2	Black board, ppt presentation	<p>General objective: Scientific temperament</p> <p>Specific objective: to clear the concept of classification of mammals</p> <p>Questions based on previous knowledge</p> <p>Synopsis:</p> <p>Classification of mammals</p> <p>Difference between prototheria, metatheria & Eutheria</p> <p>Affinities of mammals with other classes of vertebrates</p> <p>Homework after each class</p>
	<p>Assessment of understanding:</p> <p>1. Unit test for 30 marks: subjective/objective/oral</p> <p>2. group discussions</p> <p>3.class room quiz competitions</p>			
	UNIT-4			
1.	Gametogenesis, Fertilization & Parhenogenesis.	5	Black board, ppt presentation	<p>General objective: Scientific temperament</p> <p>Specific objective: to clear the concept of Gametogenesis, Fertilization & Parhenogenesis</p> <p>Questions based on previous knowledge</p> <p>Synopsis:</p> <p>Definition of gametogenesis</p>

				Process of spermatogenesis Process of oogenesis Mechanism of fertilization Parthenogenesis definition Types of parthenogenesis Homework after each class
2.	Development of frog upto formation of three germ layers	6	Black board, ppt presentation	General objective: Scientific temperament Specific objective: to clear the concept of Development of frog upto formation of three germ layers Questions based on previous knowledge Synopsis: Cleavage Types of cleavage Blastula and morula stages Gastrulation Formation of three germ layer Fate map of three germ layer Homework after each class
	Assessment of understanding: 1. Unit test for 30 marks: subjective/objective/oral 2. group discussions 3.class room quiz competitions			
	Unit-5			
1.	Development of Chick up to formation of three germ layer, Extra embryonic membranes	6	Black board, ppt presentation	General objective: Scientific temperament Specific objective: to clear the concept of development of Chick up to formation of three germ layer, Extra embryonic membranes Questions based on previous knowledge Synopsis: Cleavage Blastula stage Gastrulation 6h, 12h, 24 h, 48 h, 72h stage Extra embryonic membranes (shell, amnion, allantois, chorion) Homework after each class

2.	Placenta in mammals.	2	Black board, ppt presentation	<p>General objective: Scientific temperament</p> <p>Specific objective: to clear the concept of Placenta in mammals.</p> <p>Questions based on previous knowledge</p> <p>Synopsis:</p> <ul style="list-style-type: none"> Definition of placenta Types of placenta Functions and significance of placenta <p>Homework after each class</p>
3.	Embryonic induction organisers & differentiation.	2	Black board, ppt presentation	<p>General objective: Scientific temperament</p> <p>Specific objective: to clear the concept of Embryonic induction organisers & differentiation.</p> <p>Questions based on previous knowledge</p> <p>Synopsis:</p> <ul style="list-style-type: none"> Theories of inductions Embryonic induction Primary and secondary organizers Differentiation <p>Homework after each class</p>
	<p>Assessment of understanding:</p> <ol style="list-style-type: none"> 1. Unit test for 30 marks: subjective/objective/oral 2. group discussions 3.class room quiz competitions 			

LESSON PLAN**BSc II year**

7. Outline learning objective
8. Develop the introduction
9. Plan the main body of the lesson
10. Plan to check for understanding
11. Develop a conclusion and a preview
12. Create realistic timeline

ZOOLOGY

PAPER - I (paper code - 0863)
(Anatomy & Physiology)

UNIT-1				
S. No	Topic	No. of periods needed	Teaching Method	Lesson plan
1.	Integument and its derivatives: structure of scales, hair and feathers.	8	Animation, ppt-presentation, black board	<ol style="list-style-type: none"> 1. General objective: Scientific temperament 2. Specific objective: to clear the concept of comparative study of integument 3. Questions based on previous knowledge 4. Synopsis: <ol style="list-style-type: none"> a) General structure of skin b) Comparative structures of skin: fish, amphibian, reptile, birds and mammals. c) Function of skin d) Skin derivative: scales, hair and feathers 5. Homework after each class
2.	Alimentary canal and digestive glands in vertebrates.	5	Black board, ppt presentation,	<ol style="list-style-type: none"> 1. Based on previous General objective: Scientific temperament 2. Specific objective: to clear the concept of comparative study of alimentary canal

			practical demonstration of microscope	3. Questions based on previous knowledge 4. Synopsis: a) General structure of alimentary canal and digestive gland b) Function of alimentary canal and digestive system c) Comparative structures of alimentary canal and digestive glands: fish, amphibian, reptile, birds and mammals. 5. Homework after each class
3.	Respiratory Organs Gills and lung, Air-Sac in birds	6	Animations and videos, ppt-presentations Black-board (whenever needed)	1. Based on previous General objective: Scientific temperament 2. Specific objective: to clear the general plan of respiratory organs 3. Questions knowledge 4. Synopsis: a) General structure of respiratory organs b) Function of respiratory organs c) Comparative structures of respiratory organ: fish, amphibian, reptile, birds and mammals; Gill, Lungs and Air-sac 5. Homework after each class
Assessment of understanding: 1. Unit test for 30 marks: subjective/objective/oral 2. Group discussions 3. Class room quiz competitions				
UNIT-2				
1.	Endoskeleton-Limbs, girdles and vertebrae.	10	Animations and videos, ppt-presentations Black-board (whenever needed)	1. General objective: Scientific temperament 2. Specific objective: to clear the concept of Endoskeleton 3. Questions based on previous knowledge 4. Synopsis: a) General plan of endoskeleton b) Structure of endoskeleton c) Function of endoskeleton d) Comparative structures of Limbs and Girdle: fish,

				amphibian, reptile, birds and mammals 5. Homework after each class
2.	Circulatory System - Evolution of heart and aortic arches.	6	Animations and videos, ppt-presentations Black-board (whenever needed)	1. General objective: Scientific temperament 2. Specific objective: to clear the concept of Circulatory system 3. Questions based on previous knowledge 4. Synopsis: a) Types of Circulatory System b) Evolution of heart c) Explanation of Aortic d) Comparative structures of Aortic arches: fish, amphibian, reptile, birds and mammals 5. Homework after each class
3.	Urinogenital System - Kidney and excretory ducts.	6	Animations and videos, ppt-presentations Black-board (whenever needed)	1. General objective: Scientific temperament 2. Specific objective: to clear the concept of Urinogenital System 3. Questions based on previous knowledge 4. Synopsis: a) Types of Urinogenital System b) Evolution of Kidney and excretory ducts c) Comparative structures of Kidney and excretory ducts: fish, amphibian, reptile, birds and mammals 5. Homework after each class
Assessment of understanding: 1. Unit test for 30 marks: subjective/objective/oral 2. Group discussions 3. Class room quiz competitions				
UNIT-3				
1.	Nervous System - General plan of brain and spinal cord.	6	Animations and videos, ppt-presentations Black-board (whenever	1. General objective: Scientific temperament 2. Specific objective: to clear the concept of Nervous System 3. Questions based on

			needed)	<p>previous knowledge</p> <p>4. Synopsis:</p> <p>a) General plan of brain and spinal cord</p> <p>b) Comparative study of brain and spinal cord: fish, amphibian, reptiles, birds and mammal</p> <p>5. Homework after each class</p>
2.	Endocrine glands - classification and histology.	5	Animations and videos, ppt-presentations Black-board (whenever needed)	<p>1. General objective: Scientific temperament</p> <p>2. Specific objective: to clear the concept of Endocrine Gland</p> <p>3. Questions based on previous knowledge</p> <p>4. Synopsis:</p> <p>a) Introduction of endocrine glands</p> <p>b) Types of endocrine glands</p> <p>c) Classification</p> <p>d) General regulatory function and feedback mechanism</p> <p>e) Histology</p> <p>5. Homework after each class</p>
3.	Gonads and genital ducts.	5	Animations and videos, ppt-presentations Black-board (whenever needed)	<p>1. General objective: Scientific temperament</p> <p>2. Specific objective: to clear the concept of Gonads and Genital Ducts</p> <p>3. Questions based on previous knowledge</p> <p>4. Synopsis:</p> <p>a) Introduction of Gonads and genital ducts</p> <p>b) General structure and function of gonads and genital ducts</p> <p>c) Comparative study of gonads and genital ducts in fishes, amphibian, reptile and birds</p> <p>5. Homework after each class</p>

Assessment of understanding:

1. Unit test for 30 marks: subjective/objective/oral
2. Group discussions
3. Class room quiz competitions

UNIT-4

1.	Digestion and absorption of dietary components.	4	Animations and videos, ppt-presentations Black-board (whenever needed)	1. General objective: Scientific temperament 2. Specific objective: To clear the concept of Digestion and absorption of dietary components. 3. Questions based on previous knowledge 4. Synopsis: <ol style="list-style-type: none"> a) Alimentary canal b) Digestion in buccal cavity c) Digestion in stomach d) Digestion in intestine e) Absorption: passive and active f) Assimilation g) Ejection 5. Homework after each class
2.	Physiology of heart and Cardiac cycle	4	Animations and videos, ppt-presentations Black-board (whenever needed)	1. General objective: Scientific temperament 2. Specific objective: To clear the concept of circulation 3. Questions based on previous knowledge 4. Synopsis: <ol style="list-style-type: none"> a) Structure of heart b) Types of heart c) Types of circulation: single and double d) Physiology of heart e) Cardiac cycle 5. Homework after each class
3.	ECG.	2	Animations and videos, ppt-presentations Black-board (whenever needed)	1. General objective: Scientific temperament 2. Specific objective: To clear the concept of circulation 3. Questions based on previous knowledge 4. Synopsis:

				a) Introduction of ECG b) Working Principal of ECG c) Reading of electrocardiograph d) Electrocardiograph during abnormal cardiac condition 5. Homework after each class
3.	Blood Coagulation.	2	Animations and videos, ppt-presentations Black-board (whenever needed)	1. General objective: Scientific temperament 2. Specific objective: To clear the concept of phylum-Arthropoda 3. Questions based on previous knowledge 4. Synopsis: a) Introduction of Palaemon b) Morphology of Palaemon c) Anatomy of Palaemon d) Physiology of Palaemon e) Life cycle f) Economic importance 5. Homework after each class
4.	Respiration-Mechanism and control of breathing.	6	Animations and videos, ppt-presentations Black-board (whenever needed)	1. General objective: Scientific temperament 2. Specific objective: To clear the concept of Respiration 3. Questions based on previous knowledge 4. Synopsis: a) Introduction of respiration b) Types of respiration: Internal and external respiration c) Neuronal and chemical regulation of respiration d) Mountain Sickness e) Diving sickness 5. Homework after each class
Assessment of understanding: 1. Unit test for 30 marks: subjective/objective/oral 2. Group discussions				

3. Class room quiz competitions

Unit-5

1.	Excretion-Physiology of excretion, Osmoregulation.			<p>1. General objective: Scientific temperament</p> <p>2. Specific objective: To clear the concept of excretion and Osmoregulation</p> <p>3. Questions based on previous knowledge</p> <p>4. Synopsis:</p> <ul style="list-style-type: none"> a) Introduction of excretion b) Amminotelic animals, Ureotelic animals and Uricotelic animals c) Process of urine formation d) Ornithine cycle e) Composition of urine f) Osmoregulation mechanism g) Types of animals on the basis of osmoregulation h) Osmoregulation in aquatic environment: fresh water and marine water i) Osmoregulation in terrestrial environment: ambhians, reptiles, birds and mammals <p>5. Homework after each class</p>
2.	Physiology of Muscle contraction.			<p>1. General objective: Scientific temperament</p> <p>2. Specific objective: To clear the concept of connective tissue muscles</p> <p>3. Questions based on previous knowledge</p> <p>4. Synopsis:</p> <ul style="list-style-type: none"> a) Introduction of muscles b) Types of muscles: cardiac, stratified and non-stratified c) Ultrastructure of stratified muscle d) Sarcomere-unit of muscle contraction e) Mechanism of muscle

				<p>contraction-sliding filament theory</p> <p>f) Special conditions-fatigue, tetany, rigor mortis etc.</p> <p>5. Homework after each class</p>
3.	Physiology of nerve impulse, Synaptic transmission.			<p>1. General objective: Scientific temperament</p> <p>2. Specific objective: To clear the concept of nervous system</p> <p>3. Questions based on previous knowledge</p> <p>4. Synopsis:</p> <ul style="list-style-type: none"> a) Definition of neuron and glial cells b) Structure of neuron: myelinated and non-myelinated c) Structure of glial cells d) Nerve impulse mechanism and properties e) Synaptic transmission f) Difference between-simple and solitary nerve impulse conduction <p>5. Homework after each class</p>
4.	Ear and Eye - structure and function.			<p>1. General objective: Scientific temperament</p> <p>2. Specific objective: To clear the concept of sensory organs</p> <p>3. Questions based on previous knowledge</p> <p>4. Synopsis:</p> <ul style="list-style-type: none"> a) Introduction of eye: compound and simple eye b) Anatomical Structure of eye c) Mechanism of vision in human d) Eye disorders e) Introduction of ears f) Anatomical structure of ear g) Mechanism of hearing h) Hearing capacity and disorders <p>5. Homework after each class</p>

Assessment of understanding:

1. Unit test for 30 marks: subjective/objective/oral
2. Group discussions
3. Class room quiz competitions

ZOOLOGY

PAPER - II (paper code - 0864)

(VERTEBRATE ENDOCRINOLOGY, REPRODUCTIVE BIOLOGY BEHAVIOUR, EVOLUTION AND APPLIED ZOOLOGY)

UNIT-1				
S. No	Topic	No. of periods needed	Teaching Method	Lesson plan
1.	General Characters of Hormones	2	Animation, ppt-presentation, black board	<p>General objective: Scientific temperament</p> <p>Specific objective: to clear the concept of General Characters of Hormones</p> <p>Questions based on previous knowledge</p> <p>Synopsis:</p> <p>Definition of hormones</p> <p>Functions of hormones</p> <p>Properties of hormones</p> <p>Types of hormones</p> <p>Homework after each class</p>
2.	Hormone Receptor	2	Black board, ppt presentation, practical demonstration of microscope	<p>General objective: Scientific temperament</p> <p>Specific objective: to clear the concept of Hormone Receptor</p> <p>Questions based on previous knowledge</p> <p>Synopsis:</p> <p>Definition</p> <p>Properties of hormone receptors</p> <p>Types of hormone receptors</p> <p>Cell signalling pathway of hormone</p>

				Homework after each class
3.	Biosynthesis and secretion of thyroid, Adrenal ; Ovarian and testicular hormones.	4	Animations and videos, ppt-presentations Black-board (whenever needed)	<p>General objective: Scientific temperament</p> <p>Specific objective: to clear the concept of Biosynthesis and secretion of thyroid, Adrenal ; Ovarian and testicular hormones.</p> <p>Questions based on previous knowledge</p> <p>Synopsis:</p> <p>Biosynthesis of T4 and T3 hormones</p> <p>Secretion and inhibition of thyroxine hormones.</p> <p>Biosynthesis of adreno-corticoid hormones and medullary hormones</p> <p>Secretion and inhibition of adreno-corticoid and medullary hormones</p> <p>Biosynthesis and regulation of estrogen, progesterone, and testosterone hormones</p>
				Homework after each class
4.	Endocrine disorder due to hormones and other gland	2	Animation, ppt-presentation, black board	<p>General objective: Scientific temperament</p> <p>Specific objective: to clear the concept of Endocrine disorder due to hormones and other gland hormones.</p> <p>Questions based on previous knowledge</p> <p>Synopsis:</p> <p>Hypo and hyper secretion of pituitary hormones (disorder, symptoms, treatment)</p> <p>Hypo and hyper secretion of thyroid hormones (disorder, symptoms, treatment)</p> <p>Hypo and hyper secretion of adrenal hormones (disorder, symptoms, treatment)</p> <p>Hypo and hyper secretion of sex hormones (disorder, symptoms, treatment)</p>
				Homework after each class

Assessment of understanding:

4. Unit test for 30 marks: subjective/objective/oral
5. Group discussions
6. Class room quiz competitions

UNIT-2

1.	Reproductive cycle in vertebrate.	5	Animations and videos, ppt-presentations Black-board (whenever needed)	<p>General objective: Scientific temperament</p> <p>Specific objective: to clear the concept of Reproductive cycle in vertebrate.</p> <p>Questions based on previous knowledge</p> <p>Synopsis:</p> <p>Female gonadal system</p> <p>Male gonadal system</p> <p>Estrous cycle in non primates</p> <p>Menstrual cycle in primates</p> <p>Homework after each class</p>
2.	Menstruation, Lactation and pregnancy.	3	Animations and videos, ppt-presentations Black-board (whenever needed)	<p>General objective: Scientific temperament</p> <p>Specific objective: to clear the concept of Menstruation, Lactation and pregnancy.</p> <p>Questions based on previous knowledge</p> <p>Synopsis:</p> <p>Phases of menstrual cycle</p> <p>Hormonal control of menstruation</p> <p>Mechanism of lactation</p> <p>Hormonal regulation of lactation</p> <p>Mechanism of pregnancy-changes over nine months</p> <p>Hormonal control during pregnancy</p> <p>Homework after each class</p>
3.	Mechanism of parturition.	1	Animations and videos, ppt-presentations Black-board (whenever needed)	<p>General objective: Scientific temperament</p> <p>Specific objective: to clear the concept of Mechanism of parturition.</p> <p>Questions based on previous knowledge</p> <p>Synopsis:</p> <p>Definition of parturition</p>

				Mechanism of parturition Hormonal control over parturition Homework after each class
4.	Hormonal regulation of gametogenesis.	1	Animations and videos, ppt-presentations Black-board (whenever needed)	General objective: Scientific temperament Specific objective: to clear the concept of Hormonal regulation of gametogenesis. Questions based on previous knowledge Synopsis: Oogenesis Spermatogenesis Hormonal control over oogenesis and spermatogenesis Homework after each class
5.	Extra embryonic membrane	1	Animations and videos, ppt-presentations Black-board (whenever needed)	General objective: Scientific temperament Specific objective: to clear the concept of Extra embryonic membrane Questions based on previous knowledge Synopsis: Definition Types of extra embryonic membrane Significance of extra ambryonic membrane Homework after each class
Assessment of understanding: 1. Unit test for 30 marks: subjective/objective/oral 2. Group discussions 3. Class room quiz competitions				
UNIT-3				
1.	Evidences of organic evolution	3	Animations and videos, ppt-presentations Black-board (whenever needed)	General objective: Scientific temperament Specific objective: to clear the concept of Evidences of organic evolution Questions based on previous knowledge

				Synopsis: Evidence from embryology Evidence from anatomy Evidence from biochemistry Evidence from fossil records Evidence from cell biology Evidence from molecular biology. Evidence from microbiology Homework after each class
2.	Theories of organic evolution	2	Animations and videos, ppt-presentations Black-board (whenever needed)	General objective: Scientific temperament Specific objective: to clear the concept of Theories of organic evolution Questions based on previous knowledge Synopsis: Lamarckism theory Darwin's theory Mutation theory Neo-darwinism Homework after each class
3.	Variation, Mutation, Isolation and Natural selection.	5	Animations and videos, ppt-presentations Black-board (whenever needed)	General objective: Scientific temperament Specific objective: to clear the concept of Variation, Mutation, Isolation and Natural selection. Questions based on previous knowledge Synopsis: Variation from mutation Variation from recombination Variation from migration Variation from inbreeding and assortative mating Mutation: definition Types of chromosomal mutation Types of gene mutation Mutation and evolution Significance of mutation Definition of natural selection Types of natural selection with examples.

				Homework after each class
4.	Evolution of Horse.	2	Animations and videos, ppt-presentations Black-board (whenever needed)	General objective: Scientific temperament Specific objective: to clear the concept of Evolution of Horse. Questions based on previous knowledge Synopsis: Migration of horses and types of horses Modification of molar teeth, middle digit and height of horse Homework after each class
Assessment of understanding: 1. Unit test for 30 marks: subjective/objective/oral 2. Group discussions 3. Class room quiz competitions				
UNIT-4				
1.	Introduction to Ethology	2	Animations and videos, ppt-presentations Black-board (whenever needed)	General objective: Scientific temperament Specific objective: to clear the concept of Introduction to Ethology Questions based on previous knowledge Synopsis: Definition History Instinct Learning Mating and fight for supremacy Living in groups Homework after each class
2.	Patterns of Behaviour Taxes, Rellexes, Drives and Stereotyped Behaviour	4	Animations and videos, ppt-presentations Black-board (whenever needed)	General objective: Scientific temperament Specific objective: to clear the concept of Patterns of Behaviour Taxes, Rellexes, Drives and Stereotyped Behaviour Questions based on previous knowledge Synopsis: Taxes: definition, classification

				<p>(aerotaxis, anemotaxis, barotaxis, galvanotaxis, hydrotaxis, rheotaxis, phototaxis, thermotaxis, thigmotaxis)</p> <p>Reflexes: types of human reflexes-myotatic, tendon, reflexes involving cranial nerves, infant reflexes, grading, reflex modulation</p> <p>Drives: hunger and thirst drive, hoarding drive, migratory drive, aggression drive, territorial drive, hormones in sexual drive, parental care drive</p> <p>Stereotype behaviour: eclosion behaviour, moulting behaviour, punding behaviour</p> <p>Homework after each class</p>
3.	Reproductive Behavioural Patterns.	2	<p>Animations and videos, ppt-presentations Black-board (whenever needed)</p>	<p>General objective: Scientific temperament</p> <p>Specific objective: to clear the concept of Reproductive Behavioural Patterns.</p> <p>Questions based on previous knowledge</p> <p>Synopsis:</p> <p>Behavioural pattern for mating and courtship</p> <p>Behavioural pattern in parental care</p> <p>Behavioural pattern in setting territory and defence</p> <p>Homework after each class</p>
4.	Hormones, Drugs and Behaviour.	2	<p>Animations and videos, ppt-presentations Black-board (whenever needed)</p>	<p>General objective: Scientific temperament</p> <p>Specific objective: to clear the concept of Hormones, Drugs and Behaviour.</p> <p>Questions based on previous knowledge</p> <p>Synopsis:</p> <p>Principles of drug action</p> <p>The classification of psychoactive drugs</p>

				<p>Drugs, experience, context and genes</p> <p>The hierarchical control of hormones (homeostatic hormones, reproductive hormones, stress hormones, ending a stress response)</p> <p>Homework after each class</p>
<p>Assessment of understanding:</p> <ol style="list-style-type: none"> 1. Unit test for 30 marks: subjective/objective/oral 2. Group discussions 3. Class room quiz competitions 				
Unit-5				
1.	Aquaculture	1	Class seminar, PPT, Black board	<p>General objective: Scientific temperament</p> <p>Specific objective: to clear the concept of Aquaculture</p> <p>Questions based on previous knowledge</p> <p>Synopsis:</p> <p>Characteristics of aquaculture</p> <p>Types of aquaculture (freshwater, brackish water, metahaline, mariculture)</p> <p>Significance of aquaculture</p> <p>Homework after each class</p>
2.	Sericulture	1	Class seminar, PPT, Black board	<p>General objective: Scientific temperament</p> <p>Specific objective: to clear the concept of Sericulture</p> <p>Questions based on previous knowledge</p> <p>Synopsis:</p> <p>Characteristics of Sericulture</p> <p>Types of Sericulture</p> <p>Significance of a Sericulture</p> <p>Homework after each class</p>
3.	Apiculture	1	Class seminar, PPT, Black board	<p>General objective: Scientific temperament</p> <p>Specific objective: to clear the concept of Apiculture</p>

				<p>Questions based on previous knowledge</p> <p>Synopsis: Characteristics of Apiculture Types of Apiculture Significance of Apiculture</p> <p>Homework after each class</p>
4.	Pisciculture	1	Class seminar, PPT, Black board	<p>General objective: Scientific temperament</p> <p>Specific objective: to clear the concept of Pisciculture</p> <p>Questions based on previous knowledge</p> <p>Synopsis: Characteristics of Pisciculture Types of Pisciculture Significance of Pisciculture</p> <p>Homework after each class</p>
5.	Poultry keeping	1	Class seminar, PPT, Black board	<p>General objective: Scientific temperament</p> <p>Specific objective: to clear the concept of Poultry keeping</p> <p>Questions based on previous knowledge</p> <p>Synopsis: Characteristics of Poultry keeping Types of Poultry keeping Significance of Poultry keeping</p> <p>Homework after each class</p>
6.	Elements of Pest Control - 1. Chemical control 2. Biological Control	1	Class seminar, PPT, Black board	<p>General objective: Scientific temperament</p> <p>Specific objective: to clear the concept of Elements of Pest Control</p> <p>Questions based on previous knowledge</p> <p>Synopsis: Characteristics of pest control Chemical pest control and its pros and cons Biological pest control and its pros and cons Mixed type of pest control</p>

				Homework after each class
Assessment of understanding: 1. Unit test for 30 marks: subjective/objective/oral 2. Group discussions 3. Class room quiz competitions				

LESSON PLAN**BSc III year**

13. Outline learning objective
14. Develop the introduction
15. Plan the main body of the lesson
16. Plan to check for understanding
17. Develop a conclusion and a preview
18. Create realistic timeline

ZOOLOGY**PAPER-II (Paper Code-0918)**

(Genetic's, Cell Physiology, Biochemistry, Biotechnology And Biotechniques)

UNIT-1

S. No.	Topic	No. of periods needed	Teaching Method	Lesson plan
1.	Linkage and Linkage maps	6	Animation, ppt-presentation, black board	1. General objective: Scientific temperament 2. Specific objective: to clear the concept of Genetics-Mendelian ratio 3. Questions based on previous knowledge 4. Synopsis: <ol style="list-style-type: none"> a. Experiment of Bateson and Punnett on Sweet Pea-Genetic Coupling and Genetic Repulsion b. Experiment of T. H. Morgan on Drosophila c. Linkage and Linked gene d. Experiment of Sturtevant-postulates e. Linkage Maps 5. Homework after each class
2.	Varieties of gene expression -	3	Black board, ppt	1. Based on previous General objective: Scientific temperament

	Multiple alleles ; lithogenesis ; Pleiotropic genes; gene interaction; epistasis.		presentation , practical demonstrati on of microscope	<p>2. Specific objective: introduction of Neo-Mendelism</p> <p>3. Questions knowledge</p> <p>4. Synopsis:</p> <ol style="list-style-type: none"> Multiple allelism; multiple alleles Theories of multiple alleles Pleiotropic genes Lithogenesis: example of pleiotropism Gene interaction Epistasis: dominant and recessive <p>5. Homework after each class</p>
3.	Sex chromosome systems and sex-linkage.	6	Animations and videos, ppt-presentations Black-board (whenever needed)	<p>1. Based on previous General objective: Scientific temperament</p> <p>2. Specific objective: to clear the concept of sex determination</p> <p>3. Questions knowledge</p> <p>4. Synopsis:</p> <ol style="list-style-type: none"> Introduction of sex chromosome XY;XO type Quantitative Ration Theory Sex-determining genes-tra/tra Sex-determination by Hormones Sex-determination by metabolism Sex-determination by environment Sex-linked genes: colour blindness; night blindness; Haemophilia <p>5. Homework after each class</p>
4.	Mutation and chromosomal alterations; meiotic consequences.	3	Black board, ppt presentation , practical demonstration of microscope	<p>1. General objective: Scientific temperament</p> <p>2. Specific objective: to clear the concept of mutation</p> <p>3. Questions based on previous knowledge</p> <p>4. Synopsis:</p> <ol style="list-style-type: none"> Introduction mutation in chromosome Chromosomal alteration: change in number and change in structure Change in number: euploidy and aneuploidy Change in structure: deletion, duplication, inversion, translocation

				f) Molecular basis of mutation g) Non disjunction: mutation in somatic cell and mutation in germplasm 5. Homework after each class
5.	Human genetics - chromosomal and single gene disorders (somatic cell genetics)	5	Black board, ppt presentation, practical demonstration of microscope	1. General objective: Scientific temperament 2. Specific objective: to clear the concept of cell transformation 3. Questions based on previous knowledge 4. Synopsis: a) Chromosomal disorder in somatic chromosome: Down syndrome, Patau's syndrome, Tay sach Disorder etc. b) Chromosomal disorder in sex-chromosome: turner's syndrome, Klinefelter's syndrome, super female etc c) Disorders due to point mutation: sickle cell anaemia, phenylketonuria, alkaptonuria, albinism, creatinism etc. 5. Homework after each class
Assessment of understanding: 1. Unit test for 30 marks: subjective/objective/oral 2. group discussions 6. 3.class room quiz competitions				
UNIT-2				
1.	General idea about pH and Buffer.	3	Animations and videos, ppt-presentations Black-board (whenever needed)	1. General objective: Scientific temperament 2. Specific objective: to clear the concept of pH 3. Questions based on previous knowledge 4. Synopsis: a) Introduction b) Calculation of Ph for strong acids and base c) Henson-Heselbatch equation d) Introduction of Buffer e) Isoelectric point f) Types of Buffers

				5. Homework after each class
2.	Transport across membrane - cell membrane; Mitochondria and Endoplasmic reticulum.	6	Animations and videos, ppt-presentations Black-board (whenever needed)	1. General objective: Scientific temperament 2. Specific objective: to clear the concept of structure and functions of plasma membrane 3. Questions based on previous knowledge 4. Synopsis: <ol style="list-style-type: none"> Osmosis: transport of water through membrane Active and passive transport Diffusion: simple and facilitated Types of facilitated diffusion Active diffusion Carrier proteins involve in active diffusion-Sodium pump, ABC complex protein, H⁺-K⁺ Pump, light dependent pump, Ca⁺ pump etc Bulk transport: exocytosis and endocytosis (Pinocytosis and phagocytosis) 5. Homework after each class
3.	Active transport and its mechanism; Active transport in Mitochondria and Endoplasmic reticulum.	2	Animations and videos, ppt-presentations Black-board (whenever needed)	1. General objective: Scientific temperament 2. Specific objective: to clear the concept of structure of mitochondria and endoplasmic reticulum 3. Questions based on previous knowledge 4. Synopsis: <ol style="list-style-type: none"> Active transport in mitochondria Active transport in endoplasmic reticulum 5. Homework after each class
4.	Hydrolytic enzymes - Their chemical nature, Activation and specificity.	2	Animations and videos, ppt-presentations Black-board (whenever needed)	1. General objective: Scientific temperament 2. Specific objective: to clear the concept of hydrolysis 3. Questions based on previous knowledge 4. Synopsis:

			needed)	a) Hydrolytic enzymes involve in carbohydrate digestion b) Hydrolytic enzymes involve in protein digestion (exopeptidase and endopeptidase) c) Hydrolytic enzymes involve in compounds consisting C-N bond hydrolysis d) Hydrolytic enzymes involve in breakdown of ester bond e) Hydrolytic enzymes involve in breakdown of non-ester and other bonds 5. Homework after each class
Assessment of understanding: 1. Unit test for 20 marks: subjective/objective/oral 2. Group discussions 3. Class room quiz competitions				
UNIT-3				
1.	Amino acids and Peptides - Basic structure and biological function.	4	Animations and videos, ppt-presentations Black-board (whenever needed)	1. General objective: Scientific temperament 2. Specific objective: to clear the concept of biochemistry 3. Questions based on previous knowledge 4. Synopsis: a) Introduction of amino acids b) Types of amino acids c) Structure of amino acids d) Physical and chemical properties of amino acids e) Peptide bonds-property, break down and formation f) Function and significance of peptide bond and amino acid in formation of 3 dimensional structure of protein 5. Homework after each class
2.	Carbohydrate and its metabolism - Glycogenesis; Gluconeogenesis; glycolysis, Glycogenolysis; Cori-cycle.	8	Animations and videos, ppt-presentations Black-board (whenever needed)	1. General objective: Scientific temperament 2. Specific objective: to clear the concept of biochemistry 3. Questions based on previous knowledge 4. Synopsis: a) Introduction of carbohydrate

				b) Classification of carbohydrates c) Physical and chemical properties of carbohydrates d) Glycolysis e) Kreb's cycle f) Glycogenesis g) Glycogenolysis h) Gluconeogenesis i) Cori-cycle 5. Homework after each class
3.	Lipid metabolism - Oxidation of glycerol; oxidation of fatty acid.	3	Animations and videos, ppt-presentations Black-board (whenever needed)	1. General objective: Scientific temperament 2. Specific objective: to clear the concept of biochemistry 3. Questions based on previous knowledge 4. Synopsis: a) 5. Homework after each class
4.	Protein metabolism - Deamination, Transamination, Transmethylation; Biosynthesis of Protein	6	Animations and videos, ppt-presentations Black-board (whenever needed)	1. General objective: Scientific temperament 2. Specific objective: to clear the concept of biochemistry 3. Questions based on previous knowledge 4. Synopsis: a) Introduction b) Deamination c) Transamination d) Transmethylation e) Biosynthesis of protein 5. Homework after each class
Assessment of understanding: 1. Unit test for 30 marks: subjective/objective/oral 2. Group discussions 3. Class room quiz competitions				
UNIT-4				
1.	Biotechnology - Scope and importance.	3	Animations and videos, ppt-presentations Black-board (whenever needed)	1. General objective: Scientific temperament 2. Specific objective: to clear the concept of biotechnology 3. Questions based on previous knowledge 4. Synopsis: a) General Introduction

				b) Scope and importance of biotechnology in agriculture, food industries, medicines and sewage treatment 5. Homework after each class
2.	Recombinant DNA and Gene cloning.	6	Animations and videos, ppt-presentations Black-board (whenever needed)	1. General objective: Scientific temperament 2. Specific objective: to clear the concept of DNA and gene 3. Questions based on previous knowledge 4. Synopsis: a) DNA isolation b) Vector c) cDNA injection in host d) gene amplification-cloning e) PCR f) Merits and demerits of techniques 5. Homework after each class
3.	Cloned genes and other tools of biotechnology.	3	Animations and videos, ppt-presentations Black-board (whenever needed)	1. General objective: Scientific temperament 2. Specific objective: as above 3. Questions based on previous knowledge 4. Synopsis: a) Organogenesis b) Synthesis of biochemicals: insulin and interferons c) Gene manipulation d) Organogenesis e) Test-tube babies f) Hybridization 5. Homework after each class
	4. Applications of biotechnology in (i) Pharmaceutical industry, and (ii) Food processing industry.	5	Animations and videos, ppt-presentations Black-board (whenever needed)	1. General objective: Scientific temperament 2. Specific objective: to clear the concept of cell transformation 3. Questions based on previous knowledge 4. Synopsis: a) General Introduction b) Scope and importance of biotechnology in agriculture c) Scope and importance of biotechnology in food industries d) Scope and importance of

				biotechnology in medicines 5. Homework after each class
Assessment of understanding: 1. Unit test for 30 marks: subjective/objective/oral 2. Group discussions 3. Class room quiz competitions				
Unit-5				
1.	Principles and techniques of pH meter	3	Animations and videos, ppt-presentations Black-board (whenever needed)	1. General objective: Scientific temperament 2. Specific objective: to clear the concept of pH 3. Questions based on previous knowledge 4. Synopsis: a) Introduction b) Principle of pH meter c) Types and method of pH meter d) Importance of pH meter e) Significance and drawbacks of technique 5. Homework after each class
2.	Colorimeter	3	Animations and videos, ppt-presentations Black-board (whenever needed)	1. General objective: Scientific temperament 2. Specific objective: to clear the concept of wavelength and colors 3. Questions based on previous knowledge 4. Synopsis: a) Introduction b) Principle of colorimeter: Lambert-Beer's Law c) Methodology d) Significance and drawbacks of technique 5. Homework after each class
3.	Microscopy- Light microscopes, Phase contrast and Electron microscopes.	3	Animations and videos, ppt-presentations Black-board (whenever needed)	1. General objective: Scientific temperament 2. Specific objective: to clear the concept of cell transformation 3. Questions based on previous knowledge 4. Synopsis: a) Introduction b) Principle of microscopy:

				<p>resolution and magnification</p> <p>c) Methodology</p> <p>d) Types of microscopes</p> <p>e) Significance and limitations of microscopes</p> <p>5. Homework after each class</p>
4.	Centrifugation	3	Animations and videos, ppt-presentations Black-board (whenever needed)	<p>1. General objective: Scientific temperament</p> <p>2. Specific objective: to clear the concept of centrifugal force</p> <p>3. Questions based on previous knowledge</p> <p>4. Synopsis:</p> <p>a) Introduction</p> <p>b) Principle of centrifugation</p> <p>c) Methodology</p> <p>d) Types of centrifuge</p> <p>e) Significance and limitations of centrifugation</p> <p>5. Homework after each class</p>
5.	Separation of bio-molecules by chromatography, and Electrophoresis	4	Animations and videos, ppt-presentations Black-board (whenever needed)	<p>1. General objective: Scientific temperament</p> <p>2. Specific objective: to clear the concept of bio-molecules and their occurrence</p> <p>3. Questions based on previous knowledge</p> <p>4. Synopsis:</p> <p>a) Introduction</p> <p>b) Principle of chromatography</p> <p>c) Types of chromatography</p> <p>d) Significance and limitations of chromatography</p> <p>e) Principle of electrophoresis</p> <p>f) Types of electrophoresis</p> <p>g) Significance and limitations of electrophoresis</p> <p>5. Homework after each class</p>
6.	6. Histrochemical methods for determination of Protein, Lipids, and carbohydrate	4	Animations and videos, ppt-presentations Black-board (whenever needed)	<p>1. General objective: Scientific temperament</p> <p>2. Specific objective: to clear the concept of nature of biomolecules</p> <p>3. Questions based on previous knowledge</p> <p>4. Synopsis:</p> <p>a) Introduction</p>

				b) Methods of protein determination: qualitative and quantitative analysis c) Methods of Lipids determination: qualitative and quantitative analysis d) Methods of carbohydrate determination: qualitative and quantitative analysis 5. Homework after each class
Assessment of understanding: 1. Unit test for 30 marks: subjective/objective/oral 2. group discussions 3.class room quiz competitions				

ZOOLOGY
PAPER-I (Paper Code-0917)

(Ecology, Environmental-biology; Toxicology ; Microbiology and Medical Zoology)

UNIT-1

S. No.	Topic	No. of periods needed	Teaching Method	Lesson plan
1.	Aims and scopes of Ecology	6	Black board, ppt presentation	General objective: Scientific temperament Specific objective: to clear the concept of aims and scopes of Ecology Questions based on previous knowledge Synopsis: Definition of ecology History of ecology Branches of ecology Scope of ecology Homework after each class
2.	Major ecosystems of the	3	Black board, ppt	General objective: Scientific temperament

	world-Brief introduction Population-Characteristics and regulation of densities.		presentation	<p>Specific objective: to clear the concept of major ecosystems of the world, Brief introduction Population- Characteristics and regulation of densities.</p> <p>Questions based on previous knowledge</p> <p>Synopsis:</p> <p>Major ecosystems: artificial and natural ecosystem (terrestrial-forest, grassland, desert; aquatic-marine; fresh water-lentic and lotic ecosystems)</p> <p>Population: density and dispersion; sex ratio, survivorship curves, logistic and exponential model of population growth, r and k selection species, density dependent and density independent population growth, population cycles</p> <p>Homework after each class</p>
3.	Communities and Ecosystems	6	Black board, ppt presentation	<p>General objective: Scientific temperament</p> <p>Specific objective: to clear the concept of Communities and Ecosystems</p> <p>Questions based on previous knowledge</p> <p>Synopsis:</p> <p>Introduction</p> <p>Stratification</p> <p>Species richness</p> <p>Species diversity. Diversity index</p> <p>Dominance, abundance</p> <p>Ecotone</p> <p>Edge effect</p> <p>Homework after each class</p>
4.	Biogeochemical cycles	3	Black board, ppt presentation	<p>General objective: Scientific temperament</p> <p>Specific objective: to clear the concept of Biogeochemical cycles</p> <p>Questions based on previous knowledge</p> <p>Synopsis:</p> <p>Definition</p> <p>Importance</p> <p>Types: gas cycle and sedimentary cycle</p>

				Carbon cycle Oxygen cycle Nitrogen cycle Phosphorus cycle Sulphur cycle Water cycle How human disrupt these cycles Homework after each class
5.	Air and water pollution	5	Black board, ppt presentation	General objective: Scientific temperament Specific objective: to clear the concept of Air and water pollution Questions based on previous knowledge Synopsis: Introduction of pollution Nature, causes and burden of air and water pollution Source of air and water pollution Impact of air and water pollution on health Precaution, laws, and measure for controlling air and water pollution. Homework after each class
6.	Ecological succession			General objective: Scientific temperament Specific objective: to clear the concept of Ecological succession Questions based on previous knowledge Synopsis: Introduction of ecological succession Primary succession Secondary succession Autogenic succession Cyclic succession Allogenic succession Autotropic succession Heterotropic succession Induced succession Retrogressive succession Directional succession Homework after each class

Assessment of understanding:

1. Unit test for 30 marks: subjective/objective/oral
2. group discussions
7. 3.class room quiz competitions

UNIT-2

1.	General idea about pH and Buffer.	3	Animations and videos, ppt-presentations Black-board (whenever needed)	<p>General objective: Scientific temperament</p> <p>Specific objective: to clear the concept of general idea about pH and Buffer</p> <p>Questions based on previous knowledge</p> <p>Synopsis:</p> <p>pH definition</p> <p>Equation of pH.</p> <p>Henderson-hasselbalch equation</p> <p>Acid-base concept</p> <p>Buffer system</p> <p>Buffer in living system</p> <p>Acidosis, alkalosis, tetany</p> <p>Homework after each class</p>
2.	Transport across membrane - cell membrane; Mitochondria and Endoplasmic reticulum.	6	Animations and videos, ppt-presentations Black-board (whenever needed)	<p>General objective: Scientific temperament</p> <p>Specific objective: to clear the concept of transport across membrane - cell membrane; Mitochondria and Endoplasmic reticulum.</p> <p>Questions based on previous knowledge</p> <p>Synopsis:</p> <p>Diffusion: passive and facilitated</p> <p>Osmosis</p> <p>Active and passive transport</p> <p>Mass transport: endocytosis, exocytosis, phagocytosis and pinocytosis.</p> <p>Transport across inner and outer membrane of mitochondria</p> <p>Transport across endoplasmic reticulum</p> <p>Homework after each class</p>
3.	Active transport and its mechanism;	2	Animations and videos, ppt-	<p>General objective: Scientific temperament</p> <p>Specific objective: to clear the concept of</p>

			presentations Black-board (whenever needed)	cell biology Questions based on previous knowledge Synopsis: Ligand gated channel Voltage gated channel Uniportal transport Symportal transport Antiportal transport Homework after each class
4.	Hydrolytic enzymes - Their chemical nature, Activation and specificity.	2	Animations and videos, ppt-presentations Black-board (whenever needed)	General objective: Scientific temperament Specific objective: to clear the concept of hydrolytic enzymes. Questions based on previous knowledge Synopsis: Introduction of enzymes Properties of enzymes Types of hydrolytic enzymes Proteolytic enzymes, carbohydrase enzymes, nuclease enzymes, lipase enzymes, phosphorylase enzymes Activation and regulation of enzymes Homework after each class
Assessment of understanding: 1. Unit test for 20 marks: subjective/objective/oral 2. Group discussions 3. Class room quiz competitions				
UNIT-3				
1.	Amino acids and Peptides - Basic structure and biological function.	4	Animations and videos, ppt-presentations Black-board (whenever needed)	General objective: Scientific temperament Specific objective: to clear the concept of Amino acids and Peptides - Basic structure and biological function. Questions based on previous knowledge Synopsis: Introduction Structure of amino acid Properties of amino-acid Primary, secondary, tertiary and quaternary structures of amino acids Functions of protein and amino acids Homework after each class

2.	Carbohydrate and its metabolism - Glycogenesis; Gluconeogenesis; glycolysis, Glycogenolysis; Cori-cycle.	8	Animations and videos, ppt-presentations Black-board (whenever needed)	<p>General objective: Scientific temperament</p> <p>Specific objective: to clear the concept of Carbohydrate and its metabolism</p> <p>Questions based on previous knowledge</p> <p>Synopsis:</p> <p>Introduction</p> <p>Structure of carbohydrates</p> <p>Properties of carbohydrates</p> <p>Glycolysis and energy budget</p> <p>Kerb cycle and energy budget</p> <p>Cori cycle</p> <p>Glycogenesis</p> <p>Glycogenolysis</p> <p>Glyconeogenesis</p> <p>Biological functions of carbohydrates</p> <p>Homework after each class</p>
3.	Lipid metabolism - Oxidation of glycerol; oxidation of fatty acid.	3	Animations and videos, ppt-presentations Black-board (whenever needed)	<p>General objective: Scientific temperament</p> <p>Specific objective: to clear the concept of Lipid metabolism</p> <p>Questions based on previous knowledge</p> <p>Synopsis:</p> <p>Introduction of lipid</p> <p>Classification of lipids</p> <p>Structure and functions of lipids</p> <p>Beta-oxidation of lipid</p> <p>Homework after each class</p>
4.	Protein metabolism - Deamination, Transamination, Transmethylation ; Biosynthesis of Protein	6	Animations and videos, ppt-presentations Black-board (whenever needed)	<p>General objective: Scientific temperament</p> <p>Specific objective: to clear the concept of Protein metabolism</p> <p>Questions based on previous knowledge</p> <p>Synopsis:</p> <p>Protein catabolism- deamination, transamination and transmethylation of protein</p> <p>Ornithine cycle</p> <p>Biosynthesis of protein in prokaryotic and eukaryotic cells (transcription, post-transcriptional modification, translation, post-translational modifications)</p> <p>Homework after each class</p>
<p>Assessment of understanding:</p> <p>1. Unit test for 30 marks: subjective/objective/oral</p> <p>2. Group discussions</p>				

3. Class room quiz competitions

UNIT-4

1.	Biotechnology - Scope and importance.	3	Animations and videos, ppt-presentations Black-board (whenever needed)	<p>General objective: Scientific temperament</p> <p>Specific objective: to clear the concept of cell biology</p> <p>Questions based on previous knowledge</p> <p>Synopsis:</p> <p>Introduction of biotechnology</p> <p>Branches of biotechnology</p> <p>Significance of biotechnology</p> <p>Homework after each class</p>
2.	Recombinant DNA and Gene cloning.	6	Animations and videos, ppt-presentations Black-board (whenever needed)	<p>General objective: Scientific temperament</p> <p>Specific objective: to clear the concept of biotechnology - Scope and importance</p> <p>Questions based on previous knowledge</p> <p>Synopsis:</p> <p>Natural process of recombination of DNA-conjugation, transformation, transduction, and recombination during pachetene stage of meiosis I.</p> <p>Recombination of DNA in lab: restriction endonuclease digestion, and ligation</p> <ol style="list-style-type: none"> 1. Gene cloning: Isolation of donor DNA fragment or gene. 2. Selection of suitable vector. 3. Incorporation of donor DNA fragment into the vector. 4. Transformation of recombinant vector into a suitable host cell. 5. Isolation of recombinant host cell. <p>Homework after each class</p>
3.	Cloned genes and other tools of biotechnology.	3	Animations and videos, ppt-presentations Black-board (whenever needed)	<p>General objective: Scientific temperament</p> <p>Specific objective: to clear the concept of cloned genes and other tools of biotechnology</p> <p>Questions based on previous knowledge</p> <p>Synopsis:</p> <p>Vectors: plasmid, cosmid, phage-virus</p> <p>Restriction enzymes</p> <p>Ligation enzymes</p> <p>Host</p>

				PCR Gene-machine Genomic library Electroporation Gene-gun Homework after each class
	4. Applications of biotechnology in (i) Pharmaceutical industry, and (ii) Food processing industry.	5	Animations and videos, ppt-presentations Black-board (whenever needed)	General objective: Scientific temperament Specific objective: to clear the concept of Applications of biotechnology Questions based on previous knowledge Synopsis: Pharmaceuticals: genetically engineered INSULIN Gene therapy Molecular diagnosis Transgenic animals-normal physiological development, study of disease, biological products, vaccine safety, chemical safety testing. Food processing industry: organic agriculture, GMO Crops, insect and pest resistant plants, HYV plants, fortified plants. Homework after each class
Assessment of understanding: 1. Unit test for 30 marks: subjective/objective/oral 2. Group discussions 3. Class room quiz competitions				
Unit-5				
1.	Principles and techniques of pH meter	3	Animations and videos, ppt-presentations Black-board (whenever needed)	General objective: Scientific temperament Specific objective: to clear the concept of principles and techniques of pH meter Questions based on previous knowledge Synopsis: Principle of pH meter pH electrode and reference electrode design types of pH meters Homework after each class

2.	Colorimeter	3	Animations and videos, ppt-presentations Black-board (whenever needed)	<p>General objective: Scientific temperament</p> <p>Specific objective: to clear the concept of Colorimeter</p> <p>Questions based on previous knowledge</p> <p>Synopsis:</p> <p>Principle of colorimeter-lambert-beer's law</p> <p>Ray diagram of colorimeter</p> <p>Significance and limitations of colorimeter</p> <p>Homework after each class</p>
3.	Microscopy- Light microscopes, Phase contrast and Electron microscopes.	3	Animations and videos, ppt-presentations Black-board (whenever needed)	<p>General objective: Scientific temperament</p> <p>Specific objective: to clear the concept of Microscopy</p> <p>Questions based on previous knowledge</p> <p>Synopsis:</p> <p>Principle of microscopy-resolution and magnification</p> <p>Types of microscopes</p> <p>Bright field, oblique illumination, dark field, dispersion staining</p> <p>Phase contrast</p> <p>Interference reflection</p> <p>Fluorescence</p> <p>Confocal</p> <p>x-ray</p> <p>electron microscopy</p> <p>scanning microscopy</p> <p>limitations</p> <p>Homework after each class</p>
4.	Centrifugation	3	Animations and videos, ppt-presentations Black-board (whenever needed)	<p>General objective: Scientific temperament</p> <p>Specific objective: to clear the concept of Centrifugation</p> <p>Questions based on previous knowledge</p> <p>Synopsis:</p> <p>Introduction</p> <p>Mathematical formula</p> <p>Principal of centrifugation machine</p> <p>Types: microcentrifuges; low-speed centrifuges; high speed centrifuges; ultracentrifuge</p> <p>Limitations and applications</p> <p>Homework after each class</p>

5.	Separation of bio-molecules by chromatography, and Electrophoresis	4	Animations and videos, ppt-presentations Black-board (whenever needed)	<p>General objective: Scientific temperament</p> <p>Specific objective: to clear the concept of chromatography, and Electrophoresis</p> <p>Questions based on previous knowledge</p> <p>Synopsis:</p> <p>Principle of chromatography</p> <p>Column and planar chromatography (paper and TLC)</p> <p>Displacement chromatography</p> <p>Physical state of mobile phase: gas and liquid</p> <p>Affinity: supercritical fluid</p> <p>Separation mechanism: ion exchange</p> <p>Size exclusion and expanded bed adsorption</p> <p>Homework after each class</p>
6.	6. Histo-chemical methods for determination of Protein, Lipids, and carbohydrate	4	Animations and videos, ppt-presentations Black-board (whenever needed)	<p>General objective: Scientific temperament</p> <p>Specific objective: to clear the concept of Histo-chemical methods</p> <p>Questions based on previous knowledge</p> <p>Synopsis:</p> <p>Homopolysaccharide: starch-iodine test; glycogen-carminum method; cellulose and chitin-calcofluor white staining method.</p> <p>Heteropolysaccharide: glycosaminoglycan-hale's colloidal iron method; periodic-acid-schiff reaction; alcian blue; iron diamine method</p> <p>Protein: biuret test, ninhydrin test, xanthoproteic test, saharouchi test, hopkin's test</p> <p>Lipid: oil red O method, osmium tetroxide method, bromine-sudan black method, marchi method, Nile blue method</p> <p>Homework after each class</p>
<p>Assessment of understanding:</p> <ol style="list-style-type: none"> 1. Unit test for 30 marks: subjective/objective/oral 2. group discussions 3.class room quiz competitions 				

LESSON PLAN

BA I year

1. Outline learning objective
2. Develop the introduction
3. Plan the main body of the lesson
4. Plan to check for understanding
5. Develop a conclusion and a preview
6. Create realistic timeline

Economics
PAPER - I (paper code - 0111)
(Micro Economics) M.M. 75

UNIT-1

S. No.	Topic	No. of periods needed	Teaching Method	Lesson plan
1.	Definition, nature and scope of economics, methodology in economics	3	Lecture, black board	General objective: to develop economics temperament Specific objective: to clear the concept of definition, scope and methodology of economics Questions based on previous knowledge Synopsis: Introduction Classification of definition of economics Definition of economics Nature of economics Scope of economics Methodology of economics Homework after each class
2.	Utility analysis	1	Lecture, black board	General objective: to develop economics temperament Specific objective: to clear the concept of utility analysis Questions based of previous knowledge Synopsis: Meaning of utility

				Cardinal and ordinal approach Kind of utility Diagrammatic representation Homework after each class
3.	Law of diminishing marginal utility	1	Lecture, black board	General objective: to develop economics temperament Specific objective: to clear law of diminishing of marginal utility Questions based of previous knowledge Synopsis: introduction Definition of law Explanation of law Diagrammatic representation Assumption of law Exceptions of law Importance of law Homework after class
4.	Law of equi-marginal utility	1	Lecture, black board	General objective: to develop economics temperament Specific objective: to clear law of equi-marginal utility Questions based of previous knowledge Synopsis: introduction Definition of law Explanation of law Diagrammatic representation Assumption of law Importance of law Homework after class
5.	Indifference curve, Consumers equilibrium	4	Lecture, black board	General objective: to develop economics temperament Specific objective: to clear the concept of indifference curve Questions based on previous knowledge Synopsis: Introduction of indifference curve Definition of indifference curve Explanation of indifference curve Diagrammatic representation Assumption Characteristics of of indifference curve Consumers equilibrium

				Home work after each class
6.	Demand and law of demand	2	Lecture black board	<p>General objective: to develop economics temperament</p> <p>Specific objective: to clear concept of demand and law of demand</p> <p>Question based of previous knowledge</p> <p>Synopsis:</p> <ul style="list-style-type: none"> Introduction Definition of demand Kind of demand Law of demand Definition of law of demand Explanation Diagrammatic representation Assumption of law Causes of the application of law of demand Exceptions of law Importance of law <p>Homework after each class</p>
7.	Elasticity of demand	4	Lecture Black board	<p>General objective: to develop economics temperament</p> <p>Specific objective: to clear concept of elasticity of demand</p> <p>Questions based of previous knowledge</p> <p>Synopsis:</p> <ul style="list-style-type: none"> Introduction Definition Degrees of price elasticity of demand Diagrammatic representation Factors effecting the elasticity of demand Methods for measuring price elasticity demand Importance of concept of elasticity of demand Crass elasticity of demand Income elasticity of demand <p>Homework after each class</p>

8.	Consumers surplus	1	Lecture black board	General objective: to develop economics temperament Specific objective: to clear concept of consumers surplus Questions based of previous knowledge Synopsis: introduction Definition of consumers surplus Explanation of consumers surplus Diagrammatic representation Assumption Criticism of consumer surplus Importance of the concept Homework after class
	Assessment of understanding: 1. Unit test for 30 marks: subjective/objective/oral 2. group discussions 3.class room quiz competitions			
	UNIT-2			
1.	Production function	1	Lecture Black board	General objective: to develop economics temperament Specific objective: to clear the concept of production function Questions based on previous knowledge Synopsis: Introduction Definition of production function Explanation of production function Assumption of production function Characteristics of production function Type of production function Homework after class
2.	Law of variable proportion	1	Lecture Black board	General objective: to develop economics temperament Specific objective: to clear the concept of law of variable proportion Questions based on previous knowledge Synopsis: Introduction Definition Explanation Stage of law variable proportion Graphic representation Assumption of law

				Causes of the application of law of variable proportion Homework after class
3	Iso- product curve	1	Lecture Black board	General objective: to develop economics temperament Specific objective: to clear the concept of iso- product curve Questions based on previous knowledge Synopsis: Introduction Definition of iso-product curve Explanation of iso- product curve Diagrammatic presentation Assumption of iso -product curve Characteristics of iso-product curve Homework after class
4.	Factor substitution	1	Lecture black board	General objective: to develop economics temperament Specific objective: to clear the concept of factor substitution Questions based on previous knowledge Synopsis: Introduction Definition Explanation Diagrammatic representation Homework after class
5.	Production decision	1	Lecture Black board	General objective: to develop economics temperament Specific objective: to clear the concept production decision Questions based on previous knowledge Synopsis: Introduction Iso- cost line Producers equilibrium Homework after class
6.	Returns to scale	1	Lecture Black board	General objective: to develop economics temperament Specific objective: to clear the concept of returns to scale Questions based on previous knowledge Synopsis: Introduction Concept of proportion and scale

				<p>Explanation of returns to scale Determining elements of returns to scale Homework after class</p>
7.	Economies of scale	1	Lecture Black board	<p>General objective: to develop economics temperament Specific objective: to clear the concept of economies of scale Questions based on previous knowledge Synopsis: Introduction Type of economies Internal and external economies Homework after class</p>
8.	Different concepts of cost and their interrelation	4	Lecture Black board	<p>General objective: to develop economics temperament Specific objective: to clear the concept of cost Questions based on previous knowledge Synopsis: Introduction Classification of cost Money cost Real cost Opportunity cost Short run and long run costs Relation between average cost and marginal cost Long run cost Homework after each class</p>
9.	Equilibrium of firm	1	Lecture Black board	<p>General objective: to develop economics temperament Specific objective: to clear the concept of equilibrium of firm Questions based on previous knowledge Synopsis: Introduction Equilibrium of firm under perfect competition Equilibrium of firm under imperfect competition Diagrammatic presentation Homework after class</p>
	<p>Assessment of understanding: 1. Unit test for 20 marks: subjective/objective/oral 2. group discussions</p>			

	3.class room quiz competitions			
	UNIT-3			
1.	Market structure	1	Lecture Black board	General objective: to develop economics temperament Specific objective: to clear the concept of different market Synopsis: Introduction Definition of market Classification of market Market structure Homework after class
2.	Perfect competition	3	Lecture black board	General objective: to develop economics temperament Specific objective: to clear the concept of perfect competition Questions based on previous knowledge Synopsis: Introduction Meaning of perfect competition Conditions of perfect competition Pure competition Price determination under perfect competition Homework after each class
3.	monopoly	2	Lecture Black bord	General objective: to develop economics temperament Specific objective: to clear the concept monopoly Questions based on previous knowledge Synopsis: Introduction Definition of monopoly Characteristics of monopoly Price determination under monopoly Homework after each class
4.	Price discrimination, Degree of monopoly power and measurement	2	Lecture Black board	General objective: to develop economics temperament Specific objective: to clear the concept Price discrimination Questions based on previous knowledge Synopsis: Introduction Definition of price discrimination

				<p>Conditions of price discrimination Determination of price under discriminating monopoly Degree of monopoly power and measurement Homework after each class</p>
5.	Monopolistic competition	2	Lecture Black board	<p>General objective: to develop economics temperament Specific objective: to clear the concept of Monopolistic competition Questions based on previous knowledge Synopsis: Introduction Definition of monopolistic competition Characteristics of monopolistic competition Price determination under monopolistic competition Homework after each class</p>
6.	Duopoly	1	Lecture Black board	<p>General objective: to develop economics temperament Specific objective: to clear the concept of duopoly Questions based on previous knowledge Synopsis: Introduction Meaning of duopoly Type of duopoly Price determination under duopoly Homework after class</p>
7.	Oligopoly	1	Lecture Black board	<p>General objective: to develop economics temperament Specific objective: to clear the concept oligopoly Questions based on previous knowledge Synopsis: Introduction Meaning of oligopoly Characteristics of oligopoly Price determination under oligopoly Homework after class</p>
8.	Controlled and administered price	1	Lecture Black board	<p>General objective: to develop economics temperament Specific objective: to clear the concept</p>

				Homework after class
	Assessment of understanding: Homework aft 1. Unit test for 30 marks: subjective/objective/oral 2. group discussions 3.class room quiz competitions			
	UNIT-4			
1.	Marginal productivity theory	1	Lecture Black bord	General objective: to develop economics temperament Specific objective: to clear the concept Marginal productivity theory Questions based on previous knowledge Synopsis: Introduction Assumptions of the marginal productivity Meaning type of the marginal productivity Equilibrium of firm in factor market Modern theory of distribution Homework after class
2.	Theories of wage determination	3	Lecture Black board	General objective: to develop economics temperament Specific objective: to clear the concept of theories of wage determination Questions based on previous knowledge Synopsis: Meaning of wage Theories of wages Subsistence theory wages The standard of living theory wages Residual claimant theory of wages Wages fund theory Marginal productivity theory of wages Modern theory of wages Homework after each class
3.	Rent	1	Lecture	General objective: to develop economics temperament Specific objective: to clear the concept of rent Questions based on previous knowledge Synopsis:

				Introduction Definition of rent Theory of rent <i>Homework after class</i>
4.	Ricardian theory of rent	1	Lecture Black board	General objective: to develop economics temperament Specific objective: to clear the Ricardian theory of rent Questions based on previous knowledge Synopsis: Ricardian theory of rent Explanation Diagrammatic representation Assumption Criticism of Ricardian theory of rent <i>Homework after class</i>
5.	Modern theory of rent	1	Lecture black board	General objective: to develop economics temperament Specific objective: to clear the concept of Modern theory of rent Questions based on previous knowledge Synopsis: Introduction Basis of the modern theory Definition of rent Explanation Causes of rent <i>Homework after class</i>
6.	Quasi rent	1	Lecture Black board	General objective: to develop economics temperament Specific objective: to clear the concept of quasi rent Questions based on previous knowledge Synopsis: Introduction Definition explanation <i>Homework after class</i>
7.	Interest	3	Lecture Black board	General objective: to develop economics temperament Specific objective: to clear the concept of interest Questions based on previous knowledge Synopsis: Definition of interest Kinds of interest

				Classical theory of interest Liquidity preference theory of interest of Keynes Modern theory of interest Homework after each class
7.	profit	3	Lecture Black board	General objective: to develop economics temperament Specific objective: to clear the concept of profit Questions based on previous knowledge Synopsis: Introduction Meaning and Definition The risk theory of profit The innovation theory of profit Uncertainty theory of profit Homework after each class
	Assessment of understanding: 1. Unit test for 30 marks: subjective/objective/oral 2. group discussions 3.class room quiz competitions			
	Unit-5			
1.	Welfare economics	1	Lecture, black board	General objective: to develop economics temperament Specific objective: to clear the concept of welfare economics Questions based on previous knowledge Synopsis: Introduction Definition Positive economics and welfare economics General welfare and economic welfare Homework after class
2.	Pigovian welfare economics	1	Lecture, black board	General objective: to develop economics temperament Specific objective: to clear the concept of Pigovian welfare economics Questions based on previous knowledge Synopsis: Introduction

				<p>Assumptions of Pigovian welfare economics</p> <p>Optimisation conditions of social welfare</p> <p>criticism</p> <p>Homework after class</p>
3.	Paretos criteria	2	Lecture, black board	<p>General objective: to develop economics temperament</p> <p>Specific objective: to clear the concept of pareto criteria of welfare economics</p> <p>Questions based on previous knowledge</p> <p>Synopsis:</p> <p>Introduction</p> <p>Concept of welfare</p> <p>Pareto optimum</p> <p>Assumption of pareto optimum</p> <p>Social optimum of pareto</p> <p>Graphical representation</p> <p>Paratian optimum conditions</p> <p>Criticism of paratian welfare economics</p> <p>Homework after each class</p>
4.	Kaldor –hicks welfare criterion	1	Lecture, black board	<p>General objective: to develop economics temperament</p> <p>Specific objective: to clear the concept of Kaldor –hicks welfare criterion</p> <p>Questions based on previous knowledge</p> <p>Synopsis:</p> <p>Introduction</p> <p>Assumptions</p> <p>Kaldors criterion</p> <p>Hicks criterion</p> <p>Diagrammatic representation of Kaldor –hicks welfare criterion</p> <p>criticisms</p> <p>Homework after class</p>
5.	Social welfare function	1	Lecture, black board	<p>General objective: to develop economics temperament</p> <p>Specific objective: to clear the concept of Social welfare function</p> <p>Questions based on previous knowledge</p> <p>Synopsis:</p> <p>Introduction</p> <p>Assumptions</p> <p>Definition of Social welfare function</p> <p>Properties of social welfare function</p>

				criticism Homework after class
	Assessment of understanding: 1. Unit test for 30 marks: subjective/objective/oral 2. group discussions 3.class room quiz competitions			

BA I
Economics
PAPER - 2 (paper code -0 112)
(INDIAN ECONOMICS) M.M. 75

UNIT-1

S. N o.	Topic	No. of periods needed	Teaching Method	Lesson plan
1.	A short introduction of economic polices of British india	1	Lecture, black board	General objective: to develop economics temperament Specific objective: to clear the economic polices of British india Questions based on previous knowledge Synopsis: Introduction Changes in land system Tax policy and tax system taxation Industrial and commercial policies Drain of wealth Homework after class
2.	State of economy at the time of independence	1	Lecture, black board	General objective: to develop economics temperament Specific objective: to clear State of economy at the time of independence Questions based on previous knowledge Synopsis: Introduction Indian economy at the time of independence Colonial economy Semi-feudal economy Backward economy Stagnant economy Homework after class
3.	Planning exercises in India	2	Lecture, black board	General objective: to develop economics temperament Specific objective: to clear Planning exercises in India Questions based on previous knowledge Synopsis: Introduction Five year plans in India Strategy of planning in India

				Homework after each class
4.	The planning commission and NITI ayog	2	Lecture, black board	General objective: to develop economics temperament Specific objective: to clear the Planning commission and NITI ayog Questions based on previous knowledge Synopsis: Introduction Planning commission Organization of planning commission Objectives of planning commission Function of planning commission National institution for transforming India [NINI] ayog Objectives of NITI ayog Composition of NITI ayog Functions of NITI ayog Homework after each class
5.	Groth and development in pre-reform period	1	Lecture, black board	General objective: to develop economics temperament Specific objective: to clear groth and development in pre-reform period Questions based on previous knowledge Synopsis: Introduction Development strategy in pre-reform phase achievements Homework after class
6.	New economic reforms	1	Lecture, black board	General objective: to develop economics temperament Specific objective: to clear new economic reforms Questions based on previous knowledge Synopsis: Introduction Objectives of economic reforms Liberazation Privatization Globalization Homework after class
7.	Growth, deveiopment and structural change in post-reform	1	Lecture, black board	General objective: to develop economics temperament Specific objective: to clear Growth, deveiopment and structural change in

	period			post-reform period Questions based on previous knowledge Synopsis: Introduction Trends in the growth of national income trends Homework after class
Assessment of understanding: 1. Unit test for 30 marks: subjective/objective/oral 2. group discussions 3. class room quiz competitions				
UNIT-2				
1.	Demographic trends and issues of education health, malnutrition and migration	3	Lecture Black board	General objective: to develop economics temperament Specific objective: to clear the demographic trends Questions based on previous knowledge Synopsis: Introduction Demographic trends Health Education Malnutrition migration Homework after each class
2.	Trends and policies in poverty	1	Lecture Black board	General objective: to develop economics temperament Specific objective: to clear the trends and policies of poverty Questions based on previous knowledge Synopsis: Introduction Concept of poverty Definition and estimate of poverty in India causes of poverty in India removal of poverty programmes in India Homework after class
3.	Inequality	1	Lecture	General objective: to develop economics temperament Specific objective: to clear inequality in India Questions based on previous knowledge Synopsis:

				Introduction Inequality of income Inequality of assets Regional inequality Homework after class
4.	Unemployment	1	Lecture black board	General objective: to develop economics temperament Specific objective: to clear unemployment in India Questions based on previous knowledge Synopsis: Introduction Nature of unemployment in India Estimate of unemployment in India Causes of unemployment in India Suggestions to solve the problem of in unemployment India Policy for controlling unemployment India Homework after class
5	International comparision in human development and poverty reduction	1	Lecture black board	General objective: to develop economics temperament Specific objective: to clear International comparision in human development and poverty reduction Questions based on previous knowledge Synopsis: Introduction Human development Concept of human development Measurement of human development Calculation of human development index International comparison of development International comparison in poverty reduction Homework after class
Assessment of understanding: 1. Unit test for 20 marks: subjective/objective/oral 2. group discussions 3.class room quiz competitions				
UNIT-3				
1.	Nature and importance of agriculture	1	Lecture black board	General objective: to develop economics temperament Specific objective: to clear the nature and

				<p>importance of agriculture</p> <p>Question based on previous knowledge</p> <p>Synopsis:</p> <p>Introduction</p> <p>Nature and characteristics of Indian agriculture</p> <p>Importance of agriculture</p> <p>Homework after class</p>
2.	Trends in agriculture production and productivity, factors determining productivity	1	Lecture Black board	<p>General objective: to develop economics temperament</p> <p>Specific objective: to clear Trends in agriculture production and productivity, factors determining productivity</p> <p>Questions based on previous knowledge</p> <p>Synopsis:</p> <p>Introduction</p> <p>Meaning of agricultural productivity</p> <p>Trends in agriculture production and productivity in India</p> <p>Factors influencing production and productivity</p> <p>Suggestions for improvement of agriculture productivity and effort made by government</p> <p>Homework after class</p>
3.	Land reforms	2	Lecture	<p>General objective: to develop economics temperament</p> <p>Specific objective: to clear the concept land reforms</p> <p>Questions based on previous knowledge</p> <p>Synopsis:</p> <p>Introduction</p> <p>Meaning of land reforms</p> <p>Land system before independence</p> <p>Land reforms policy in India after independence</p> <p>Homework after each class</p>
4.	New agriculture strategies and green revolution	1	Lecture Black board	<p>General objective: to develop economics temperament</p> <p>Specific objective: to clear new agriculture strategies and green revolution</p> <p>Questions based on previous knowledge</p> <p>Synopsis:</p>

				<p>Introduction</p> <p>Agriculture development <u>dring plan period</u></p> <p><u>Green revolution</u></p> <p><u>Achievements of green revolution</u></p> <p><u>Limitation of green revolution</u></p> <p><u>Suggestions for the success of green revolution</u></p> <p>Homework after class</p>
5.	Rural credit	1	Lecture Black board	<p>General objective: to develop economics temperament</p> <p>Specific objective: to clear the rural credit in India</p> <p>Questions based on previous knowledge</p> <p>Synopsis:</p> <p>Meaning of rural credit</p> <p>Need of agricultural finance in India</p> <p>Means of agricultural finance in India</p> <p>Homework after class</p>
6.	Agriculture marketing	1		<p>General objective: to develop economics temperament</p> <p>Specific objective: to clear agriculture marketing</p> <p>Questions based on previous knowledge</p> <p>Synopsis:</p> <p>Meaning of agriculture marketing</p> <p>Agriculture marketing current system in India</p> <p>Problem in agriculture marketing</p> <p>Remedies to remove Problem in agriculture marketing</p> <p>Cooperative marketing in India</p> <p>Homework after class</p>
7.	Natural resources and infra-structure development	3	Lecture Black board	<p>General objective: to develop economics temperament</p> <p>Specific objective: to clear concept of natural resources and infra-structure development</p> <p>Questions based on previous knowledge</p> <p>Synopsis:</p> <p><u>Role of natural resources in economic development</u></p> <p><u>Performance, problem and –policy of Land resources</u></p> <p><u>Water resources</u></p> <p><u>Forest resources</u></p>

				<u>Mineral resources</u> Homework after each class
8.	Mudra yojana	1	Lecture Black board	General objective: to develop economics temperament Specific objective: to clear concept of Mudra yojana Questions based on previous knowledge Synopsis: <u>What is Mudra bank</u> <u>Objectives of Mudra bank</u> <u>Needs of Mudra bank</u> <u>Output and service of Mudra bank</u> <u>Homework after class</u>
Assessment of understanding: 1. Unit test for 30 marks: subjective/objective/oral 2. group discussions 3.class room quiz competitions				
UNIT-4				
1.	Industrial growth and productivity in India	1	Lecture	General objective: to develop economics temperament Specific objective: to clear industrial growth and productivity in India Questions based on previous knowledge Synopsis: Introduction Industrial development during planning period Industrial structural change and economic development during planning period Homework after class
2.	Industrial policy and reforms in India	1	Lecture Black board	General objective: to develop economics temperament Specific objective: to clear the concept of Industrial policy and reforms in India Questions based on previous knowledge Synopsis: Introduction Industrial policy 1948 Industrial policy 1956 Industrial policy 1977 Industrial policy reforms- Industrial policy 1991 Evaluation of Industrial policy of India Homework after class

3.	Growth and problems of small and cottage scale industries	2	Lecture Black board	<p>General objective: to develop economics temperament</p> <p>Specific objective: to clear the concept of growth and problems of small and cottage scale industries</p> <p>Questions based on previous knowledge</p> <p>Synopsis:</p> <ul style="list-style-type: none"> Definitions of small and cottage scale industries Importance of small and cottage scale industries in Indian economy Problems of small and cottage scale industries Suggestions for development of small and cottage scale industries Government efforts for promotion of small and cottage scale industries New small industrial policy Homework after each class
4.	Role of public sector enterprises India's industrialization	2	Lecture Black board	<p>General objective: to develop economics temperament</p> <p>Specific objective: to clear the role of public sector enterprises India's</p> <p>Questions based on previous knowledge</p> <p>Synopsis:</p> <ul style="list-style-type: none"> Introduction Private and public sector in India Importance of public sector in India Objective of public sector in India Role of public sector enterprises India's Industrialization Profitability of public enterprises Problems of public sector enterprises in India Homework after class
4.	Trends and performance in services	1	lecture	<p>General objective: to develop economics temperament</p> <p>Specific objective: to clear trends and performance in services India</p> <p>Questions based on previous knowledge</p> <p>Synopsis:</p> <ul style="list-style-type: none"> Meaning of service sector structure of service sector in India Development of service sector Homework after class

Assessment of understanding:

1. Unit test for 30 marks: subjective/objective/oral
2. group discussions
- 3.class room quiz competitions

Unit-5

1.	Trade Role of foreign	1	Lecture, black board	General objective: to develop economics temperament Specific objective: to clear the role of foreign trade in India Questions based on previous knowledge Synopsis: Introduction Role of foreign trade Pattern of trade Composition of foreign trade in India Direction of foreign trade in India Trends in ex-ports and imports Homework after class
2.	Export promotion measures and the new trade policies	1	Lecture, black board	General objective: to develop economics temperament Specific objective: to clear the concept of export promotion measures and the new trade policies Questions based on previous knowledge Synopsis: Meaning of export promotion Needs export promotion in India Efforts of India government for export promotion Suggestions of export promotion in India New trade policy Homework after class
3.	National income	1	Lecture, black board	General objective: to develop economics temperament Specific objective: to clear the concept of national income Questions based on previous knowledge Synopsis: Meaning of national income Importance of national income Estimate of national in come in India Composition of national income in india

				Homework after class
4.	Saving and investment	1	Lecture, black board	<p>General objective: to develop economics temperament</p> <p>Specific objective: to clear the concept of saving and investment</p> <p>Questions based on previous knowledge</p> <p>Synopsis:</p> <ul style="list-style-type: none"> Meaning of savings Sources of savings in India Gross domestic savings in India The problem of mobilisation of saving in India Meaning of Investment Investment in india Suggstions for promotion of investment in india <p>Homework after class</p>
5.	Inflation	1	Lecture, black board	<p>General objective: to develop economics temperament</p> <p>Specific objective: to clear the concept of inflation</p> <p>Questions based on previous knowledge</p> <p>Synopsis:</p> <ul style="list-style-type: none"> Meaning of inflation Type of imflation Causes of inflation Inflation and economic growth Inflation in India <p>Homework after class</p>
6.	Fiscal policy	1	lecture	<p>General objective: to develop economics temperament</p> <p>Specific objective: to clear the concept of Fiscal policy</p> <p>Questions based on previous knowledge</p> <p>Synopsis:</p> <ul style="list-style-type: none"> Meaning and definitions of fiscal policy Objectives of fiscal policy Components of fiscal policy Limitations of fiscal policy in developing countries <p>Homework after class</p>

7.	Monetary policy	1	lecture	<p>General objective: to develop economics temperament</p> <p>Specific objective: to clear the concept of monetary policy</p> <p>Questions based on previous knowledge</p> <p>Synopsis:</p> <p>Meaning and definitions of monetary policy</p> <p>Objectives of monetary policy</p> <p>Tools of monetary policy</p> <p>Monetary policy in developing countries</p> <p>Homework after class</p>
<p>Assessment of understanding:</p> <ol style="list-style-type: none"> 1. Unit test for 30 marks: subjective/objective/oral 2. group discussions 3.class room quiz competitions 				

BA II year

1. Outline learning objective
2. Develop the introduction
3. Plan the main body of the lesson
4. Plan to check for understanding
5. Develop a conclusion and a preview
6. Create realistic timeline

Economics
PAPER - I (paper code 0181)
(Micro Economics) M.M. 75

UNIT-1

S. No.	Topic	No. of periods needed	Teaching Method	Lesson plan
1.	Concept and measurement of national income	3	Lecture, black board	General objective: to develop economics temperament Specific objective: to clear the concept and measurement of national income Questions based on previous knowledge Synopsis: Introduction Definition of national Various concepts of national income Measurement of national income Homework after each class
2.	Economic welfare and national income	1	Lecture, black board	General objective: to develop economics temperament Specific objective: to clear the concept of economic welfare and national income Questions based on previous knowledge Synopsis: Introduction Definition of economic welfare Economic welfare and national income Homework after class

3.	Social accounting, circular flow of income, green accounting	3	Lecture, black board	<p>General objective: to develop economics temperament</p> <p>Specific objective: to clear the concept of Social accounting</p> <p>Questions based on previous knowledge</p> <p>Synopsis:</p> <ul style="list-style-type: none"> Introduction Definition of Social accounting Type of accounts Circular flow of income Green accounting <p>Homework after each class</p>
4.	Classical theory of employment-say's law of market	1	Lecture Black board	<p>General objective: to develop economics temperament</p> <p>Specific objective: to clear the concept of say's law of market</p> <p>Questions based on previous knowledge</p> <p>Synopsis:</p> <ul style="list-style-type: none"> Introduction Assumptions classical theory of employment Say's law of market Pigou's version of employment Criticism of classical theory of employment <p>Homework after class</p>
5.	Keynesian theory of employment	1	Lecture Black board	<p>General objective: to develop economics temperament</p> <p>Specific objective: to clear the concept of Keynesian theory of employment</p> <p>Questions based on previous knowledge</p> <p>Synopsis:</p> <ul style="list-style-type: none"> Introduction Assumptions c Keynesian theory of employment Effective demand Determination of employment Importance of effective demand Criticism of Keynesian theory of employment <p>Homework after class</p>

	Assessment of understanding: 1. Unit test for 30 marks: subjective/objective/oral 2. group discussions 3.class room quiz competitions			
	UNIT-2			
1.	Consumption function	2	Lecture Black board	General objective: to develop economics temperament Specific objective: to clear the concept of consumption function Questions based on previous knowledge Synopsis: Introduction Definition of consumption function Schedule of propensity to consume <u>Average propensity to consume</u> <u>Marginal propensity to consume</u> <u>Keynes's psychological law of consumption</u> <u>Determinants of the consumption function</u> <u>Importance of consumption function</u> <u>Homework after each class</u>
2.	The investment multiplier	2	Lecture Black board	General objective: to develop economics temperament Specific objective: to clear the concept of the investment multiplier Questions based on previous knowledge Synopsis: Introduction Theory of investment multiplier Relation between marginal propensity to consume and multiplier Limitation of multiplier Criticism and importance of multiplier concept Homework after each class
3.	The investment function	2	Lecture black board	General objective: to develop economics temperament Specific objective: to clear the concept the investment function Questions based on previous knowledge Synopsis:

				Introduction Investment function Types of the investment function Autonomous and induced investment Marginal efficiency of capital Factors affecting marginal efficiency of capital Homework after each class
	Assessment of understanding: 1. Unit test for 20 marks: subjective/objective/oral 2. group discussions 3.class room quiz competitions			
	UNIT-3			
1.	Nature and characteristics of trade cycle	1	Lecture	General objective: to develop economics temperament Specific objective: to clear the concept of Nature and characteristics of trade cycle Questions based on previous knowledge Synopsis: Introduction Definition of trade cycle Types of trade cycle Causes of trade cycle Nature of trade cycle Phases of trade cycle Homework after class
2.	Hawtre's monetary theory of trade cycle	1	Lecture black board	General objective: to develop economics temperament Specific objective: to clear the concept Hawtre's monetary theory of trade cycle Questions based on previous knowledge Synopsis: Introduction Hawtre's monetary theory of trade Changes in the circular flow of money Consumers income and outlay Criticism of the theory Homework after class
2.	Hayeks over-investment theory	1	Lecture	General objective: to develop economics temperament Specific objective: to clear the concept

				<p>of Hayeks over- investment theory</p> <p>Questions based on previous knowledge</p> <p>Synopsis:</p> <p>Introduction</p> <p>Assumption</p> <p>Role of interest rate</p> <p>Production structure</p> <p><u>Explanation of the theory</u></p> <p><u>Criticism of the theory</u></p> <p>Homework after class</p>
3.	Keynes's view on trade cycles	1	Lecture	<p>General objective: to develop economics temperament</p> <p>Specific objective: to clear the concept of Keynes's view on trade cycles</p> <p>Questions based on previous knowledge</p> <p>Synopsis:</p> <p>Saving invest theory of Keynes</p> <p>Prosperity</p> <p>Recession</p> <p>Recovery</p> <p><u>Criticism of the theory</u></p> <p>Homework after class</p>
4.	Schumpeterer's theory ttrade cycle	1	Lecture black board	<p>General objective: to develop economics temperament</p> <p>Specific objective: to clear the concept of Schumpeterer's theory ttrade cycle</p> <p>Questions based on previous knowledge</p> <p>Synopsis:</p> <p>Innovation theory of business cycle</p> <p>Concept of innovation</p> <p>Prosperity</p> <p>Recess</p> <p><u>Criticism of the theory</u></p> <p>Homework after class</p>
5.	Samuelsons and hicks multiplier accelerator model	3	Lecture black board	<p>General objective: to develop economics temperament</p> <p>Specific objective: to clear the concept of Samuelsons and hicks multiplier accelerator model</p> <p>Questions based on previous knowledge</p> <p>Synopsis:</p> <p>Prosperity accelerator- multiplier</p>

				unified theory of trade cycle merits of the multiplier- accelerator interaction theory <u>Criticism of the theory</u> Hicks multiplier accelerator model Assumption of the model The Hicksian model <u>Criticism of Hicksian model</u> Homework after each class
6.	Control of trade cycle	1	Lecture Black board	General objective: to develop economics temperament Specific objective: to clear Control of trade cycle Questions based on previous knowledge Synopsis: Introduction Control of trade cycle Preventive measures Curative measures Homework after class
	Assessment of understanding: 1. Unit test for 30 marks: subjective/objective/oral 2. group discussions 3.class room quiz competitions			
	UNIT-4			
1.	Interregional and international trade	1	Lecture black board	General objective: to develop economics temperament Specific objective: to clear the concept interregional and international trade Questions based on previous knowledge Synopsis: Introduction Definition of interregional and international trade Distinguishing features of interregional and international trade Homework after class
2.	Ricardian theory of comparative cost	1	Lecture Black board	General objective: to develop economics temperament Specific objective: to clear the concept of Ricardian theory of comparative cost Questions based on previous

				<p>knowledge</p> <p>Synopsis:</p> <p>Introduction</p> <p>Assumptions of Ricardian theory</p> <p>Explanation of Ricardian theory</p> <p>Diagrammatic representation</p> <p>Critical evaluation of comparative cost theory</p> <p>Homework after class</p>
3.	Opportunity cost theory of international trade	1	Lecture black board	<p>General objective: to develop economics temperament</p> <p>Specific objective: to clear the concept opportunity cost theory of international trade</p> <p>Questions based on previous knowledge</p> <p>Synopsis:</p> <p>Introduction</p> <p>Meaning of opportunity cost</p> <p>International trade under constant opportunity cost conditions</p> <p>Critical evaluation of opportunity cost theory</p> <p>Homework after each class</p>
4.	Heckscher- ohlin theory of international trade	1	Lecture Black board	<p>General objective: to develop economics temperament</p> <p>Specific objective: to clear the concept of Heckscher- ohlin theory of international trade</p> <p>Questions based on previous knowledge</p> <p>Synopsis:</p> <p>Introduction</p> <p>Assumptions of Heckscher- ohlin theory</p> <p>Meaning of relative factor abundance</p> <p>Explanation of Heckscher- ohlin theory</p> <p>Critical evaluation of Heckscher- ohlin theory</p> <p>homework after each class</p>
5.	International trade and economic development	1	Lecture Black board	<p>General objective: to develop economics temperament</p> <p>Specific objective: to clear international trade and economic</p>

				<p>development</p> <p>Questions based on previous knowledge</p> <p>Synopsis:</p> <p>Introduction</p> <p>Favourable impact international trade and economic development</p> <p>Unfavourable impact international trade and economic development</p> <p>Critical evaluation of Heckscher-ohlin theory</p> <p>Problems of developed countries related to foreign trade</p> <p>homework after class</p>
6.	Tariffs and import quotas, concept of optimum tariff	2	Lecture Black board	<p>General objective: to develop economics temperament</p> <p>Specific objective: to clear tariffs and import quotas</p> <p>Questions based on previous knowledge</p> <p>Synopsis:</p> <p>Introduction</p> <p>Meaning of tariffs</p> <p>Classification of tariffs</p> <p>Measuring the rate of a tariff</p> <p>Effects of tariff</p> <p>concept of optimum tariff</p> <p>Import quotas</p> <p>Meaning of Import quotas</p> <p>Types of import quotas</p> <p>Effects of quotas</p> <p>Homework after each class</p>
7.	Balance of trade and balance of payment	3	Lecture Black board	<p>General objective: to develop economics temperament</p> <p>Specific objective: to clear concept balance of trade and balance of payment</p> <p>Questions based on previous knowledge</p> <p>Synopsis:</p> <p>Introduction</p> <p>Meaning of balance of payment</p> <p>components of balance of payment</p> <p>equilibrium in balance of payment</p> <p>Causes in unbalance of balance of</p>

				payment Remedies to remove of crisis of balance of payment Homework after each class
8.	Relative merits and demerits of devaluation	1	Lecture Black board	General objective: to develop economics temperament Specific objective: to clear merits and demerits of devaluation Questions based on previous knowledge Synopsis: Introduction Definition of devaluation Objectives of devaluation Effects of devaluation Conditions for the success of devaluation Over valuation Homework after class
9.	Foreign trade multiplier	1	Lecture Black board	General objective: to develop economics temperament Specific objective: to clear concept of foreign trade multiplier import function and export <u>function</u> <u>marginal and average propensity to import</u> <u>leakage in multiplier effect</u> <u>importance of</u> foreign trade multiplier Home work after class
	Assessment of understanding: 1. Unit test for 30 marks: subjective/objective/oral 2. group discussions 3.class room quiz competitions			
	Unit-5			
1.	Functions and objectives of international Monetary fund	2	Lecture, black board	General objective: to develop economics temperament Specific objective: to clear the Functions and objectives of international Monetary fund Questions based on previous knowledge Synopsis: Introduction Establishment of International Monetary fund

				<p>Objects of International Monetary fund</p> <p>Membership of the I.M.F.</p> <p><u>Structure and management of I.M.F.</u></p> <p><u>Financial resources of the I.M.F.</u></p> <p>Function of I.M.F.</p> <p>Homework after each class</p>
2.	World Bank	2	Lecture, black board	<p>General objective: to develop economics temperament</p> <p>Specific objective: to clear the Functions and objectives of World Bank</p> <p>Questions based on previous knowledge</p> <p>Synopsis:</p> <p>Introduction</p> <p>Establishment of World Bank</p> <p>Objects of World Bank</p> <p>Membership of the World Bank</p> <p><u>Structure and management of World Bank</u></p> <p>Function of World Bank.</p> <p>Homework after each class</p>
3	World Trade Organization	2	Lecture, black board	<p>General objective: to develop economics temperament</p> <p>Specific objective: to clear the Functions and objectives of World Trade Organization</p> <p>Questions based on previous knowledge</p> <p>Synopsis:</p> <p>Introduction</p> <p>Establishment of World Trade Organization</p> <p>Objects of W.T.O.</p> <p><u>Structure and management of W.T.O.</u></p> <p>Function of W.T.O.</p> <p>Homework after each class</p>
4.	Foreign trade in India recent change in the composition and direction of foreign trade	1	Lecture, black board	<p>General objective: to develop economics temperament</p> <p>Specific objective: to clear the Foreign trade in India recent change in the composition and direction of foreign trade</p> <p>Questions based on previous knowledge</p> <p>Synopsis:</p>

				<p>Introduction</p> <p>Role of foreign trade</p> <p>Direction of India's foreign trade</p> <p>Composition of India's foreign trade</p> <p>Homework after class</p>
5.	India's balance of payment	1	Lecture, black board	<p>General objective: to develop economics temperament</p> <p>Specific objective: to clear India's balance of payment</p> <p>Questions based on previous knowledge</p> <p>Synopsis:</p> <p>Introduction</p> <p>Meaning of balance of payment</p> <p>Balance of payment in India</p> <p>Crisis of balance of payment in India</p> <p>Remedies to remove crisis of balance of payment in India</p> <p>Homework after each class</p>
6.	Export promotion and import substitution	1	Lecture, black board	<p>General objective: to develop economics temperament</p> <p>Specific objective: to clear export promotion and import substitution</p> <p>Questions based on previous knowledge</p> <p>Synopsis:</p> <p>Introduction</p> <p>Meaning of export promotion</p> <p>Need export promotion in India</p> <p>Government efforts in export promotion in India</p> <p>import substitution in India</p> <p>Homework after class</p>
7.	Multinational corporations and India	1	Lecture, black board	<p>General objective: to develop economics temperament</p> <p>Specific objective: to clear multinational corporations and India</p> <p>Questions based on previous knowledge</p> <p>Synopsis:</p> <p>Introduction</p> <p>Meaning of multinational corporations</p> <p>Characteristics of multinational corporations</p>

				Merits and demerits of multinational corporations Role of multinational corporations In India Homework after class
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BA II
Economics
PAPER 2 (paper code - 0182)
(Money Banking and Public Finance) M.M. 75

UNIT-1

S . n o .	Topic	No. of periods needed	Teaching Method	Lesson plan
1 .	Meaning and function of money	2	Lecture, black board	General objective: to develop economics temperament Specific objective: to clear the meaning and function of money Questions based on previous knowledge Synopsis: Introduction Definition of money Function of money Homework after each class
2 .	Gresham's law	1	Lecture, black board	General objective: to develop economics temperament Specific objective: to clear the concept of Gresham's law Questions based on previous knowledge Synopsis: History of Gresham's law Definition of Gresham's law Why does the Gresham's law Scope of the Gresham's law Limitation of Gresham's law Homework after class
3 .	Quantity theory of money	3	Lecture, black board	General objective: to develop economics temperament Specific objective: to clear the concept of quantity theory of money Questions based on previous knowledge Synopsis: Definition of Quantity theory of money Quantity theory of money Fisher's equation (cash transaction) Assumption of quantity theory of

				money Criticisms of Fisher's quantity theory of money Cash balance approach Cambridge equation Marshall's equation Robertson's equation Peog's equation Keynesian equation Homework after each class
4	Change in the value of money (inflation, deflation, reflation)	3	Lecture, black board	General objective: to develop economics temperament Specific objective: to clear concept of change in the value of money Questions based on previous knowledge Synopsis: Introduction Inflation Meaning of inflation Types of inflation Stages of inflation Causes of inflation Effects of inflation Deflation Meaning of deflation Stages of deflation Causes of deflation Effects of deflation reflation Homework after each class
5	Demand pull and cost push inflation and Philips curve	3	Lecture, black board	General objective: to develop economics temperament Specific objective: to clear concept Demand pull and cost push inflation and Philips curve Questions based on previous knowledge Synopsis: Introduction Demand pull inflation Cost push inflation Philips curve An analysis of unemployment and inflation Homework after each class

Assessment of understanding:

1. Unit test for 30 marks: subjective/objective/oral
2. group discussions
3. class room quiz competitions

UNIT-2

1.	Commercial banking	4	Lecture Black board	General objective: to develop economics temperament Specific objective: to clear the concept of commercial banking Questions based on previous knowledge Synopsis: Introduction Definition of Banks Types of Banks Functions of Banks The process of credit creation Purpose and of credit creation A critical appraisal of the progress of commercial banking Homework after each class
2.	Functions of Central Bank	4	Lecture Black board	General objective: to develop economics temperament Specific objective: to clear the concept of Functions of Central Bank Questions based on previous knowledge Synopsis: Introduction Definition of Central Bank Functions of Central Bank Quantitative and qualitative methods of credit control Homework after each class
3.	Role and functions of the Reserve bank of india	2	Lecture Black board	General objective: to develop economics temperament Specific objective: to clear the role and functions of the Reserve bank of india Questions based on previous knowledge Synopsis: Establishment and aims of Reserve Bank of India Organization of Reserve Bank of India Functions of Reserve Bank of India Homework after each class
4.	Objectives and limitations of	2	Lecture black board	General objective: to develop economics temperament

	monetary policy with special reference to india			Specific objective: to clear concept of Objectives and limitations of monetary policy with special reference to india Questions based on previous knowledge Synopsis: Meaning of monetary policy Objective of monetary policy Tools of monetary policy Monetary policy in a developing economy Monetary policy of Reserve Bank of India Homework after each class
Assessment of understanding: 1. Unit test for 20 marks: subjective/objective/oral 2. group discussions 3.class room quiz competitions				
UNIT-3				
1.	Meaning and scope of public finance	3	Lecture black board	General objective: to develop economics temperament Specific objective: to clear the concept of meaning and scope of public finance Questions based on previous knowledge Synopsis: Introduction of public finance Nature of public finance Scope of public finance Distinction between public finance and private finance Importance of public finance Homework after each class
2.	Social goods v/s Private goods	1	Lecture Black board	General objective: to develop economics temperament Specific objective: to clear the concept of Social goods v/s Private goods Questions based on previous knowledge Synopsis: Introduction Concept of social goods Social goods v/c Private goods Homework after class
3.	Principle of maximum social advantage	1	Lecture Black board	General objective: to develop economics temperament Specific objective: to clear the concept of principle of maximum social advantage Questions based on previous knowledge

				Synopsis: Principle of maximum social advantage Explanation Diagrammatic representation Criticism of principle of maximum social advantage Homework after class
4.	Role of government in economic activities	1	Lecture Black board	General objective: to develop economics temperament Specific objective: to clear the role of government Questions based on previous knowledge Synopsis: Introduction Economic activities of modern states Factors responsible for increasing government's economic activities Limitations of economic activities Homework after class
5.	Public expenditure	3	Lecture Black board	General objective: to develop economics temperament Specific objective: to clear concept of public expenditure Questions based on previous knowledge Synopsis: Concept of public expenditure Meaning of public expenditure Classification of public expenditure Importance and objects of public expenditure Principles of public expenditure Trends in Public expenditure and causes of public expenditure in India Homework after each class
Assessment of understanding: 1. Unit test for 30 marks: subjective/objective/oral 2. group discussions 3. class room quiz competitions				
UNIT-4				
1.	Sources of public revenue	2	Lecture Black board	General objective: to develop economics temperament Specific objective: to clear the concept of public revenue Questions based on previous knowledge Synopsis:

				Meaning of public revenue Classification of public revenue Sources of public revenue Homework after each class
2.	Canons of taxation	1	Lecture Black board	General objective: to develop economics temperament Specific objective: to clear the Canons of taxation Questions based on previous knowledge Synopsis: Introduction Meaning of tax Objectives of taxation Canons of taxation Homework after class
3.	Classification of taxes	1	Lecture Black board	General objective: to develop economics temperament Specific objective: to clear the classification of taxes Questions based on previous knowledge Synopsis: Classification of taxes Direct taxes Definition of Direct tax Merits and demerits of Direct tax indirect taxes Definition of indirect tax Merits and demerits of indirect tax Proportional progressive and degressive taxes Homework after class
4.	Division of tax <u>burden, impact and incidence of taxes</u>	1	Lecture Black board	General objective: to develop economics temperament Specific objective: to clear the concept of division of tax <u>burden, impact and incidence of taxes</u> Questions based on previous knowledge Synopsis: Introduction Meaning the division of tax <u>burden</u> <u>Meaning of impact and incidence of taxation</u> <u>difference between impact and incidence</u> Homework after class

5.	e Equity and justice of taxation, the benefit and ability to pay approaches	1	Lecture Black board	<p>General objective: to develop economics temperament</p> <p>Specific objective: to clear The benefit and ability to pay approaches</p> <p>Questions based on previous knowledge</p> <p>Synopsis:</p> <p>Introduction</p> <p>Benefit principle of taxation</p> <p>Assessment of benefit principle</p> <p>Ability to pay principle</p> <p>Assessment of Ability to pay principle</p> <p>Homework after class</p>
6.	Taxable capacity, Effects of taxation	1	Lecture Black board	<p>General objective: to develop economics temperament</p> <p>Specific objective: to clear the concept of Taxable capacity and Effects of taxation</p> <p>Questions based on previous knowledge</p> <p>Synopsis:</p> <p>Introduction</p> <p>Definitions of the Taxable capacity</p> <p>Absolute and relative taxable capacity</p> <p>Factors determining Taxable capacity</p> <p>Measurement of taxable capacity</p> <p>Effects of taxation</p> <p>Homework after class</p>
7.	Major trends in tex revenue of the central and state government in india	1	Lecture Black board	<p>General objective: to develop economics temperament</p> <p>Specific objective: to clear the concept of the major trends in tex revenue of the central and state government in india</p> <p>Questions based on previous knowledge</p> <p>Synopsis:</p> <p>Introduction</p> <p>Source of revenue of central government</p> <p>Expenditure of central government</p> <p>Causes of increase in expenditure in India</p> <p>Sources of revenue of state governmrnt</p> <p>Expenditure of state government</p> <p>Homework after class</p>
<p>Assessment of understanding:</p> <ol style="list-style-type: none"> 1. Unit test for 30 marks: subjective/objective/oral 2. group discussions 3.class room quiz competitions 				

Unit-5				
1.	Public debt	3	Lecture, black board	General objective: to develop economics temperament Specific objective: to clear the concept of public debt Questions based on previous knowledge Synopsis: Introduction Meaning of public debt Importance of public debt Effects of debt Classification of public debt Internal and external debt Methods of raising public debt Effects of debt Methods of redemption of public debt Homework after each class
2.	Financial administration and budgetary procedure	3	Lecture, black board	General objective: to develop economics temperament Specific objective: to clear the concept of the financial administration and budgetary procedure Questions based on previous knowledge Synopsis: Introduction Meaning of financial administration Scope of financial administration Importance of financial administration Process of financial administration Public budget Meaning of Public budget Objectives of budget Kinds of budget Economic functional classification of the budget Preparation and budget in india Homework after each class
Assessment of understanding: 1. Unit test for 30 marks: subjective/objective/oral 2. group discussions 3.class room quiz competitions				

BA III year

1. Outline learning objective
2. Develop the introduction
3. Plan the main body of the lesson
4. Plan to check for understanding
5. Develop a conclusion and a preview
6. Create realistic timeline

Economics**PAPER -I (paper code - 0242)****(DEVELOPMENT AND ENVIRONMENTAL ECONOMICS) M.M. 75****UNIT-1**

S. No.	Topic	No. of periods needed	Teaching Method	Lesson plan
1.	Economic growth and development	2	Lecture, black board	General objective: to develop economics temperament Specific objective: to clear the concept of economic growth and development Questions based on previous knowledge Synopsis: Introduction Meaning and definition of economic development Characteristics of economic development distinction between economic growth and economic development factors influencing economic growth Homework after each class
2.	Developed and under-developed economy	1	Lecture, black board	General objective: to develop economics temperament Specific objective: to clear the concept

				of developed and under-developed economy Questions based on previous knowledge Synopsis: Introduction Meaning of developing economies Characteristics of under developed economy Homework after each class
3.	Poverty- absolute and relative	1	Lecture, black board	General objective: to develop economics temperament Specific objective: to clear the concept of Poverty Questions based on previous knowledge Synopsis: Introduction Absolute poverty Relative poverty Causes of poverty Homework after class
4.	Measuring development and undevelopment, human development index	1	Lecture, black board	General objective: to develop economics temperament Specific objective: to clear the concept of Measuring development and undevelopment Questions based on previous knowledge Synopsis: Introduction Measurement or indicator of economic development Human development index GDI, HPI Homework after class
	Assessment of understanding: 1. Unit test for 30 marks: subjective/objective/oral 2. group discussions 3. class room quiz competitions			
	UNIT-2			
1.	Population problem and growth	2	Lecture, black board	General objective: to develop economics temperament Specific objective: to clear the concept of Population problem and growth Questions based on previous knowledge Synopsis:

				<p>Introduction</p> <p>Role of human capital in economic development</p> <p>Pattern of population</p> <p>Population, poverty and environment</p> <p>Theory of demographic transition</p> <p>Homework after each class</p>
2.	Theory of social change Immutable law of capital development	1	Lecture, black board	<p>General objective: to develop economics temperament</p> <p>Specific objective: to clear the theory of social change Immutable law of capital development</p> <p>Questions based on previous knowledge</p> <p>Synopsis:</p> <p>Introduction</p> <p>Theory of social change</p> <p>Immutable law of capital development</p> <p>Homework after class</p>
3.	Karl marks- theory of development	1	Lecture, black board	<p>General objective: to develop economics temperament</p> <p>Specific objective: to clear the concept of Karl marks- theory of development</p> <p>Questions based on previous knowledge</p> <p>Synopsis:</p> <p>Introduction</p> <p>Explanation of Marxian theory</p> <p>Materialistic interpretation of history</p> <p>Theory of surplus value</p> <p>Accumulation of capital</p> <p>Crisis in capitalism</p> <p>Stage of development of marx</p> <p>A critical appraisal</p> <p>Homework after class</p>
4.	Mahalonobis four sectoral model	1	Lecture, black board	<p>General objective: to develop economics temperament</p> <p>Specific objective: to clear the concept of Mahalonobis four sectoral model</p> <p>Questions based on previous knowledge</p> <p>Synopsis:</p> <p>Introduction</p> <p>Mahalonobis four sectoral model</p> <p>Critical appraisal</p> <p>Homework after class</p>

5.	Schumpeter's development in capitalistic economy	1	Lecture, black board	<p>General objective: to develop economics temperament</p> <p>Specific objective: to clear the concept of Schumpeter's development in capitalistic economy</p> <p>Questions based on previous knowledge</p> <p>Synopsis:</p> <ul style="list-style-type: none"> Introduction Schumpeter analysis Circular flow of economy Meaning of economy development Innovations Cyclic process Criticisms of the theory Homework after class
6.	Big-push theory	1	Lecture, black board	<p>General objective: to develop economics temperament</p> <p>Specific objective: to clear the concept of big-push theory</p> <p>Questions based on previous knowledge</p> <p>Synopsis:</p> <ul style="list-style-type: none"> Introduction Rosenstein-rodans thesis Indvisibility of demand Indvisibility in production function Indvisibility in supply of savings Criticisms of the theory Homework after class
7.	balance and un balance growth	2	Lecture, black board	<p>General objective: to develop economics temperament</p> <p>Specific objective: to clear the concept of big-push theory</p> <p>Questions based on previous knowledge</p> <p>Synopsis:</p> <ul style="list-style-type: none"> Introduction Meaning and definition of balanced growth Explanations of balanced growth Rosenstein Rodans explanation Explanation of Regner Nurkse Effects of balanced growth Problems of balanced growth Criticism of balanced growth

				Unbalanced growth Unbalanced growth principle of Prof. Hirschman Thought of Hens w. Singer Merits and demerits of Unbalanced growth method Criticism of Unbalanced growth Homework after each class
8.	Critical minimum effort thesis	1	Lecture, black board	General objective: to develop economics temperament Specific objective: to clear the concept of Critical minimum effort thesis Questions based on previous knowledge Synopsis: Liebensteins theory Population growth a function of per capita income Fertility and critical minimum effort Criticisms of the theory Homework after class
9.	Low income equilibrium trap	1	Lecture, black board	General objective: to develop economics temperament Specific objective: to clear the concept of low income equilibrium trap- Questions based on previous knowledge Synopsis: Nalson's model Homework after class
10.	Dualism-technical, behavioural and social	2	Lecture, black board	General objective: to develop economics temperament Specific objective: to clear the concept of dualism-technical, behavioural and social Questions based on previous knowledge Synopsis: Social dualism Characteristics of dualistic society Critical appraisal Technological dualism Critical appraisal Homework after each class

	Assessment of understanding: 1. Unit test for 20 marks: subjective/objective/oral 2. group discussions 3.class room quiz competitions			
	UNIT-3			
1.	Harrod and Domar growth model	2	Lecture, black board	General objective: to develop economics temperament Specific objective: to clear the concept of Harrod and Domar growth model Questions based on previous knowledge Synopsis: Introduction Assumptions of Harrod and Domar growth model Harrod's growth model Equations of Harrod's growth model Domar's growth model Equations of Domar's growth model Comparative of Harrod and Domar growth model Homework after each class
2.	Solow's neo-classical model of economic growth	1	Lecture, black board	General objective: to develop economics temperament Specific objective: to clear the concept of Solow's neo-classical model of economic growth Questions based on previous knowledge Synopsis: Introduction Assumptions of Solow's model Equation of Solow's model Criticism of Solow's model Homework after class
3.	Meade's neo-classical model of economic growth	1	Lecture, black board	General objective: to develop economics temperament Specific objective: to clear the concept of Meade's neo-classical model of economic growth Questions based on previous knowledge Synopsis: Introduction Assumptions of Meade's model

				Equation of of Meade's model Criticism of meade's model Homework after class
4.	Mrs. Joan Robinson's model	1	Lecture, black board	General objective: to develop economics temperament Specific objective: to clear the concept of Mrs. Joan Robinson's model Questions based on previous knowledge Synopsis: Introduction Assumptions of Mrs. Joan Robinson's model Mathematical structure of Mrs. Joan Robinson's model Critical appraisal Homework after class
5.	Arthur Lewis theory of unlimited supply of labour	1	Lecture, black board	General objective: to develop economics temperament Specific objective: to clear the concept of Arthur Lewis theory of unlimited supply of labour Questions based on previous knowledge Synopsis: Introduction Assumptions of Arthur Lewis theory The process of economic expansion End of growth process Critical appraisal Homework after class
	Assessment of understanding: 1. Unit test for 30 marks: subjective/objective/oral 2. group discussions 3.class room quiz competitions			
	UNIT-4			
1	Environment economy linkage and environment as a necessity and luxury	1	Lecture, black board	General objective: to develop economics temperament Specific objective: to clear the concept of environment economy linkage and environment as a necessity and luxury Questions based on previous knowledge Synopsis: Introduction

				Environment Characteristics of Environment Elements of Environment Economy Environment and economy links Impact of economic development of environment Environment economy equilibrium environment Environment as a necessity and luxury Homework after class
2.	Population-environment linkage	1	Lecture, black board	General objective: to develop economics temperament Specific objective: to clear the concept of population- environment linkage Questions based on previous knowledge Synopsis: Introduction Population environment linkage Population growth and environmental crisis Homework after class
3.	Environmental use and environmental disruption- as an allocation problem	1	Lecture, black board	General objective: to develop economics temperament Specific objective: to clear the concept of Environmental use and environmental disruption- as an allocation problem Questions based on previous knowledge Synopsis: Introduction Environmental use Environmental disruption Allocation problem Homework after class
4.	Market failure for environmental goods; Environments as a public goods ;a common problem; property right approach to environmental problem	1	Lecture, black board	General objective: to develop economics temperament Specific objective: to clear the concept of Market failure for environmental goods; Environments as a public goods ;a common problem; property right approach to environmental problem Questions based on previous

				Synopsis: Introduction Market failure for environmental goods Environments as a public goods a common problem Property right approach to environmental problem Homework after class
5.	Valuation of environmental damages- land water air and forest	1	Lecture, black board	General objective: to develop economics temperament Specific objective: to clear the concept of population- environment linkage Questions based on previous knowledge Synopsis: Introduction Valuation of environmental damages Valuation of environmental damages: land ,water ,air and forest Homework after class
6.	Pollution control- prevention	1	Lecture, black board	General objective: to develop economics temperament Specific objective: to clear the concept of pollution control- prevention Questions based on previous knowledge Synopsis: Introduction Meaning of pollution Types of pollution Air pollution Water pollution Soil pollution Soud pollution Radio active pollution Homework after class
7.	Control and abatement of pollution choice of policy instruments in developing countries	1	Lecture, black board	General objective: to develop economics temperament Specific objective: to clear the concept of Control and abatement of pollution choice of policy instruments in developing countries Questions based on previous knowledge Synopsis:

				<p>Introduction</p> <p>Policy and environmental legislation for pollution in developing countries</p> <p>environmental legislation and implementation</p> <p>Homework after class</p>
8.	Indicators of sustainable development and environmental accounting	1	Lecture, black board	<p>General objective: to develop economics temperament</p> <p>Specific objective: to clear the concept of Indicators of sustainable development and environmental accounting</p> <p>Questions based on previous knowledge</p> <p>Synopsis:</p> <p>Introduction</p> <p>Sustainable development</p> <p>Indicators of sustainable development</p> <p>environmental accounting</p> <p>Homework after class</p>
	<p>Assessment of understanding:</p> <ol style="list-style-type: none"> 1. Unit test for 30 marks: subjective/objective/oral 2. group discussions 3.class room quiz competitions 			
	Unit-5			
1	Concept of intellectual capital	2	Lecture, black board	<p>General objective: to develop economics temperament</p> <p>Specific objective: to clear the concept of intellectual capital</p> <p>Questions based on previous knowledge</p> <p>Synopsis:</p> <p>Introduction</p> <p>Meaning of human capital formation or concept of intellectual capital</p> <p>Need for intellectual capital formation</p> <p>Importance of human capital formation</p> <p>Scope of human investment : food security, education, health and nutrition</p> <p>Measures for human capital formation</p>

				<p>Limitations of investment in human capital</p> <p>Homework after each class</p>
2.	Efficiency and productivity in agriculture	1	Lecture, black board	<p>General objective: to develop economics temperament</p> <p>Specific objective: to clear the concept of efficiency and productivity in agriculture</p> <p>Questions based on previous knowledge</p> <p>Synopsis:</p> <p>Introduction</p> <p>Agriculture efficiency</p> <p>Agriculture productivity</p> <p>Homework after class</p>
3.	New technology and sustainable agriculture	1	Lecture, black board	<p>General objective: to develop economics temperament</p> <p>Specific objective: to clear the concept of New technology and sustainable agriculture</p> <p>Questions based on previous knowledge</p> <p>Synopsis:</p> <p>Introduction</p> <p>New technology in Agriculture</p> <p>Sustainable development in agriculture</p> <p>Homework after class</p>
4.	Globalization and agricultural growth	1	Lecture, black board	<p>General objective: to develop economics temperament</p> <p>Specific objective: to clear the concept of globalization and agricultural growth</p> <p>Questions based on previous knowledge</p> <p>Synopsis:</p> <p>Introduction</p> <p>Globalization and agricultural growth</p> <p>Homework after class</p>
5.	The choice of technique and appropriate technology and employment	1	Lecture, black board	<p>General objective: to develop economics temperament</p> <p>Specific objective: to clear the concept of the choice of technique and appropriate technology and employment</p>

				<p>Questions based on previous knowledge</p> <p>Synopsis:</p> <p>Introduction</p> <p>Need and importance of choice of technique</p> <p>Difficulties in the choice of technology</p> <p>Appropriate technology and employment</p> <p>Homework after class</p>
6.	Role of monetary and fiscal policy in developing countries	2	Lecture, black board	<p>General objective: to develop economics temperament</p> <p>Specific objective: to clear the role of monetary and fiscal policy in developing countries</p> <p>Questions based on previous knowledge</p> <p>Synopsis:</p> <p>Introduction</p> <p>Fiscal policy and economic development</p> <p>Meaning and definition of fiscal policy</p> <p>Objectives of fiscal policy</p> <p>Objectives of fiscal policy in underdeveloped countries</p> <p>Tools of fiscal policy</p> <p>Limitations of fiscal policy in developing countries</p> <p>Monetary policy</p> <p>Meaning and definition of monetary policy</p> <p>Objectives of monetary policy in underdeveloped countries</p> <p>Limitations of monetary policy in developing countries</p> <p>Homework after each class</p>

BA III year
Economics
PAPER - II (paper code - 0243)
(Statistical Methods) M.M. 75

UNIT-1

S. No.	Topic	No. of periods needed	Teaching Method	Lesson plan
1.	Statistical methods statistics	1	Lecture, black board	General objective: to develop economics temperament Specific objective: to clear the concept of statistical methods statistics Questions based on previous knowledge Synopsis: Introduction Definition of statistics Scope and division of statistics Objects and functions of statistics Importance of statistics Limitations of statistics statistics Homework after class
2.	Statistical investigation	1	Lecture, black board	General objective: to develop economics temperament Specific objective: to clear the concept of Statistical investigation Questions based on previous knowledge Synopsis: Introduction Meaning and definition of Statistical investigation Main stages of statistical investigation Planning of statistical investigation Types of statistical investigation Methods of statistical investigation Homework after class
3.	Collection of data, Primary and secondary data	1	Lecture, black board	General objective: to develop economics temperament Specific objective: to clear the concept of collection of data

				<p>Questions based on previous knowledge</p> <p>Synopsis:</p> <p>Introduction</p> <p>Meaning and definition of data</p> <p>Primary and secondary data</p> <p>Methods of collecting primary data</p> <p>Collection of secondary data</p> <p>Errors in collection of statistics</p> <p>Home work after class</p>
4.	Sampling and sampling designs, Sampling errors	2	Lecture, black board	<p>General objective: to develop economics temperament</p> <p>Specific objective: to clear the concept of Sampling and sampling designs</p> <p>Questions based on previous knowledge</p> <p>Synopsis:</p> <p>Introduction</p> <p>Sampling</p> <p>Objects of sampling</p> <p>Sampling distribution</p> <p>Methods of sampling</p> <p>Sampling errors</p> <p>Homework after class</p>
5.	Frequency distribution	1	Lecture, black board	<p>General objective: to develop economics temperament</p> <p>Specific objective: to clear the concept of Frequency distribution</p> <p>Questions based on previous knowledge</p> <p>Synopsis:</p> <p>Introduction</p> <p>Concept of Frequency distribution</p> <p>Methods to make discrete frequency distribution</p> <p>Classification according to class-intervals</p> <p>Cumulative frequency</p> <p>Homework after class</p>
6.	Diagrammatic and graphic presentation	2	Lecture, black board	<p>General objective: to develop economics temperament</p> <p>Specific objective: to clear the concept of diagrammatic and graphic presentation</p> <p>Questions based on previous knowledge</p> <p>Synopsis:</p> <p>Introduction</p> <p>Utility and ad</p> <p>Kinds of diagrams</p>

				Homework after class
Assessment of understanding: 1. Unit test for 30 marks: subjective/objective/oral 2. group discussions 3.class room quiz competitions				
UNIT-2				
1.	Central tendency- measurement of mean	3	Lecture black board	General objective: to develop economics temperament Specific objective: to clear the concept of central tendency and calculation of measurement of mean Questions based on previous knowledge Synopsis: Introduction Measurement of mean Various measures of central tendency Arithmetic mean Methods of calculating mean Calculation of in individual series Calculation of mean in grouped series Homework after each class
2.	Geometric mean and harmonic mean	3	Lecture black board	General objective: to develop economics temperament Specific objective: to clear the concept and calculation of geometric mean and harmonic mean Questions based on previous knowledge Synopsis: Introduction Geometric mean Method of calculating geometric mean Harmonic mean Method of calculating Harmonic mean Homework after each class
3.	Median	2	Lecture black board	General objective: to develop economics temperament Specific objective: to clear the concept and calculation of Median Questions based on previous

				knowledge Synopsis: Median Computation of median Homework after each class
4.	Mode	3	Lecture Black board	General objective: to develop economics temperament Specific objective: to clear the concept and calculation of Median Questions based on previous knowledge Synopsis: Mode Computation of Mode Homework after each class
Assessment of understanding: 1. Unit test for 20 marks: subjective/objective/oral 2. group discussions 3.class room quiz competitions				
UNIT-3				
1.	dispersion	4	Lecture Black board	General objective: to develop economics temperament Specific objective: to clear the concept and calculation of dispersion Questions based on previous knowledge Synopsis: Dispersion Methods of measuring dispersion Methods of dispersion rang Quartile deviation Computation of quartile deviation Mean deviation Calculation of mean deviation and its coefficient Homework after each class
2.	Standard deviation	3	Lecture Black board	General objective: to develop economics temperament Specific objective: to clear the concept and calculation of standard deviation Questions based on previous knowledge Synopsis: Standard deviation Methods of measuring Standard

				deviation Calculation of standard deviation and its coefficient Homework after each class
3.	Lorenz curve	1	Lecture Black board	General objective: to develop economics temperament Specific objective: to clear the concept of Lorenz curve Questions based on previous knowledge Synopsis: Introduction Lorenz curve Method of construction Homework after class
4.	Skewness and kurtosis	2	Lecture Black board	General objective: to develop economics temperament Specific objective: to clear the concept of skewness and kurtosis Questions based on previous knowledge Synopsis: Skewness Meaning of skewness Measures of skewness Karl pearson's coefficient of skewness Bowley's coefficient of skewness Kurtosis Measurement of kurtosis Homework after each class
Assessment of understanding: 1. Unit test for 30 marks: subjective/objective/oral 2. group discussions 3.class room quiz competitions				
UNIT-4				
1.	Coefficient of correlation- Karl pearson's method	4	Lecture Black board	General objective: to develop economics temperament Specific objective: to clear the concept and calculation of Coefficient of correlation Questions based on previous knowledge Synopsis:

				<p>Introduction</p> <p>Meaning and definition of correlation</p> <p>Degree of correlation</p> <p>Karl pearson's coefficient of correlation</p> <p>Calculation of Karl pearson's coefficient of correlation</p> <p>Homework after each class</p>
2.	Spearman's rank coefficient of correlation	3	Lecture Black board	<p>General objective: to develop economics temperament</p> <p>Specific objective: to clear the concept of correlation and calculation of Karl pearson's coefficient of correlation</p> <p>Questions based on previous knowledge</p> <p>Synopsis:</p> <p>Introduction</p> <p>Meaning and definition of correlation</p> <p>Degree of correlation</p> <p>Karl pearson's coefficient of correlation</p> <p>Calculation of Karl pearson's coefficient of correlation</p> <p>Homework after each class</p>
<p>Assessment of understanding:</p> <p>1. Unit test for 30 marks: subjective/objective/oral</p> <p>2. group discussions</p> <p>3.class room quiz competitions</p>				
Unit-5				
1.	Index Number	5	Lecture, black board	<p>General objective: to develop economics temperament</p> <p>Specific objective: to clear the concept and computation of Index Number</p> <p>Questions based on previous knowledge</p> <p>Synopsis:</p> <p>Introduction</p> <p>Meaning and definition of Index Number</p> <p>Characteristics of Index Numbers</p> <p>Utility and importance of Index Numbers</p> <p>Construction of index numbers</p>

				Simple and weighted Index Number Fisher's ideal index <u>number and reversal test</u> <u>Consumer price index numbers</u> <u>Homework after each class</u>
	Time series analysis	4	Lecture, black board	General objective: to develop economics temperament Specific objective: to clear the concept of Time series Questions based on previous knowledge Synopsis: Introduction Meaning and definition of Time series Causes of variations in Time series Data Components of Time series Importance of Time series Measurement of trend Graphical method Method of least squares Method of moving averages Homework after each class
Assessment of understanding: 1. Unit test for 30 marks: subjective/objective/oral 2. group discussions 3.class room quiz competitions				

ACE
-Retaining Wisdom

” टीचिंग प्लान ”
(राजनीति शास्त्र विभाग)



JUNIOR REGISTER

Date			
Page No.			

Prakash Chaud Jangde

Asst. Professor

Political Science

Shri Kuleshwar Mahadev Gonds College Jabra

Kharapara - Dist - Raipur.

Asst. Professor

Jangde

Principle

③३) चालीस सीता कायना →

(७) न. म. ग. सं. स्थापित विद्यालयों में पठित शिक्षा -

(9) बचत बैंक का प्रारंभ (इंटीर) 1955

(4) किसकाट पारिस्परिकी का अभाव (इंडीर ग्राउंडीर के निष्ठिमाय

३. कक्षा शिक्षाभाषा नमूना पर निवेदन (इंग्रैज भाषा काउन्सिल)

क्या आप जानते हैं कि आपका नाम क्या है?

॥ c.c. / M.S.S. सं ज्ञान गवि विदियां

अनादिपण करिअम - पुनहि अपर का चिनिअसजान

(9) उत्पादित - २५.००० रु.

का प्रमाण

② M.C.C. / N.S.S. कक्षा का दायित्व - 25/10/21 से 27/12/21 तक

(क) ई. ई. ई. - ई. ई. ई.

⑪ Small →

विषय

28129 (8.5.2)

(2017/15) (8)

② 1990年11月

— the do flying birds (c)

① 24th Dec - 05/01/21

② विद्युत् चुम्बक प्रयोग - 03/11/24

150 lbs 70 - 191 lbs 127 lbs 100 lbs (5)

④ 11/26/2022

5) Story in wall - 20 of 22 viz

1. $\frac{1}{2} \times 2 = 1$ (1)
 2. $\frac{1}{2} \times 2 = 1$ (2)
 3. $\frac{1}{2} \times 2 = 1$ (3)

21 - 05/23/1974 421111 - 200, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 962, 963, 964, 965, 966, 967, 968, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 990, 991, 992, 993, 994, 995, 996, 997, 998, 999, 1000, 1001, 1002, 1003, 1004, 1005, 1006, 1007, 1008, 1009, 1010, 1011, 1012, 101

~~(Political Theory)~~

सुनिष्ट ① → राजनीति विज्ञान का कार्य- परिभाषा, सिद्धांत, वैचारिक दृष्टि
राजनीति एक इतिहास, मानवी व्यवहार के रूप में,
संस्था, संस्था प्रधान : कार्य, विधिकरण, उत्तर ।
राजनीति विज्ञान की वैचारिक चेतनाओं : परिपक्व एवं व्यापक-
वाद, एवं उत्तर-व्यवहारवाद ।

धूम्र (५) → शाल्य एवं डालि शक्यता लक्ष। अन्तिमालि 'के मिथिला' विद्यालय, गामाविही नवकांठ/ बागमणि विद्यालय।

युक्ति ③ → चंद्रमंडल एवं जल की चहुँपानी परचिन्मा/परिचय
 पर्व, जल, धिष्टान्/अर्धिका/दक्षिण-पर्व,
 - जल परचिन्मा/दक्षिण-पर्व प्रकाश एवं चंद्रमंडल
 के चंद्रमंडल प्रकाश-पर्व, जल, पर्व, युक्ति ③
 दक्षिण के लिए प्रकाश पर्व, युक्ति ③/पर्व, पर्व

इष्टि → शक्ति के प्रकार:- स्वात्म एवं दुर्गमत्, वैश्वदीप एवं
महामाया, निर्द्वैतात्म। शक्ति के अंग- कारिका,
व्याख्या, भाषाणादि। शक्ति प्रकटित हो विद्या
इति निर्देश। शक्ति का विभाग। शक्ति का अंग : शक्ति का
प्रतिबिम्ब के विभाग एवं निर्देश प्रमाण।

पुनित (5) → निष्ठु वन्याल खी राधु, - इत पछानि! अर्थ, प्रसद, प्रवर्णि
काल करह - इष, प्रसद, लकनछे। सामानिक पविर्की।
अर्थ, निष्ठु राधु, निष्ठु राधु। नरियार, राधु राधु।

(Indian Government and politics)

प्रश्न ④ → भारतीय राजनीति में संशोधन :- 1856 के प्रथम अधिनियम -
- अधिनियम, राजस्व में संशोधन, कमिशन प्रणाली निर्दिष्ट करने -
- प्रथम अधिनियम। भारत में संविधानिक विचार :- 1858, 1907,
1919 और 1935 के भारत अधिनियम संविधानिक।

प्रश्न 2 (c) → भारतीय संविधान:- विधिकरण, प्रत्यक्ष, सीमा, संघीय-
- व्यवस्था, मौखिक-लिखित, मूल अधिकार, नीति निर्देशकत्व/संघिकता समित्व अधिकार।

प्रश्न (3) → जंगीय आरक्षणिका:- गण्डवर्ष, उपराष्ट्रपति, पंचम पक्ष, हिंदू
 प्रधानमंत्री / जंगीय चरित्रधारण:- कौटिल्य: विद्यालयी शिक्षा
 गणतन्त्र / वैयक्तिक शिक्षा /

सुनिष्ट ④ → संक्षेप सामान्यतः → दक्षिण सामान्यतः : गन्ध, मेघाभिरुचि,
स्पर्शक पुष्पाभिरुचि, स्पर्शक वस्त्राभिरुचि / गन्ध कार्याभिरुचि :-
गन्धपात्र, मेघाभिरुचि, निम्ब मूलकमंगी !

दुग्ध ⑤ → राज्य सम्बन्धीय :- विधानसभा एवं विधान परिषद।
निर्वाचन प्रक्रिया एवं - पुनराव नवधर। राष्ट्रीय व लोकिय सभा
राज्यीय राजनैतिक प्रक्रिया प्रक्रिया : जाति, धर्म, भाषा, विवेक।
पंचायती राज व्यवस्था।

बी.ए. - द्वितीय वर्ष (राजनीति विभाग)
प्रश्न - प्रश्न-पत्र
राजनीति - विभाग (विभागीय-प्रश्नपत्र)

प्रश्न ① → हॉरेटो :- 'राज्य राज्य' - स्वयं, शिक्षा, दायित्व, उत्तराधिकार - विशेषतः
राज्य - राज्य, दायित्व, उत्तराधिकार, शांति।

प्रश्न ② → 'मैक्सिको' - दुःख का प्रेरक, धर्म व वैयक्तिक, राजनैतिक
- और सामाजिक।
हॉरेटो - 'मैक्सिको' - प्रेरक - वैयक्तिक।
मैक्सिको - 'मैक्सिको' - प्रेरक - वैयक्तिक।
मैक्सिको - 'मैक्सिको' - प्रेरक - वैयक्तिक।

प्रश्न ③ → 'मैक्सिको' - प्रेरक - वैयक्तिक।
- 'मैक्सिको' - प्रेरक - वैयक्तिक।
मैक्सिको - 'मैक्सिको' - प्रेरक - वैयक्तिक।

प्रश्न ④ → 'मैक्सिको' - प्रेरक - वैयक्तिक।
- 'मैक्सिको' - प्रेरक - वैयक्तिक।

प्रश्न ⑤ → 'मैक्सिको' - प्रेरक - वैयक्तिक।
- 'मैक्सिको' - प्रेरक - वैयक्तिक।
मैक्सिको - 'मैक्सिको' - प्रेरक - वैयक्तिक।

बी.ए. - द्वितीय वर्ष (राजनीति विभाग)
प्रश्न - प्रश्न-पत्र
राजनीति - विभाग (विभागीय-प्रश्नपत्र)
(Comparative Government and Politics)

प्रश्न ① → 'मैक्सिको' - प्रेरक - वैयक्तिक।
- 'मैक्सिको' - प्रेरक - वैयक्तिक।

प्रश्न ② → 'मैक्सिको' - प्रेरक - वैयक्तिक।
- 'मैक्सिको' - प्रेरक - वैयक्तिक।

प्रश्न ③ → 'मैक्सिको' - प्रेरक - वैयक्तिक।
- 'मैक्सिको' - प्रेरक - वैयक्तिक।

प्रश्न ④ → 'मैक्सिको' - प्रेरक - वैयक्तिक।
- 'मैक्सिको' - प्रेरक - वैयक्तिक।

प्रश्न ⑤ → 'मैक्सिको' - प्रेरक - वैयक्तिक।
- 'मैक्सिको' - प्रेरक - वैयक्तिक।

बी.ए. द्वितीय वर्ष (राजनीति विभाग)
उपनाम - अनूप
(अंतर्राष्ट्रीय राजनीति)

युनिट ① → 'सोवियत' राजनीति का अर्थ, प्रकृति, स्रोत। अंतर्राष्ट्रीय राजनीति के अंग।

युनिट ② → 'अंतर्राष्ट्रीय राजनीति' के विभिन्न सिद्धांत - शक्ति, परिष्कार, लक्ष्य, शक्ति संबंध, शक्ति संतुलन, शक्ति हस्त, शक्ति प्रयोग।

युनिट ③ → 'शक्ति' संकल्प की व्याख्या - वैयक्तिक, सामूहिक, राष्ट्रीय, अंतर्राष्ट्रीय। शक्ति एवं शक्ति की व्याख्या - सामूहिक, राष्ट्रीय, अंतर्राष्ट्रीय।

युनिट ④ → 'शक्ति' परिष्कार, प्रकार, अर्थ, उद्देश्य एवं कारण।
अंतर्राष्ट्रीय - अर्थ, परिष्कार एवं विवाद। अंतर्राष्ट्रीय के अर्थ की व्याख्या एवं परिष्कार।

युनिट ⑤ → 'सोवियत' राजनीति के नए अवलोकन - ① अंतर्राष्ट्रीय का
② वैयक्तिक
③ सामूहिक

बी.ए. द्वितीय वर्ष (राजनीति विभाग)
उपनाम - अनूप
(सोवियत राजनीति)

युनिट ① → 'सोवियत' राजनीति का अर्थ, प्रकृति एवं स्रोत, अंतर्राष्ट्रीय राजनीति के अंग।
'सोवियत' राजनीति के अर्थ में 'सोवियत' राजनीति का अर्थ।
'सोवियत' राजनीति के अर्थ में 'सोवियत' राजनीति का अर्थ।

युनिट ② → 'सोवियत' राजनीति के अर्थ, प्रकृति एवं स्रोत, अंतर्राष्ट्रीय राजनीति के अंग।
'सोवियत' राजनीति के अर्थ में 'सोवियत' राजनीति का अर्थ।
'सोवियत' राजनीति के अर्थ में 'सोवियत' राजनीति का अर्थ।

युनिट ③ → 'सोवियत' राजनीति एवं सोवियत राजनीति।
'सोवियत' राजनीति के अर्थ में 'सोवियत' राजनीति का अर्थ।
'सोवियत' राजनीति के अर्थ में 'सोवियत' राजनीति का अर्थ।

युनिट ④ → 'सोवियत' राजनीति एवं अंतर्राष्ट्रीय राजनीति।
'सोवियत' राजनीति के अर्थ में 'सोवियत' राजनीति का अर्थ।
'सोवियत' राजनीति के अर्थ में 'सोवियत' राजनीति का अर्थ।

युनिट ⑤ → 'सोवियत' राजनीति पर विचारणीय निष्कर्ष।
'सोवियत' राजनीति के अर्थ में 'सोवियत' राजनीति का अर्थ।
'सोवियत' राजनीति के अर्थ में 'सोवियत' राजनीति का अर्थ।

2021-22

" Lesson Plan for various Papers "

B.A. I ' Political Theory " Paper-I

Month	Proposed Teaching Work	
August 2021	Meaning and Definition of Political Science - - Study of Political Science! - Traditional;	(With Modern Concept), Power, Authority and Influence, Methods of Behaviouralism and Post Behaviouralism.
September 21	State and its Essential Elements, Various - - Organismic theory.	- Theories of the origin of the state! Marxist theory and -
October 21	Sovereignty and its Pluralistic Criticism;	Rights and Duties, Liberty:- Meaning, kinds, safeguards.
November 21	Equality:- Meaning, kinds and Relations with	Liberty, Democracy, Direct democracy.
Dec. 21	Unitary and Federal. Parliamentary and Presidential	Dictatorship, Executive.
Jan. 22	Legis latum, Judiciary, Theory of separation - - and kinds, Theories of Representation and	of Powers and Checks and Balances, Constitution:- Meaning - Electoral Process.
Feb. 22	Public Welfare State, Party System:- Meaning, kinds and Process. - - Meaning, Characteristics and Theories.	Pressure groups:- Meaning, kinds and Techniques, Social change, Feminism, Nationalism.

2021-22
"Lesson Plan for Various Papers"

B.A-2 "Indian Government and Politics" Paper-II

<u>Month</u>	<u>Proposed Teaching Work</u>	
Aug. 2021	First War of Independence of 1857, Quit India Movement	Non-Cooperation Movement, Civil Disobedience Movement
Sept. 2021	Government of India Act of 1858, Morley- Government of India Act, 1935.	Minto Reform Act of 1858, Montague Chemsford Act of 1919.
Oct. 2021	Sources and Salient features of the - - Constitution: Preamble, Constitution's spirit Directive principles of State policy,	Indian Constitution, The Federal System: Nature, Federa- - tion process, Fundamental Rights and Fundamental Duties. The Union Executive: President
Nov. 2021	The Union Executive: President, The - Council of Ministers and the Prime - Minister, Rajya Sabha, Parliamentary Procedure.	Union Executive: Vice-President, The Union Executive: - Minister, Union Legislature - Parliament: Lok Sabha and
Dec. 2021	Union Judiciary: Supreme Court, The State - Ministers and Chief Minister.	Executive: Governor, The state executive: - The Council of
Jan. 22	State Legislature - Legislative Assembly and -Reforms, National and Regional parties.	Legislative Council, Election Commission and Election - Panchayati Raj System.

B.A-I. "Indian Government and Politics"

Month Proposed Teaching Work:

Feb.-201 Major Issues of Indian Politics →

Paper-II

Cast, Religion, Language, Regionalism.

2021-22

"Lesson Plan for Various Papers"

B.A. II - "Political Thought" Paper-I

Month	Proposed Teaching Work
Aug. 2021	Plato:- Ideal State - Justice, Education, Communism, Philosopher King. Aristotle:- State, Slavery, Citizenship, Revolution. Machiavelli:- Child of his times, Religion and Morality, Duties and Conduct of King.
Sep. 2021	Thomas Hobbes:- Social Contract Theory:- Leviathan. John Locke:- Social Contract Theory. Jean Jacques Rousseau:- Social Contract Theory, and General Will.
Oct. 2021	Jeremy Bentham:- Utilitarianism. John Stuart Mill:- Amendment in Utilitarianism, Liberty and Representative Government. Thomas Hill Green:- Political Thoughts.
Nov. 2021	Karl Marx:- Political Thoughts. Idealism & Individualism.
Dec. 2021	Liberalism. Socialism. Fascism.

B.A. II "Political Thought" Paper-I

month	Proposed Teaching Work
Jan. 2022	<p>Macaulay:- Sapthag Theory, King and Kingship. Administrative System, Rajyamandal.</p> <p>Kautilya:- Sapthag Theory, King and Kingship. Administrative System, Rajyamandal.</p> <p>Mahatma Gandhi:- Truth, Non-violence, Satyagrah and Political Thought.</p>
Feb. 2022	<p>Dr. B. R. Ambedkar:- Political and Social Thoughts.</p> <p>Deen Dayal Upadhyay:- Akshayamanavadi.</p>

2021-22
"Lesson Plan for Various papers"

"B.P. II - Comparative Government and Politics". Paper - II

Month	Proposed Teaching Work
Aug. 2021	British Constitution: → Evaluation, Importance and Salient Features of British Constitution. Operations of the Constitution: King and the Crown, The Cabinet and the Prime Minister.
Sep. 2021	Bureaucracy or Civil Services, - Parliament, Rule of Law and Supreme Court. Party System.
Oct. 2021	Constitution of United States of America → Background, Importance and Salient features of the American Constitution. Separation of powers and Checks and Balances. Federal System of America. Federal Executive - The President and the Cabinet. Congress; Organization and functions. Federal Judiciary and Judicial Review. Party System.
Nov. 2021	Swiss Constitution of Switzerland - Constitutional Development and its characteristics. Fundamental Rights. Federal System of Switzerland. Federal Legislature - Federal Parliament.
Dec. 2021	Federal Government. Swiss Judiciary - Federal Supreme Court and other Judicial Authorities. Direct Democracy in Switzerland. Political Parties of Switzerland.
Jan. 2022	Constitution of China: → Constitutional Development and Salient features of the Constitution (1982) of the People's Republic of China. Fundamental Rights and Duties. Legislature of China: The National People's Congress. Chinese governmental framework (The President, The State Council and the Central Military Commission. Judicial System.

B.A. II * Comparative Government and Politics

Paper - II

Month

Proposed Teaching Work

Feb. 2023

Comparative Politics:- Comparative politics-
Political Development: Political-

(Meaning, Definition and Approaches).
Socialisation. Political Culture.

2021-22

" Lesson Plan for Various Papers "

B.A. III - " International Politics " Paper-I

Month	Proposed Teaching Work
Aug. 2021	International Politics :- Meaning, Nature and Scope. Approaches to the Study of International Politics.
Sep. 2021	Diverse theories of International politics, Morgenthau's theory of politics realism.
Oct. 2021	Elements of National power. International politics :- Struggle for power, Retaining power, Increasing power and Demonstrating power.
Nov. 2021	The Concept of Balance of power. The Concept of collective security.
Dec. 2021	Diplomacy :- Definitions, kinds and development. Functions. Disarmament :- Meaning, Definitions and
Jan. 2022	Environmentalism.
Feb. 2022	Globalisation. Human Rights.

BA III - "Public Administration" Paper II

Month	Proposed Teaching Work	
Aug. 2021	Public Administration: Meaning and Scope.	Significance of the study of public administration.
Sep. 2021	Nature of public administration: Art or a discipline. Public Administration and private Administration.	Science, Evolution of study of public administration as private Administration.
Oct. 2021	Methods and Approaches of public Administration.	Administration. New public Administration.
Nov. 2021	Politics and Administration. Leadership.	
Dec. 2021	Decision-making in Administration.	Communication. Accountability.
Jan. 2022	Concept of Bureaucracy, Concepts of	Budget, Budgetary process.
Feb. 2022	Public Administration in the Age of Concept Central Over Administration.	Globalization and Liberalisation. Legislation and judicial.

ACE

"Retaining Wisdom"

" टीचिंग प्लान "

(राजनीति शास्त्र विभाग)



JUNIOR REGISTER

Lesson plan for Business Maths

Month	Proposed	Teaching	work	hours
Aug 2021	Average	outline learning objective (i) Develop the Introduction (ii) Plan for various chapters (iii) How to solve the question (iv)		8
Sept 2021	Ratio, Proportion, Percentage	Commission, Brokerage, Discount		12
Oct- 2021	Profit and Loss, Transportation Problems	Logarithms		15
Nov 2021	Simple Int, Compound Int, Annuity	Sinking Fund		15
Dec. 2021	Matrices, Determinants			10
Jan. 2022	Simultaneous equations			05
Feb 2022	Linear Programming			10
		Doubt clearing classes		

Month

Prepared Teaching work / Teaching Plan Teaching Plan

Teaching activity 1-10. For the students to understand the concept

Aug. 2021 Law of contract, Capacity of parties to contract 10

Sept 2021 offer, acceptance, Free consent- Consideration, performance of contract, Special contract, Unilateral, bilateral pledge 15

Oct 2021 Sale of goods act 10

Nov 2021 Negotiable Instrument act 10

Dec 2021 Creating, dishonour, and discharge of N/E. 05

Jan 2021 The Consumer Protection Act, Indian Partnership act 08

Feb 2021 Introduction of intellectual Property act, copy to Right- Patent- and Trade mark.

Seminar, Group discussion, Quiz etc

B.A. I. Part Communication

21-5-20

Course objective, importance. A good Communicator, Importance for an
graduation, Leadership development, Types of Communication

Month	Proposed teaching work / Lesson Plan	Marks
Aug 2021	Bus Commu. - Concept Importance etc	07
Sept- 2021	Types of Communication Principles of Communication SWOT Analysis	10
Oct- 2021	Communication technique. Formal and Informal Audience Analysis	10
Nov 2021	Writing skills, letters and Application	10
Dec 2021	Report writing etc	08
Jan. 2021	Verbal and non Verbal language, New Techniques of Communication.	11
Feb 2021	Oral Presentation - Principles and Main factors	
PT	International Communication Seminar, Quiz & group discussion	

2021-2022

Plan II (for Business Statistics)

Page No.	
Date	20/10/20

Course objectives: Importance, Relationship between various subjects, correlation, Regression, Probability understanding.

Month	Proposed Teaching Unit, Lesson Plan	Credits
Aug. 2021	An Introduction: Concept of Central Tendency	05
Sept. 2021	Dispersion and their Measures, Particular values	10
Oct. 2021	Linear Regression / Equation, Correlation	10
Nov. 2021	Index Numbers : Moving Averages	12
Dec. 2021	Analysis of time series, Practical Problems	10
Jan. 2022	Business forecasting: methods, Principles, Law of Probability	10
Feb. 2022	Probability :- Questions and Sol.	10
	Seminar, Quiz, group discussion, Internal Assessment -	10

Cost Accounting

Page No.
 Chapter

2023-24
 Page No.

Proposed Teaching work

Periods

Aug.	Cost Account: An Intro material cost, issue of material various methods	10
sep.	Accounting for labour: Incentive Plans Allocation of overheads.	15
oct.	Unit cost; Job cost- and Contract cost-	10
Nov	operating costing. Process Costing.	15
Dec.	Process Costing: by Product Joint- Product-	10
Jan.	Reconciliation of cost and Financial Probits Problems and solution	10
Feb	Break even Analysis: Probi sol.	10
March	Quiz, Seminar, group discussion, Internal Test-	10

Month	Proposed Teaching Plan	Credits
Aug. 2021	An Entrepreneurship : Definition, class, theory, Role of an Entrepreneur.	10
Sept.	Formation of An Venture Venture Capital	10
Oct.	Entrepreneurship development Programme	10
Nov.	Continue E.D.P. Programmes	10
Dec.	Role of Entrepreneur : in Economic growth generation of Employment opportunities.	10
Jan.	Role of Export Promotion, Import Substitution Substitution Foreign Earning.	10
Feb.	Entrepreneurial behaviour : Innovation and Entrepreneurial Psycho Theories, Social Responsibility.	10
	★ Seminar, Quiz, group discussion, Internal Test-	05

Accounting

Unit

Required Learning Unit

10

Aug, 2021

An introduction to management accounting
Role of management accounting
Ratio Analysis

Sept

Ratio Analysis continue

Oct

Cost Accounting, Cash flow statement

Nov

Management costing: Question related to decision making.

Dec

Budget- and budgetary control Flexible budget
Production budget- and various types of budget

Jan

Standard costing & Variance Analysis, material
labour and overhead variance

Feb

Revision of Fund Flow, Cash Flow, and other Topics

Bulz Seminar group discussion

Internal Test



Accounting - Auditing

2019-20

Page No.

marks

month

Proposed Teaching work

Aug.	2021	Auditing: Meaning, objects, Types marks etc	10
sept		Internal cheque system, Internal control Audit, Audit- procedure, Vouching Verification of Assets	10
oct		Audit- of limited Companies Company Auditor Auditors reports	10
Nov		Audit- of non-profit Companies, where fraud is suspected and when a running business is proposed.	10
Dec		Auditors Qualification Appointment, Duties and Responsibilities	10
Jan.		Recent- Trend in Auditing: Nature and significance of Cost Audit Tax Audit-	10
Feb		Management Audit-, Company Audit-. etc	05
		Quiz, Seminar, group discussion, Internal Test-	10

Principles of Marketing

Page No. _____
Date _____

2-13-20

2-20-21

Month Prepared Teaching work / lesson Plan Periods

Aug 2021 Marketing definition, nature, objects, Components and Importance of marketing. 10

Sept- 2021 Marketing Environment, consumer behaviour, marketing strategies 10

Oct- 2021 Market segmentation, Product Planning. 07

Nov- 2021 Wholesale business, Retail business Advantages, and disadvantages 08

Dec- 2021 Channels of distribution, Physical distribution of goods Transportation of goods. order processing. 10

Jan- 2021 Promotion, Individual sales, warehousing, Advertising. Functions of Advertisement, Personnel selling. Sale as a Career, 10

Feb 2021 A good seller his merits and demerits. 05

Quiz, Seminar Internal Test, 15

LESSON PLAN

BSc I year

1. Outline learning objective
2. Develop the introduction
3. Plan the main body of the lesson
4. Plan to check for understanding
5. Develop a conclusion and a preview
6. Create realistic timeline

PAPER - I

ALGEBRA AND TRIGONOMETRY

UNIT-1

S. No.	Topic	No. of periods needed	Teaching Method	Lesson plan
1.	Elementary operation on matrices	7	Animation, ppt-presentation, black board	<ol style="list-style-type: none">1. Questions based on previous knowledge2. Synopsis: Inverse of matrix, linear independence of row and column, row rank, column rank, and equivalence of column and row rank3. Homework after each class
2.	Eigenvalues, and eigenvectors and characteristic	7	Black board, ppt presentation	<ol style="list-style-type: none">1. Questions knowledge2. Synopsis:<ol style="list-style-type: none">a) Cayley Hamilton theoremb) And its use in finding inverse

				of a matrix
				3. Homework after each class
	Assessment of understanding: 1. Unit test for 20 marks: subjective/objective/oral 2. group discussions 3.class room quiz competitions			
	UNIT-2			
1.	Application of matrices	5	Black board, ppt presentation ,	1. Specific objective: to clear the concept of matrix 2. Questions based on previous knowledge 3. Synopsis: a) Homogeneous and nonhomogeneous b) Theorem on consistency of a system of liner equation 4. Homework after each class
2.	Relation between the root and coefficients	6	Black board, ppt presentation ,	1. Specific objective: to clear the concept of relation 2. Questions based on previous knowledge 3. Synopsis: a) General polynomial equation in one variable b) Types: Benign and malignant 4. Homework after each class
3.	Descarle Rule and Cardons method	6	Black board, ppt presentation	1. Specific objective: to clear the concept of descarte and cardons method 2. Questions based on previous knowledge

				3. Synopsis: a) Biquadratic equation 4. Homework after each class
	Assessment of understanding: 1. Unit test for 20 marks: subjective/objective/oral 2. group discussions 3.class room quiz competitions			
	UNIT-3			
1.	Mapping Equivalence relation	6	Black board, ppt presentation	1. Specific objective: to clear the concept of mapping 2. Questions based on previous knowledge 3. Synopsis 4. Homework after each class
2.	Group theory	6	Black board, ppt presentation	1. Specific objective: to clear the concept of group 2. Questions based on previous knowledge 3. Synopsis: a) Introduction of group b) Congruence modulo n c) Geoup of properties d) Subgroup generation of group e) Type of group 4. Homework after each class
3.	Lagrange theorem and Euler theorem	5	Black board, ppt presentation	1. Specific objective: to clear the concept of lagrange and euler theorem 2. Questions based on previous knowledg 3. Homework after each class
4.	Permutations	5	Black board, ppt	1. Questions based on previous knowledge 2. Synopsis: a) Introduction of permuations b) Even and odd permutations 3. Homework after each class

	Assessment of understanding: 1. Unit test for 20 marks: subjective/objective/oral 2. group discussions 3.class room quiz competitions			
	UNIT-4			
1.	Homomorphism and Isomorphism	6	Black board, ppt presentation	1. Specific objective: To clear the concept of homomorphism and isomorphism 2. Questions based on previous knowledge 3. Synopsis: a) Introduction of homomorphism and isomorphism 4. Homework after each class
2.	Ring theory	4	Black board, ppt presentation,	1. Specific objective: To clear the concept of ring 2. Questions based on previous knowledge 3. Synopsis: a) Introduction of ring and properties 4. Homework after each class
3.	Inteal domain and fields	4	Black board, ppt presentation,	1. Specific objective: To clear the concept of domain and fields 2. Questions based on previous knowledge 3. Synopsis: a) Characteristic of a ring and field 4. Homework after each class
	Assessment of understanding: 1. Unit test for 20 marks: subjective/objective/oral 2. group discussions 3.class room quiz competitions			
	Unit-5			
1.	De-Moivers theorem	6	Black board, ppt presentation,	1. Specific objective: To clear the concept of de –moivre 2. Questions based on previous knowledge

				3. Synopsis: a) Introduction of de-moivers and its application b) Hyperbolic funcation 4. Homework after each class
2.	Logarithm of a complex quantity	4	Black board, ppt presentation,	1. Questions based on previous knowledge 2. Homework after each class
3.	Gregorys series ,summation of series	4	Black board, ppt presentation,	1. Specific objective: To clear the concept of Gregory and summation 2. Questions based on previous knowledge 3. Homework after each class
	Assessment of understanding: 1. Unit test for 20 marks: subjective/objective/oral 2. group discussions 3.class room quiz competitions			

PAPER -I I (paper code -)
(CALCULUS) M.M. 50

UNIT-1

S. No.	Topic	No. of periods needed	Teaching Method	Lesson plan
1.	Continuous and Discontinuities function	7	Animation, ppt-presentation, black board	<p>Specific objective: to clear the concept of continuous and discontinuous</p> <p>Questions based on previous knowledge</p> <p>Synopsis: Definition of continuous and discontinuities</p> <p>Basic properties of limits And classification of discontinuities, differentiability, successive</p> <p>Homework after each class</p>
2.	Leibnitz theorem	2	Black board, ppt presentation	<p>Specific objective: to clear the concept of Leibnitz theorem</p> <p>Questions based on previous knowledge</p> <p>Synopsis: Definition of Leibnitz theorem and example</p> <p>Homework after each class</p>
3.	Maclaurin and Taylor series	5	ppt-presentation Black-board	<p>Specific objective: to clear the Maclaurin and Taylor</p> <p>Questions based on previous knowledge</p> <p>Synopsis:</p> <p>Homework after each class</p>

	Assessment of understanding: 1. Unit test for 20 marks: subjective/objective/oral 2. group discussions 3.class room quiz competitions			
	UNIT-2			
1.	Asymptotes	2	Black board, ppt presentation	Specific objective: to clear the concept of asymptotes Questions based on previous knowledge Homework after each class
2.	Curvature	2	Black board, ppt presentation	Specific objective: to clear the concept of curvature Questions based on previous knowledge Synopsis: Definition Types on the basis of need Homework after each class
3.	Tests for concavity and convexity	2	Black board, ppt presentation	Specific objective: to clear the concept concavity and convexity Questions based on previous knowledge Synopsis: Definition and Homework after each class
4.	Points of inflexion ,Multiple points	2	PPT, Black board	Specific objective: to clear the concept of inflexion Questions based on previous knowledge Synopsis: Definition and problem Homework after each class
5.	Tracing of curves Cartesian and polar coordinates	4	PPT, Black board	Specific objective: to clear the concept of curves . Questions based on previous knowledge Synopsis: Definition and problem

				Homework after each class
	Assessment of understanding: 1. Unit test for 20 marks: subjective/objective/oral 2. group discussions 3.class room quiz competitions			
	UNIT-3			
1.	Integration of Transcendental function	4	Black board, ppt presentation	Questions based on previous Homework after each class
2.	Reduction formula	2	Black board, ppt presentation	Questions based on previous knowledge Synopsis: Homework after each class
3.	Integrals Quadrature Rectification.	2	Black board, ppt presentation	Questions based on previous knowledge Synopsis: Volumes and surfaces of solids of revolution Homework after each class
	Assessment of understanding: 1. Unit test for 20 marks: subjective/objective/oral 2. group discussions 3.class room quiz competitions			
	UNIT-4			
1.	Differential Equation .	7	Black board, ppt presentation	Specific objective: to clear the concept of Differential equation Questions based on previous knowledge Synopsis: Definition of differential equation Degree and order First order higher degree equations Clairauts form and singular solution Geometrical meaning of a differential equation Homework after each class
2.	Linear differential equation with constant coefficients [first order]	6	Black board, ppt presentation	Specific objective: to clear the concept of linear differential equation

			n	<p>Questions based on previous knowledge</p> <p>Synopsis:</p> <p>Homogeneous linear ordinary differential equation</p> <p>Homework after each class</p>
	<p>Assessment of understanding:</p> <p>1. Unit test for 20 marks: subjective/objective/oral</p> <p>2. group discussions</p> <p>3.class room quiz competitions</p>			
	Unit-5			
1.	Linear differential equation of second order	6	Black board, ppt presentation	<p>Specific objective: to clear the concept of second order lineae differential equation</p> <p>Questions based on previous knowledge</p> <p>Synopsis:</p> <p>Changing the dependent variable and independent variable</p> <p>Homework after each class</p>
2.	Parameters	2	Black board, ppt presentation	<p>Specific objective: to clear the concept of Parameters .</p> <p>Questions based on previous knowledge</p> <p>Synopsis:</p> <p>Definition of parameters</p> <p>Homework after each class</p>
3.	Ordinary Simultaneous differential equation	2	Black board, ppt presentation	<p>Specific objective: to clear the concept of simultaneous equation</p> <p>Questions based on previous knowledge</p> <p>Homework after each class</p>
	<p>Assessment of understanding:</p> <p>1. Unit test for 20 marks: subjective/objective/oral</p> <p>2. group discussions</p> <p>3.class room quiz competitions</p>			

LESSON PLAN

MATHEMATICS PAPER -III (paper code -) (VECTOR ANALYSIS AND GEOMETRY)

UNIT-1				
S. No.	Topic	No. of periods needed	Teaching Method	Lesson plan
1.	Scalar and Vector product of three vectors	4	, ppt- presentation, black board	1. Specific objective: to clear the concept of scalar and vector 2. Questions based on previous knowledge 3. Synopsis: a) Product of four vectors b) Reciprocal Vector 4. Homework after each class
2.	Gradient , Divergence and Curl	8	Black board, ppt presentation,	1. Specific objective: to clear the concept of Gradient , divergence and curl 2. Questions based on previous knowledge 3. Homework after each class
Assessment of understanding: 1. Unit test for 20 marks: subjective/objective/oral 2. Group discussions 3. Class room quiz competitions				
UNIT-2				
1.	Vector integration ,and Gauss theorem	6	, ppt- presentations Black-board	1. Specific objective: to clear the concept of Gauss theorem 2. Questions based on previous

			(whenever needed)	knowledge 3. Homework after each class
2.	Green and Stokes theorem	8	ppt-presentations Black-board (whenever needed)	1. Specific objective: to clear the concept of Green and Stokes theorem 2. Questions based on previous knowledge 3. Homework after each class
	.			
Assessment of understanding: 1. Unit test for 20 marks: subjective/objective/oral 2. Group discussions 3. Class room quiz competitions				
UNIT-3				
1.	General equation of second degree	2	ppt-presentations Black-board (whenever needed)	1. Questions based on previous knowledge 2. Homework after each class
2.	Tracing of conics ,System of conics	5	ppt-presentations Black-board (whenever needed)	1. Specific objective: to clear the concept of tracing of conics 2. Questions based on previous knowledge 3. Homework after each class
3.	Confocal ,Polar Equation of a Conic	5	, ppt-presentations Black-board (whenever needed)	1. Questions based on previous knowledge 2. Homework after each class
Assessment of understanding: 1. Unit test for 20 marks: subjective/objective/oral 2. Group discussions 3. Class room quiz competitions				
UNIT-4				

1.	Sphere	3	, ppt-presentations Black-board (whenever needed)	1. Specific objective: To clear the concept of Sphere. 2. Questions based on previous knowledge 3. Homework after each class
2.	Cone	3	ppt-presentations Black-board (whenever needed)	1. Specific objective: To clear the concept of cone 2. Questions based on previous knowledge 3. Homework after each class
3.	Cylinder	3	ppt-presentations Black-board (whenever needed)	1. Specific objective: To clear the concept of Cylinder 2. Questions based on previous knowledge 5. Homework after each class
.	.			
Assessment of understanding: 1. Unit test for 20 marks: subjective/objective/oral 2. Group discussions 3. Class room quiz competitions				
Unit-5				
1.	Central Conicoids ,Paraboloids	4	Ppt , presentations Black -board	1. Specific objective: To clear the concept of conicoids and paraboloids 2. Questions based on previous knowledge 5. Homework after each class
2.	Generating lines .	3	Ppt,presentati ons Black – board	1. Specific objective: To clear the concept of Generation line 2. Questions based on previous knowledge 3 Homework after each class
3.	Reduction of second degree equation	3	Ppt, presentations Black -board	1. Specific objective: To clear the concept of Reduction

				2. Questions based on previous knowledge 5. Homework after each class
.				
Assessment of understanding: 1. Unit test for 20 marks: subjective/objective/oral 2. Group discussions 3. Class room quiz competitions				

LESSON PLAN BSC-II YEAR

- 1.** Outline learning objective
- 2.** Develop the introduction
- 3.** plan the main body of the lesson
- 4.** Develop a conclusion and a preview
- 5.** plan to check the understanding
- 6.** Create realistic timeline

PAPER - I (paper code -) (ADVANCED CALCULUS)

UNIT-1				
S. No	Topic	No. of periods needed	Teaching Method	Lesson plan
1.	Sequences (Bounded and Monotonic)	2	, ppt- presentation, black board	Specific objective: to clear the concept of Bounded and Monotonic Sequences Questions based on previous knowledge Synopsis: Definition of Sequences Definition of Monotonic and Bounded Se. Homework after each class

2.	Cauchy Convergence	3	Black board, ppt presentation	<p>Specific objective: to clear the concept of Cauchy convergence Questions based on previous knowledge</p> <p>Homework after each class</p>
3.	Test of Convergence (Comparison ,Cauchy Integral,Ratio,Raabes logarithmic,De-morgan and Bertrand)	10	ppt-presentations Black-board (whenever needed)	<p>Specific objective: to clear the concept of convergence Questions based on previous knowledge</p> <p>Homework after each class</p>
4.	Alternating Series ,Leibnitz Theorem and Absolute and conditional convergence	8	ppt-presentation, black board	<p>Specific objective: to clear the concept of Leibnitz and Absolute Questions based on previous knowledge</p> <p>Homework after each class</p>
<p>Assessment of understanding:</p> <ol style="list-style-type: none"> 4. Unit test for 20 marks: subjective/objective/oral 5. Group discussions 6. Class room quiz competitions 				
UNIT-2				
1.	Continuity, Uniform continuity and Chain rule	6	, ppt-presentations Black-board (whenever needed)	<p>Specific objective: to clear the concept of Chain rule Questions based on previous knowledge</p> <p>Homework after each class</p>
2.	Mean Value theorem	2	ppt-presentations Black-board (whenever needed)	<p>Specific objective: to clear the concept of mean value theorem . Questions based on previous knowledge</p> <p>Homework after each class</p>
3.	Darboux intermediate Value theorem	1	ppt-presentations Black-board (whenever	<p>Specific objective: to clear the concept of Darboux Questions based on previous knowledge</p>

			needed)	Homework after each class
4.	Taylor Theorem	2	ppt-presentations Black-board (whenever needed)	Specific objective: to clear the concept of Taylor theorem . Questions based on previous knowledge Homework after each class
Assessment of understanding: 1. Unit test for 20 marks: subjective/objective/oral 2. Group discussions 3. Class room quiz competitions				
UNIT-3				
1.	Limit and continuity function (two variables)	3	ppt-presentations Black-board (whenever needed)	Specific objective: to clear the concept of limit and continuity Questions based on previous knowledge. Homework after each class
2.	Partial differentiation . Change of variables	6	ppt-presentations Black-board (whenever needed)	Specific objective: to clear the concept of partial differentiation Questions based on previous knowledge Homework after each class
3.	Eulers Theorem on homogeneous function	3	ppt-presentations Black-board (whenever needed)	Specific objective: to clear the concept of homogeneous function Questions based on previous knowledge Synopsis: Diffination Eulers theorem and examples. Diffination homogeneous function Homework after each class

4.	Taylor theorem for function of two variables ,Jacobians	6	ppt-presentations Black-board (whenever needed)	Specific objective: to clear the concept of Taylor theorem and Jacobians Questions based on previous knowledge Homework after each class
Assessment of understanding: 1. Unit test for 20 marks: subjective/objective/oral 2. Group discussions 3. Class room quiz competitions				
UNIT-4				
1.	Envelopes	2	ppt-presentations Black-board (whenever needed)	Specific objective: to clear the concept of Envelopes Questions based on previous knowledge Homework after each class
2.	Evolutes	2	ppt-presentations Black-board (whenever needed)	Specific objective: to clear the concept of Evolutes Questions based on previous knowledge Homework after each class
3.	Maxima ,Minima And Saddle points of function .	8	ppt-presentations Black-board (whenever needed)	Specific objective: to clear the concept of Maxima ,minima and saddle point . Questions based on previous knowledge Homework after each class
4.	Lagrange Multiplier Method	2	ppt-presentations Black-board (whenever needed)	Specific objective: to clear the concept of Lagrange method Questions based on previous knowledge Homework after each class
Assessment of understanding: 1. Unit test for 20 marks: subjective/objective/oral 2. Group discussions				

3. Class room quiz competitions				
Unit-5				
1.	Beta and Gamma function	5	PPT, Black board	<p>Specific objective: to clear the concept of Beta And Gamma function Questions based on previous knowledge</p> <p>Homework after each class</p>
2.	Double And Triple Integrals	2	PPT, Black board	<p>Specific objective: to clear the concept of Double and Triple integrals Questions based on previous knowledge</p> <p>Homework after each class</p>
3.	Dirichlet integrals	2	PPT, Black board	<p>Specific objective: to clear the concept of Dirichet integrals Questions based on previous knowledge</p> <p>Homework after each class</p>
4.	Change of order of integration in double integrals	2	PPT, Black board	<p>Specific objective: to clear the concept of Change of order in double integrals Questions based on previous knowledge</p> <p>Homework after each class</p>
<p>Assessment of understanding:</p> <ol style="list-style-type: none"> 1. Unit test for 20 marks: subjective/objective/oral 2. Group discussions 3. Class room quiz competitions 				

PAPER-II (Paper Code)
(DIFFERENTIAL EQUATIONS)

UNIT-1

S. No.	Topic	No. of periods needed	Teaching Method	Lesson plan
1.	Power Series Method	3	ppt-presentation , black board	1. Specific objective: to clear the concept of Power Series 2. Questions based on previous knowledge 3. Homework after each class
2.	Bessel And Legendre function and their properties	3	Black board, ppt presentation	1. Specific objective: introduction of Bessel and Legendre 2. Questions knowledge 3. Homework after each class
3.	Recurrence and Generating relations,	3	ppt-presentation s Black-board (whenever needed)	1. Specific objective: to clear the concept of Recurrence and generating relations 2. Questions knowledge 3. Homework after each class
4.	Sturm-Liouville Problem, Reality of eigen values	6	Black board, ppt presentation	1. Specific objective: to clear the concept of Sturm –Liouville 2. Questions based on previous knowledge 3. Homework after each class
5.	Orthogonality of Bessel functions and Legendre Polynomials	5	Black board, ppt presentation	1. Specific objective: to clear the concept of Orthogonality of Bessel functions 2. Questions based on previous

				knowledge 3. Homework after each class
Assessment of understanding: 1. Unit test for 20 marks: subjective/objective/oral 2. group discussions 4. 3.class room quiz competitions				
UNIT-2				
1.	Laplace Transformation(Derivatives and integrals)	3	ppt- presentation s Black- board (whenever needed)	1. Specific objective: to clear the concept of Laplace Tran. 2. Questions based on previous knowledge 3. Homework after each class
2.	Shifting theorem	3	ppt- presentation s Black- board (whenever needed)	1. Specific objective: to clear the concept of Shifting theorem 2. Questions based on previous knowledge 3. Homework after each class
3.	Convolution theorem	2	ppt- presentation s Black- board (whenever needed)	1. Specific objective: to clear the concept of Convolution theorem 2. Questions based on previous knowledge 3. Homework after each class
4.	Differential equation using the laplace transformation	2	ppt- presentation s Black- board (whenever needed)	1. Specific objective: to clear the concept of Di.Eq.in Lap.Tran. 2. Questions based on previous knowledge 3. Homework after each class
Assessment of understanding: 1. Unit test for 20 marks: subjective/objective/oral 2. Group discussions 3. Class room quiz competitions				
UNIT-3				
1.	PDE of the first order	5	ppt- presentations Black-board (whenever	1. Specific objective: to clear the concept of PDE 2. Questions based on previous

			needed)	knowledge
				3. Homework after each class
2.	Lagrange Solution .Some Special types of equations	6	ppt-presentations Black-board (whenever needed)	1. Specific objective: to clear the concept of Lagrange solution 2. Questions based on previous knowledge 3. Homework after each class
3.	Charpit general method of Solution	4	ppt-presentations Black-board (whenever needed)	1. Specific objective: to clear the concept of Charpit general method 2. Questions based on previous knowledge 3. Homework after each class
Assessment of understanding: 1. Unit test for 20 marks: subjective/objective/oral 2. Group discussions 3. Class room quiz competitions				
UNIT-4				
1.	PDE of Second And higher orders	3	ppt-presentations Black-board (whenever needed)	1. Specific objective: to clear the concept of PDE S.AND higher order 2. Questions based on previous knowledge 3. Homework after each class
2.	Homogencous And non-homogencous equation with constant coefficients	5	ppt-presentations Black-board (whenever needed)	1. Specific objective: to clear the concept of HO.AND NON-HO. 2. Questions based on previous knowledge 3. Homework after each class
3.	Monges Methods	4	ppt-presentations Black-board (whenever needed)	1. Questions based on previous knowledge 2. Homework after each class
Assessment of understanding: 1. Unit test for 20 marks: subjective/objective/oral 2. Group discussions				

3. Class room quiz competitions

Unit-5

1.	Calculus of Variations(Vari.P .with fixed Boun.)	4	ppt-presentations Black-board (whenever needed)	1. Specific objective: to clear the concept of Calculus Variations 2. Questions based on previous knowledge 3. Homework after each class
2.	Euler equation for functionals Containing first order (one independent variable)	4	ppt-presentations Black-board (whenever needed)	1. Specific objective: to clear the concept of Euler equation 2. Questions based on previous knowledge 3. Homework after each class
3.	Jacobi and Legendre Conditions	4	ppt-presentations Black-board (whenever needed)	1. Specific objective: to clear the concept of Jacobi and Legendre 2. Questions based on previous knowledge 3. Homework after each class
4.	Second Variation .(V.P.OF least action)	2	ppt-presentations Black-board (whenever needed)	1. Specific objective: to clear the concept of Second Variation 2. Questions based on previous knowledge 3. Homework after each class

Assessment of understanding:

1. Unit test for 20 marks: subjective/objective/oral
2. group discussions
- 3.class room quiz competitions

PAPER-III (Paper Code-0917)
(MECHANICS)

UNIT-1

S. No.	Topic	No. of periods needed	Teaching Method	Lesson plan
1.	Analytical Conditions of Equilibrium	6	Black board, ppt presentation	Specific objective: to clear the concept of Analytical Conditions of Equilibrium Questions based on previous knowledge Homework after each class
2.	Stable and unstable equilibrium	3	Black board, ppt presentation	Specific objective: to clear the concept of Stable and unstable equilibrium . Questions based on previous knowledge Homework after each class
3.	Virtual .Catenary	5	Black board, ppt presentation	Specific objective: to clear the concept of Catenary Questions based on previous knowledge Homework after each class
Assessment of understanding: 1. Unit test for 20 marks: subjective/objective/oral 2. group discussions 5. 3.class room quiz competitions				
UNIT-2				

1.	Forces in three dimension	5	ppt- presentation s Black- board (whenever needed)	Specific objective: to clear the concept of Forces in three dimension Questions based on previous knowledge Homework after each class
2.	Poinsots Central axis	5	ppt- presentation s Black- board (whenever needed)	Specific objective: to clear the concept of Poinsots Central axis Questions based on previous knowledge Homework after each class
3.	Null lines and Planes	3	ppt- presentation s Black- board (whenever needed)	Specific objective: to clear the concept of Null lines and planes Questions based on previous knowledge Homework after each class

Assessment of understanding:

1. Unit test for 20 marks: subjective/objective/oral
2. Group discussions
3. Class room quiz competitions

UNIT-3

1.	Simple harmonic motion .	2	ppt- presentations Black-board (whenever needed)	Specific objective: to clear the concept of Simple harmonic motion Questions based on previous knowledge Homework after each class
2.	Elastic Strings .	2	ppt- presentations Black-board (whenever needed)	Specific objective: to clear the concept of Elastic Strings Questions based on previous knowledge Homework after each class
3.	Velocities and accelerations along radial and Transverse directions	5	ppt- presentations Black-board (whenever needed)	Specific objective: to clear the concept of Velocities and accelerations Questions based on previous knowledge

				Homework after each class
4.	Projectile ,Central Orbits	4	ppt- presentations Black-board (whenever needed)	Specific objective: to clear the concept of Projectile Central orbits Questions based on previous knowledge Homework after each class
Assessment of understanding: 1. Unit test for 20 marks: subjective/objective/oral 2. Group discussions 3. Class room quiz competitions				
UNIT-4				
1.	Kepler laws of motion	2	ppt- presentations Black-board (whenever needed)	Specific objective: to clear the concept of Kepler laws of motion Questions based on previous knowledge Homework after each class
2.	Velocities and acceleration in Tangential and normal direction	5	ppt- presentations Black-board (whenever needed)	Specific objective: to clear the concept of V and Acc. In t. Questions based on previous knowledge Homework after each class
3.	Motion on smooth and rough plane Curves	4	ppt- presentations Black-board (whenever needed)	Specific objective: to clear the concept of Motion on Smooth and rough plane Curves Questions based on previous knowledge Homework after each class
Assessment of understanding: 1. Unit test for 20 marks: subjective/objective/oral 2. Group discussions 3. Class room quiz competitions				
Unit-5				
1.	Motion in a resisting ,medium ,motion of particles of varying mass.	4	ppt- presentations Black-board (whenever needed)	Specific objective: to clear the concept of Motion Questions based on previous knowledge Homework after each class

2.	Motion of a particle in three dimensions	5	ppt-presentations Black-board (whenever needed)	Specific objective: to clear the concept of Motion in three dimensions Questions based on previous knowledge Homework after each class
3.	Acceleration in terms of different co-ordinate systems	5	ppt-presentations Black-board (whenever needed)	Specific objective: to clear the concept of acceleration Questions based on previous knowledge Homework after each class
Assessment of understanding: 1. Unit test for 20 marks: subjective/objective/oral 2. group discussions 3.class room quiz competitions				

2.	Elastic Strings .	2	ppt-presentations Black-board (whenever needed)	Specific objective: to clear the concept of Elastic Strings Questions based on previous knowledge Homework after each class
3.	Velocities and accelerations	5	ppt-presentations	Specific objective: to clear the concept of

	along radial and Transverse directions		Black-board (whenever needed)	Velocities and accelerations Questions based on previous knowledge Homework after each class
4.	Projectile ,Central Orbits	4	ppt-presentations Black-board (whenever needed)	Specific objective: to clear the concept of Projectile Central orbits Questions based on previous knowledge Homework after each class
Assessment of understanding: 1. Unit test for 20 marks: subjective/objective/oral 2. Group discussions 3. Class room quiz competitions				
UNIT-4				
1.	Kepler laws of motion	2	ppt-presentations Black-board (whenever needed)	Specific objective: to clear the concept of Kepler laws of motion Questions based on previous knowledge Homework after each class
2.	Velocities and acceleration in Tangential and normal direction	5	ppt-presentations Black-board (whenever needed)	Specific objective: to clear the concept of V and Acc. In t. Questions based on previous knowledge Homework after each class
3.	Motion on smooth and rough plane Curves	4	ppt-presentations Black-board (whenever needed)	Specific objective: to clear the concept of Motion on Smooth and rough plane Curves Questions based on previous knowledge Homework after each class
Assessment of understanding: 1. Unit test for 20 marks: subjective/objective/oral 2. Group discussions 3. Class room quiz competitions				
Unit-5				
1.	Motion in a resisting ,medium ,motion of particles of	4	ppt-presentations Black-board (whenever	Specific objective: to clear the concept of Motion Questions based on previous knowledge

	varying mass.		needed)	Homework after each class
2.	Motion of a particle in three dimensions	5	ppt-presentations Black-board (whenever needed)	Specific objective: to clear the concept of Motion in three dimensions Questions based on previous knowledge Homework after each class
3.	Acceleration in terms of different co-ordinate systems	5	ppt-presentations Black-board (whenever needed)	Specific objective: to clear the concept of acceleration Questions based on previous knowledge Homework after each class
Assessment of understanding: 1. Unit test for 20 marks: subjective/objective/oral 2. group discussions 3.class room quiz competitions				

Lesson Plan (Year 2023- 24)
B.Sc. 1st year (Botany)
Microbial Diversity and Plant Pathology

S. No	Month	Unit/ Paper	Proposed Syllabus	Topic
1	September	Unit I Paper I	Microbial Techniques & instrumentation: Microscopy- Light phase contrast scanning and transmission electron microscopy, staining techniques for light microscopy Common equipment of microbiology lab and principle of their working - autoclave, oven. laminar air flow centrifuge, colorimetry spectrophotometry, electrophoresis immobilization methods, fermentation and fermenters	<ul style="list-style-type: none"> • Microscopy • Laboratory equipment • Laminar air flow • Centrifuge • Autoclave • Colorimetry • Spectrophotometry • Electrophoresis • Fermentation
2	October	Unit II Paper I	Microbial world: Cell structure of Eukaryotic and prokaryotic cells, Gram positive and Gram-negative bacteria. Structure of bacteria. Bacterial growth curve, factors affecting growth of microbes, Sporulation, reproduction, recombination in bacteria. Viruses general characteristics. Structure of viruses. Bacteriophages and TMV. Lytic and Lysogenic cycles, viroid, Prions & Mycoplasma. phytoplasma, actinomycetes and their economic uses. Applied Microbiology: Food fermentations and food produced by microbes. Production of antibiotics, enzymes, alcoholic beverages. Lactic acid and Acetic acid production. Antigen, antibody and production of monoclonal antibodies (Hybridoma techniques)	<ul style="list-style-type: none"> • Bacteria • Viruses • Bacteriophages • Viroid • Prions • Mycoplasma • Phytoplasma • Applied microbiology • Hybridoma techniques • Production of antibiotic, Enzymes • Alcoholic beverages • Lactic acid and acetic acid production
3	November	Unit III	Phycology: General characteristic features, classification and range of thallus. organization Classification and life cycle-	<ul style="list-style-type: none"> • Algae- General characters, Range of thallus, reproduction. Nostoc,

		Paper I	Volvox, Oedogonium, Chara, Vaucheria, Ectocarpus and polysiphonia. Economic importance of algae- Role of algae in soil fertility, , algae as biofertilizer, blue green algae and nitrogen economy of soil, algae as biofuel.	Gloeocapsa, Volvox, Oedogonium, Vaucheria, Chara, Ectocarpus, Polysiphonia. Fungi: General characteristics structure, cell wall composition, nutrition and reproduction in fungi. <ul style="list-style-type: none"> ● Fungi- Saprolegnia, Albugo, Aspergillus, ● Peziza, Agaricus, Ustilago, Puccinia, Alternaria, Cercospora, VAM fungi
4	December	Unit IV Paper I	Mycology Mushroom Cultivation. Lichenology & Mycorrhiza: General characteristic features, Economic importance and Classification of fungi Distinguishing characters of Myxomycota: General characters of Mastigomycota : Phytophthora and Albugo, Zygomycota - Rhizopus and Mucor Ascomycota - Saccharomyces, Penicillium, Peziza. Basidiomycota - Ustilago, Puccinia, Agaricus. Deuteromycota - Colletotrichum, Fusarium, Alternaria. Heterothallism, Physiological specialization. Heterokaryosis & Parasexuality. Mushroom cultivation - Button and Oyster mushroom. General account of lichens, reproduction and significance. Mycorrhiza - ectomycorrhiza and endomycorrhiza and their significance.	Fungi: General characteristics structure, cell wall composition, nutrition and reproduction in fungi. <ul style="list-style-type: none"> ● Fungi- Phytophthora , Albugo, Aspergillus, Rhizopus, Mucor ● Peziza, Agaricus, Ustilago, Puccinia, Alternaria, Colletotrichum, Fusarium, ● VAM fungi ● Parasexuality ● Heterothallism ● Heterokaryosis ● Mushroom cultivation ● Mycorrhiza ● Lichens
5	January	Unit V Paper I	Plant Pathology: Disease concept, Symptoms, Etiology, Primary and secondary inoculum. Pathogenesis, Koch's Postulates. Mechanism of infection and predisposing factors. Disease recurrence, Defense mechanism physical and biochemical. Disease Resistance. Systemic fungicides Organomercurials and sulphur containing fungicides. Diseases and Control: Symptoms, Causal organism, Disease cycle and Control	<ul style="list-style-type: none"> ● Plant pathology ● Mechanism of infection ● Defense mechanism ● Disease control ● Early & Late Blight of Potato, Damping of seedling ● False Smut of Rice ● Brown spot of rice ● Black Stem Rust of Wheat. Alternaria spot and White rust of Crucifers. ● Red Rot of Sugarcane, ● Wilting of Arhar,

			measures of Early & Late Blight of Potato, Damping of seedling, False Smut of Rice, Brown spot of rice, Black Stem Rust of Wheat. Alternaria spot and White rust of Crucifers. Red Rot of Sugarcane, Wilting of Arhar, Mosaic disease on tobacco and cucumber, yellow vein mosaic of bhindi, Citrus Canker, Little leaf of brinjal. Disease management. Quarantine organization and integrated plant disease management. Biological control	<ul style="list-style-type: none">• Mosaic disease on tobacco and cucumber,• yellow vein mosaic of bhindi,• Citrus Canker,• Little leaf of brinjal. Disease management.• Quarantine organization and integrated plant disease management. Biological control
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B.Sc. 1st year (Botany)
Bryophytes, Pteridophytes, Gymnosperms, Palaeobotany & Angiosperm

S. No.	Month	Unit/ Paper	Proposed Syllabus	Topic
1	September	Unit I Paper II	Introduction to Archegoniates & Bryophytes: Unique features of archegoniates Bryophytes: General characteristic features and Affinities, adaptations to land habit. Range of thallus organization, Classification (up to family), morphology anatomy and reproduction of Riccia , Marchantia , Anthoceros and Sphagnum . (Developmental details not to be included) Economic importance of bryophytes..	Bryophyta: General Characteristics <ul style="list-style-type: none"> • Bryophyta- Riccia, Marchantia, Pellia, Anthoceros, Sphagnum
2	October	Unit II Paper II	Pteridophytes: General characteristic features and affinities. Classification(up to family) with examples. Heterospory and seed habit, stelar evolution, economic importance of Pteridophytes. Morphology, anatomy and life cycle of Psilotum, Lycopodium, Selaginella, Equisetum, Pteris and Marsilea.	Pteridophytes: Heterospory, Seed Habit, Stellar system, Apospory and Apogamy, Telom Theory, Azolla as biofertilizer. Psilotum, Lycopodium Selaginella, Equisetum, Pteris, Marsilea
3	November	Unit III Paper II	Gymnosperms: Classification and distribution of gymnosperms. Salient features of Cycadales, Ginkgoales, Coniferales and Gnetales their examples, structure and reproduction: economic importance. Morphology anatomy and life cycle of Cycas Pinus and Ephedra.	Gymnosperms: General characteristics <ul style="list-style-type: none"> • Cycas, Pinus and Ephedra.
4	December	Unit IV Paper II	Palaeobotany: General account, Geological time scale. Brief account of process of fossilization & types of fossils and their study techniques: Fossil plants: Rhynia, Williamsonia Cycadeoidea. Contribution of Prof. Birbal Sahni.	Palaeobotany: Geological time scale, Fossil Fossil Gymnosperms- Rhynia, Williamsonia Cycadeoidea
5	January	Unit V Paper II	Angiosperm Morphology (Stem, Roots, Leaves, Flowers and Inflorescence) Morphology and modifications of root Stem leaf and bud. Types of inflorescences: flowers, flower parts, fruits and types of placentation; Definition and types of seeds.	<ul style="list-style-type: none"> • Root • Stem • Leaf • Flower • Inflorescence

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Lesson Plan (2023–24)
B.Sc. II year (Botany)
Paper I
Plant taxonomy, Economic botany, Plant anatomy, Embryology

S. No	Month	Unit/ Paper	Proposed syllabus	Topic
1	August	Unit I Paper I	Bentham and Hooker system of classification. Binomial nomenclature, International code of nomenclature for algae, Fungi and Plant(IUCN), Typification, Numerical taxonomy and Chemotaxonomy. Preservation of plant material and herbarium techniques. Important botanical gardens and Herbarium of India, Kew Botanical garden England.	<ul style="list-style-type: none"> Plant Taxonomy: Bentham & Hooker system of classification. Binomial nomenclature Herbarium
2	September	Unit I Paper I	Bentham and Hooker system of classification. Binomial nomenclature, International code of nomenclature for algae, Fungi and Plant(IUCN), Typification, Numerical taxonomy and Chemotaxonomy. Preservation of plant material and herbarium techniques. Important botanical gardens and Herbarium of India, Kew Botanical garden England.	<ul style="list-style-type: none"> Binomial nomenclature Technical terms related to plant taxonomy Botanical garden

3	October	Unit II Paper I	Systematic position: Distinguishing characters and economic importance of the following families, Ranunculaceae, Magnoliaceae, Brassicaceae, Rosaceae, Papaveraceae, Caryophyllaceae, Rutaceae, Cucurbitaceae, Apiaceae, Rubiaceae, Apocynaceae, Asclepiadaceae, Solonaceae, Malvaceae, Convolvulaceae, Orchidaceae, Acanthaceae, Verbenaceae, Lamiaceae, Asteraceae, Fabaceae, Euphorbiaceae, Poaceae, and Liliaceae.	<ul style="list-style-type: none"> • Systematic Position, Economic importance of following families, Ranunculaceae, Magnoliaceae, Cucurbitaceae, Rosaceae, Rubiaceae, Convolvulaceae, Orchidaceae, Verbenaceae, Lamiaceae, Asteraceae, Fabaceae, Poaceae, Liliaceae.
4	November	Unit III Paper I	Economic Botany: Botanical name, family, part used and uses of the following economically important plants, fiber yielding plants, Cotton, Jute, sunhemp, Coir. Timber yielding Plants: Sal, Teak, Shishum and Pine. Medicinal Plants: Kalmegh, Ashwagandha, Ghritkumari, Giloy, Bramhi, Sarpgandha. medicinal plants of C.G. Food Plants. Food plants: Pearl millet, Buck of wheat, Sorghum, Soyabean, Gram, Ground Nut, Sugarcane and potato. Fruit plants: Pear, peach, Litchi. Spices: Cinnamon, Turmeric, Ginger, Asafoetida & cumin. Beverages: Tea, Coffee. Rubber. Cultivation of important flowers: Chrysanthemum, Dahelia, Biodiesel plants Jatropha, pongamia. Ethnobotany in context of C.G	<ul style="list-style-type: none"> • Economic botany: Cereals producing Plants • Fibers yielding plants • Timber yielding plants • Medicinal plants • Biodiesel plants • Ethnobotany in context of Chhatisgarh
5	December	Unit IV Paper I	Plant anatomy: Root and shoot apical meristems theories of root and shoot apex organization, Permanent tissues. Anatomy of root, leaf, stem of dicot and monocot, secondary growth in root and stem. Anatomical anomalies in the primary structure of stems (Nyctanthes, Boerhavia, casuarina). Anomalous Secondary growth in Draceana, bignonia, laptadenia.	<ul style="list-style-type: none"> • Plant Anatomy. • Root and shoot apical meristems. • root and shoot apex organization. • Anatomy of root, leaf, stem of dicot and monocot. • Secondary growth.
6	January	Unit V Paper I	Embryology: Flower is a reproductive organ, anther, microsporogenesis, types of ovule, megasporogenesis, development of male and female gametophyte, pollination, self incompatibility, Fertilization, endosperm, polyembryony, apomixes and parthenocarpy.	<ul style="list-style-type: none"> • Embryology • Flower • Anther • Microsporogenesis • ovule, • megasporogenesis • male and female gametophyte

				<ul style="list-style-type: none"> • pollination • Fertilization, • endosperm, • polyembryony, • apomixes and parthenocarpy.
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Lesson Plan (2023–24)
B.Sc. II year (Botany)
Paper II
Ecology and Plant physiology

	Month	Unit/ Paper	Proposed syllabus	Topic
1	August	Unit I Paper II	Introduction and scope of ecology, Environmental and ecological factors, soil formation and soil profile, Liebig's law of minimum, Shelford's law of tolerance, morphological and anatomical adaptation in hydrophytes, xerophytes and epiphytes.	Introduction of Environment Ecology ecological factors soil
2	September	Unit I Paper II	Introduction and scope of ecology, Environmental and ecological factors, soil formation and soil profile, Liebig's law of minimum, Shelford's law of tolerance, morphological and anatomical adaptation in hydrophytes, xerophytes and epiphytes.	<ul style="list-style-type: none"> • Liebig's law of minimum. • Shelford's law of tolerance. • Hydrophytes • morphological and anatomical adaptation in hydrophytes. • Xerophytes • morphological and anatomical adaptation in Xerophytes • epiphytes.

				<ul style="list-style-type: none"> • morphological and anatomical adaptation in • epiphytes.
3	October	Unit I Paper II	<p>Population and community characteristics, Raunkiaers life forms, Populations interactions, Succession, ecotone and edge effect, ecological niches, Ecotype, Ecads, Keystone species.</p> <p>Concept of ecosystem, trophic levels, flow of energy in ecosystem, food chain, Food web. Concept of ecological pyramids.</p> <p>Biogeochemical cycles: carbon cycle, nitrogen cycle and phosphorus cycle.</p>	<ul style="list-style-type: none"> • Ecosystem • Structure and function of Ecosystem • Population ecology • Community ecology • Populations interaction • Succession. • ecotone and edge effect, ecological niches • Ecotype, Ecads, Keystone species. • Concept of ecosystem • Biogeochemical cycles
4	November	Unit I Paper II	<p>Plant water relationship: Diffusion, permeability, osmosis, imbibition, plasmolysis, osmotic potential and water potential, Types of soil water, water holding capacity, wilting, absorption of water, theories of ascent of sap, mineral nutrition and absorption, Deficiency, symptoms, Transpiration, stomatal Movements, significance of transpiration, Factors affecting transpiration, Guttation.</p>	<ul style="list-style-type: none"> • Plant water relationship • Absorption of water • Ascent of sap • Mineral nutrition & absorption • Transpiration • Stomatal movements • Transpiration • Guttations
5	December	Unit I Paper II	<p>Photosynthesis: Photosynthetic apparatus and pigments, Light reaction mechanism of ATP synthesis. C3, C4, CAM pathway of carbon reduction, Photorespiration, factors affecting Photosynthesis.</p> <p>Respiration: Aerobic and anaerobic respiration, Glycolysis, Krebs cycle, Factors affecting respiration, R.Q.</p>	<p>Photosynthesis: Photosynthetic apparatus and pigments, Light reaction mechanism of ATP synthesis. C3, C4, CAM pathway of carbon reduction Photorespiration.</p> <p>Respiration: Aerobic and anaerobic respiration Glycolysis Krebs cycle Factors affecting respiration R.Q.</p>
6	January	Unit I Paper II	<p>Plant growth hormones: Auxin, Gibberellin, Cytokinin, Ethylene, and abscisic acid. Physiology of flowering, Florigen of concept, Photoperiodism and vernalization. Seed dormancy and seed germination, Plant movementp</p>	<p>Plant growth hormones: Auxin, Gibberellin, Cytokinin, Ethylene, and abscisic acid.</p> <p>Physiology of flowering, Florigen of concept</p>

				Photoperiodism and vernalization. Seed dormancy and seed germination, Plant movement
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Lesson Plan (2023-24)

B.Sc. III year (BOTANY)

Paper I

**Analytical technology, Plant pathology, Experimental Embryology,
Elementary biostatistics, Environmental pollution and conservation**

S. No	Month	Unit/ Paper	Proposed syllabus	Topic
1	August	Unit I Paper I	Structure, principal and application of analytical instrumentation Chromatography techniques, oven, incubator, Autoclave, Centrifuge, Spectrophotometer.	<ul style="list-style-type: none"> Biochemistry Biophysics Chromatography: Partition Chromatography Paper Chromatography Adsorption Chromatography
2	September	Unit I Paper I	Structure, principal and application of analytical instrumentation Chromatography techniques, oven, incubator, Autoclave, Centrifuge, Spectrophotometer.	<ul style="list-style-type: none"> Chromatography Gas Chromatography Thin layer Chromatography Column Chromatography Hot Air oven Incubator
3	October	Unit II	Plant tissue culture techniques, growth media, Totipotency, Protoplast culture, somatic	<ul style="list-style-type: none"> Plant tissue culture Growth media,

		Paper I	hybrids, Cybrids, micropropagation, somaclonal variations, haploid culture. Analytical techniques: microscopy- Light microscope, Electron microscope.	Totipotency, Protoplast culture, somatic hybrids, Cybrids, micropropagation, somaclonal variations, haploid culture. <ul style="list-style-type: none"> Analytical techniques: Microscopy- Light microscope, Electron Microscope
4	November	Unit III Paper I	General principal of plant pathology, general symptoms of fungal, bacterial and viral diseases, mode of infection, diseases resistance and control measures, plant quarantine. A study of epidemiology and etiology of following plant diseases. Rust diseases of wheat, Tikka diseases of groundnut, Red rot of sugarcane, Bacterial blight of rice, Yellow vein mosaic of bhindi, Little leaf of brinjal.	<ul style="list-style-type: none"> Plant Pathology general symptoms of fungal bacterial and viral diseases mode of infection, diseases resistance and control measures, plant quarantine. Epidemiology Tikka diseases of groundnut, Red rot of sugarcane, Bacterial blight of rice, Yellow vein mosaic of bhindi, Little leaf of brinjal.
5	December	Unit IV Paper I	Introduction to pollution, greenhouse gases, Ozone depletion, DO, BOD, COD. Biomagnification, Eutrophication, Acid precipitation, Phytoremediation, Plant indicators, Biogeographical zones of India, Concept of biodiversity, CBD, MAB, National parks and biodiversity hot spots, Conservation strategies, Red data books, IUCN threat categories, invasive species, Concept of sustainable development.	<ul style="list-style-type: none"> Environmental pollution Environmental problems Plants indicators Biogeographical region of india Biodiversity and its conservation CBD, MAB, invasive and endemic species.
6	January	Unit V Paper I	Elementary Biostatistics: Introduction and application of biostatics, Measure of central tendencies- mean, mode, Median. Measures of dispersal – standard deviation, standard error.	<ul style="list-style-type: none"> Biostatistics Central tendencies Dispersion

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Lesson Plan (2023-24)

B.Sc. III year (BOTANY)

Paper II

Genetic, Molecular biology, Biotechnology and biochemistry

S.No.	Month	Unit/ Paper	Proposed syllabus	Topic
1	August	Unit IV Paper II	Protein chemical composition: primary, secondary and tertiary structure of protein. Carbohydrate: General account of monosaccharide, oligosaccharide polysaccharide Fat: Structure and properties of fats and fatty acids, synthesis & breakdown	<ul style="list-style-type: none"> • Biomolecules • Amino acids • Protein • Structure of protein
2	September	Unit IV Paper II	Protein chemical composition: primary, secondary and tertiary structure of protein. Carbohydrate: General account of monosaccharide, oligosaccharide polysaccharide Fat: Structure and properties of fats and fatty acids, synthesis & breakdown	<ul style="list-style-type: none"> • Carbohydrates • monosaccharide, oligosaccharide polysaccharide

3	October	Unit V Paper II	Enzymes: Nomenclature and classification, component of enzymes, theories of enzyme action, enzyme kinetics, allosteric enzymes, isozymes, abzymes, Ribozymes, Factors affecting enzyme activity.	<ul style="list-style-type: none"> • Enzymes: Nomenclature and Classification, • Enzyme action, enzyme kinetics (Michaelis – menten constant) Allosteric enzymes,
4	November	Unit I Paper II	Cell and cell organelles, organization and morphology of chromosome, Giant Chromosomes, Cell division, Mendal's law, gene interactions, linkage and crossing over, chromosomal aberration, polyploidy, sex linked inheritance, sex determination, cytoplasmic inheritance, gene concept: cistron, muton, recon.	<ul style="list-style-type: none"> • Cell and cell organelles • Mendel's law • Linkage • Sex determination • Gene concept
5	December	Unit II Paper II	Nucleic acids, structure and forms of DNA and RNA, DNA/RNA as genetic material, replication of DNA, biochemical and molecular basis of mutation, genetic code and its properties, mechanism of transcription and translation in prokaryotes, regulation of gene expression, operon model.	<ul style="list-style-type: none"> • Nucleic Acid • Mutation • Genetic code and protein synthesis • Regulation of gene expression
6	January	Unit III Paper II	Recombinant DNA, Enzymes in recombinant DNA technology, cloning vectors(Plasmid, Bacteriophage, Cosmids, phagemids) gene cloning, PCR , Application of biotechnology. G.M. Plants, Monoclonal antibodies	<ul style="list-style-type: none"> • Genetic Engineering and Biotechnology: scope & importance • Recombinant DNA technology • Application of technology

अंतर्राष्ट्रीय ओज़ोन दिवस के अवसर पर आज दिनांक 16 सितम्बर 2022 को श्री कुलेश्वर महादेव शासकीय महाविद्यालय गोबरा नवापारा में ओज़ोन संरक्षण जागरूकता कार्यक्रम का आयोजन किया गया. इस अंतर्राष्ट्रीय समस्या का प्रभावी परिचय वनस्पति विज्ञान विभाग की सहायक प्राध्यापक सुश्री पुष्पलता कँवर ने दिया. इस अवसर पर महाविद्यालय के प्राचार्य श्री एस. आर. वड्डे ने कहा कि ओज़ोन परत संरक्षण की आवश्यकता से सभी भलीभाँति परिचित हैं परन्तु छोटा छोटा प्रयास ही यदि सभी के द्वारा किया जाए तो पर्यावास संरक्षण प्रभावी रूप से किया जा सकता है. भूगोल के सहायक प्राध्यापक श्री पीयूष कान्त भारद्वाज ने वायुमंडल के स्वरूप और इसमें ओज़ोन परत की स्थिति के बारे में विस्तार से जानकारी दी. उन्होंने एक वृत्तचित्र के प्रदर्शन के माध्यम से इसके रासायनिक क्षरण के कारणों और इसके संरक्षण के उपायों के बारे में बताया. ओज़ोन संरक्षण से संबंधित प्रश्नोत्तरी प्रतियोगिता का आयोजन किया गया

जिसमें बीएससी प्रथम वर्ष के छात्र विजेता रहे. इस प्रतियोगिता में निर्णायक की भूमिका प्राणीशास्त्र विभाग की सहायक प्राध्यापक डॉ रजिया सुल्ताना ने निभाई.

संयोजक
निर्णायक पुष्पलता कँवर
डॉ रजिया सुल्ताना

प्राचार्य
श्री एस आर वड्डे



राज्य विश्वविद्यालय के निधन से राजनीतिक गतिविधियों में भी शोक दिवस।

श्री कुलेश्वर महादेव शासकीय महाविद्यालय में ओज़ोन संरक्षण पर हुई कार्यशाला

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CHHATTISGARH NATIONAL EDUCATION RAJPUT STATE
TOP NEWS TRENDING

By Nikhil Vishwakarama September 16, 2022 27 0

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समाचार,

11:00 AM - 11:00 AM - अंतरराष्ट्रीय ओज़ोन दिवस के अवसर पर राज्य विश्वविद्यालय के शासकीय महाविद्यालय में ओज़ोन संरक्षण पर कार्यशाला का शुभ आयोजन।

News

अंतरराष्ट्रीय ओज़ोन दिवस के अवसर पर गौबरा नवापारा के शासकीय कुलेश्वर महादेव महाविद्यालय में ओज़ोन संरक्षण जागरूकता कार्यक्रम का हुआ आयोजन

By Mr. Rishat Thakur - गुजरात, 16 सितंबर 2022



आज अंतरराष्ट्रीय ओज़ोन दिवस है और इस मौके पर गौबरा नवापारा के कुलेश्वर महादेव शासकीय महाविद्यालय में ओज़ोन संरक्षण जागरूकता कार्यक्रम का आयोजन किया गया कार्यक्रम का उद्देश्य ओज़ोन परत संरक्षण और पर्यावरण संरक्षण को लेकर था।



रायपुर। अंतरराष्ट्रीय ओज़ोन दिवस के अवसर पर आज श्री कुलेश्वर महादेव शासकीय महाविद्यालय गौबरा नवापारा में ओज़ोन संरक्षण जागरूकता कार्यक्रम का आयोजन किया गया। इस अंतरराष्ट्रीय सम्मेलन का प्रभावी परिसर व्यवस्थापि विज्ञान विभाग कि सहयोग छात्राध्यक्ष सुष्मलता केंवर ने दिया।

भैयाजी ये भी देखें : पूर्व मंत्री मूलतः का नज़, राजधानी अब सुरक्षित नहीं, अपराधियों का...

उन्होंने ओज़ोन परत के क्षरण के कारकों और इससे उत्पन्न समस्याओं के बारे में बताया। उन्होंने माट्रियल समझौते के



LESSON PLAN**B.A. I year**

1. Outline learning objective
2. Develop the introduction
3. Plan the main body of the lesson
4. Plan to check for understanding
5. Develop a conclusion and a preview
6. Create realistic timeline

HOME SCIENCE**PAPER - I (paper code - 0121)****(ANATOMY PSYCHOLOGY & HYGIENE) M.M. 50****UNIT-1**

S. No.	Topic	No. of periods needed	Teaching Method	Lesson plan
1.	Structure & function of cell and skeletal system	4	Animation, ppt-presentation, black board methods	<ol style="list-style-type: none"> 1. General objective: Scientific temperament 2. Specific objective: to clear the concept of cell biology 3. Questions based on previous knowledge 4. Synopsis: <ol style="list-style-type: none"> a. Introduction of cell b. Definition of cell c. Classification d. Diagram of skeletal and tissue e. Difference between prokaryotic and eukaryotic cells 5. Homework after each class
2.	General introduction of human nutrient explains structure of skin and kidney	3	Black board, ppt presentation, practical	<ol style="list-style-type: none"> 1. Based on previous General objective: Scientific methods 2. Specific objective: to give brief introduction by poster and ppt

				3. Questions knowledge 4. Synopsis: a) History of human physiology b) Principle of hygiene c) diagram d) Types of muscular e) Electron Microscope f) Difference between skeletal and muscular system g) Difference between function of skeleton and muscular 5. Homework after each class
3.	explain muscles system n and there general structure and function	6	Animations and videos, ppt- presentation s Black-board (whenever needed)	1. Based on previous General objective: Scientific temperament 2. Specific objective: to clear the working principles of tissue 3. Questions knowledge
Assessment of understanding: 1. Unit test for 30 marks: subjective/objective/oral 2. group discussions 3.class room quiz competitions				
UNIT-2				
1.	circulatory system General introduction of nutrient	3	Black board, ppt presentation , practical daily watch the class need and clean	1. General objective: Scientific temperament 2. Specific objective: to clear the concept of hygiene 3. Questions based on previous knowledge 4. Synopsis: a) Introduction of circulatory system b) Definition of circulatory c) blood and there function 5. Homework after each class
2.	Respiratory system and general structure and function of cell organ	5	Black board, ppt presentation , practical sores of water and safe	1. General objective: Scientific methods 1. Specific objective: to clear the concept of Respiratory system and general 2. Questions based on previous knowledge

			viability of water in house and there site	3. Synopsis: a) Introduction of Respiratory system and general 2. Homework after each
3.	Respiratory system and general structure and function of cell organ	5	Black board, ppt presentation , practical information of many types of dieses in house and anther two house	4. General objective: Scientific temperament 5. Specific objective: to clear the concept of Respiratory system and general 6. Questions based on previous knowledge 7. Synopsis: b) Introduction of Respiratory system and general 8. Homework after each class
Assessment of understanding: 1. Unit test for 20 marks: subjective/objective/oral 2. group discussions 3.class room quiz competitions				
UNIT-3				
1.	digestive system general introduction and nutrient	6	Black board, ppt presentation , practical primary treatment and diet according dieses	3. General objective: Scientific temperament 4. Specific objective: to clear the concept of digestive system 5. Questions based on previous knowledge 1. Homework after each class
2.	liver and spleen organ of digestion their general structure and function	6	Black board, ppt presentation , practical	1. General objective: Scientific temperament 2. Specific objective: to clear the concept of structure and function of spleen .
3.	excretory system introduction and concept	5	Black board, ppt presentation	1. General objective: Scientific temperament 2. Specific objective: to clear the concept of excretory system . 3. Homework after each class
4.	excretory system introduction and concept	5	Black board, ppt presentation ,	1. General objective: Scientific temperament 2. Specific objective: to clear the concept of excretory system .

				3. Questions based on previous knowledge 4. Homework after each class
	Assessment of understanding: 1. Unit test for 30 marks: subjective/objective/oral 2. group discussions 3.class room quiz competitions			
	UNIT-4			
1.	Nervous system	6	Black board, ppt presentation,	1. General objective: Scientific temperament 2. Specific objective: To clear the concept of central nervous system structure and function 3. Questions based on previous knowledge 4. Homework after each class
2.	senses and sensory organ ear and eye structure and function	6	Black board, ppt presentation,	1. General objective: Scientific temperament 2. Specific objective: To clear the concept senses and sensory organ ear and eye structure and function 3. Questions based on previous knowledge 4. Homework after each class
	Assessment of understanding: 1. Unit test for 30 marks: subjective/objective/oral 2. group discussions 3.class room quiz competitions			
	Unit-5			
1.	Hygiene personal hygiene social hygiene	6	Black board, ppt presentation,	1. General objective: environmental and industrial hygiene 2. Specific objective: To clear the concept of personal and social hygiene 3. Questions based on previous knowledge 4. Synopsis: a) Introduction of

				<p>environmental and industrial hygiene .</p> <p>b) Economic importance</p> <p>5. Homework after each class</p>
2.	Important of water and air purification.	6	Black board, ppt presentation,	<p>1. General objective :scientific principal</p> <p>2. Specific objective: To clear the concept Important of water and air purification</p> <p>3. Questions based on previous knowledge</p> <p>4. Synopsis:</p> <p>a) Introduction of first aid home nursing</p> <p>b) principal qualities of nurse</p> <p>c) responsibilities, selection of sick room</p> <p>d) care of the patient</p> <p>e) some come accidents and their aid, bleeding ,burn ,scalds ,fracture sprain dislocation</p> <p>f) Homework after each class</p>
3.		4		
	<p>Assessment of understanding:</p> <p>1. Unit test for 30 marks: subjective/objective/oral</p> <p>2. group discussions</p> <p>3.class room quiz competitions</p>			

Home science
PAPER - II (paper code - 0122)
(EXTENSION EDUCATION) M.M. 50

UNIT-1

S. No.	pic	To	No. of periods needed	Teaching Method	Lesson plan
1.	Introduction of home science extension education		2	Animation, ppt-presentation , black board	General objective: principal and method Specific objective: to clear the concept ,goals and areas of home science and inter relationship with extension . 1. Questions based on previous knowledge
2.	principal and methods of home science extension general concepts of extension		3	Black board, ppt presentation	General objective: home science extension general concepts of extension Specific objective: to clear the concept of general concepts of extension. Questions based on previous knowledge Homework after each class
3.	objectives		1	ppt-presentation Black-board (whenever needed)	General objective: extension education qualities of extension. Specific objective: to clear the concept of extension education and education process Questions based on previous knowledge Homework after each class
	Assessment of understanding: 1. Unit test for 30 marks: subjective/objective/oral 2. group discussions 3.class room quiz competitions				
	UNIT-2				
1.	community		2	Black	General objective: community

	development problem and role of home scientists		board, ppt presentation	development and principles Specific objective: to clear the concept of principals of community development and function of community development Questions based on previous knowledge Homework after each class
2.	role of home scientists	2	Black board, ppt presentation	General objective block and village Specific objective: to clear the concept of education for community , programmes of community development at central , state , district and block and village level Questions based on previous knowledge Homework after each class
	UNIT-3			
1.	Teaching methods and aids	2	Black board, ppt presentation	General objective Methods' of learning Discussion ,and there application of home science teaching . Questions based on previous knowledge Synopsis: there scope advantages and application scope and use in teaching Homework after each class
	Assessment of understanding: 1. Unit test for 30 marks: subjective/objective/oral 2. group discussions 3.class room quiz competitions			
	UNIT-4			
1.	Attitude towards home science	5	Black board, ppt presentation	General objective :motivation towards home science . Specific objective: to clear the concept of improvement of family living . job opportunities national and international. agencies of there calibration Questions based on previous knowledge Synopsis: Define the job opportunities national and international. agencies .

				Homework after each class
2.	official organization of home science association of India	6	Black board, ppt presentation	General objective: home science association . Specific objective: to clear the concept association if India like. W.H.O.&FAG CARE,ICAR ICDS,ICSSR &ICMR IRD P and Adult education Questions based on previous knowledge Homework after each class
	Assessment of understanding: 1. Unit test for 30 marks: subjective/objective/oral 2. group discussions 3.class room quiz competitions			
	Unit-5			
	Curriculum planning in home science	6	Black board, ppt presentation	General objective: curriculum planning and mentation evolution . Specific objective: to clear the concept of development of Chick up to formation of three curriculums. Basic concept of curriculum Implementation evolution and improvement required in the existing of H.SC. EDUCTION policy. Questions based on previous knowledge Homework after each class
2.	Curriculum planning in home science	2	Black board, ppt presentation	General objective: curriculum planning and mentation evolution Specific objective: programme planning concept principal objectives and steps in programme planning. Homework after each class
	Assessment of understanding: 1. Unit test for 30 marks: subjective/objective/oral 2. group discussions 3.class room quiz competitions			

LESSON PLAN**BSc II year**

7. Outline learning objective
8. Develop the introduction
9. Plan the main body of the lesson
10. Plan to check for understanding
11. Develop a conclusion and a preview
12. Create realistic timeline

ZOOLOGY

PAPER - I (paper code - 0863)
(Anatomy & Physiology)

UNIT-1				
S. No	Topic	No. of periods needed	Teaching Method	Lesson plan
1.	Integument and its derivatives: structure of scales, hair and feathers.	8	Animation, ppt-presentation, black board	<ol style="list-style-type: none"> 1. General objective: Scientific temperament 2. Specific objective: to clear the concept of comparative study of integument 3. Questions based on previous knowledge 4. Synopsis: <ol style="list-style-type: none"> a) General structure of skin b) Comparative structures of skin: fish, amphibian, reptile, birds and mammals. c) Function of skin d) Skin derivative: scales, hair and feathers 5. Homework after each class
2.	Alimentary canal and digestive glands in vertebrates.	5	Black board, ppt presentation,	<ol style="list-style-type: none"> 1. Based on previous General objective: Scientific temperament 2. Specific objective: to clear the concept of comparative study of alimentary canal

			practical demonstration of microscope	3. Questions based on previous knowledge 4. Synopsis: a) General structure of alimentary canal and digestive gland b) Function of alimentary canal and digestive system c) Comparative structures of alimentary canal and digestive glands: fish, amphibian, reptile, birds and mammals. 5. Homework after each class
3.	Respiratory Organs Gills and lung, Air-Sac in birds	6	Animations and videos, ppt-presentations Black-board (whenever needed)	1. Based on previous General objective: Scientific temperament 2. Specific objective: to clear the general plan of respiratory organs 3. Questions knowledge 4. Synopsis: a) General structure of respiratory organs b) Function of respiratory organs c) Comparative structures of respiratory organ: fish, amphibian, reptile, birds and mammals; Gill, Lungs and Air-sac 5. Homework after each class
Assessment of understanding: 1. Unit test for 30 marks: subjective/objective/oral 2. Group discussions 3. Class room quiz competitions				
UNIT-2				
1.	Endoskeleton-Limbs, girdles and vertebrae.	10	Animations and videos, ppt-presentations Black-board (whenever needed)	1. General objective: Scientific temperament 2. Specific objective: to clear the concept of Endoskeleton 3. Questions based on previous knowledge 4. Synopsis: a) General plan of endoskeleton b) Structure of endoskeleton c) Function of endoskeleton d) Comparative structures of Limbs and Girdle: fish,

				amphibian, reptile, birds and mammals 5. Homework after each class
2.	Circulatory System - Evolution of heart and aortic arches.	6	Animations and videos, ppt-presentations Black-board (whenever needed)	1. General objective: Scientific temperament 2. Specific objective: to clear the concept of Circulatory system 3. Questions based on previous knowledge 4. Synopsis: a) Types of Circulatory System b) Evolution of heart c) Explanation of Aortic d) Comparative structures of Aortic arches: fish, amphibian, reptile, birds and mammals 5. Homework after each class
3.	Urinogenital System - Kidney and excretory ducts.	6	Animations and videos, ppt-presentations Black-board (whenever needed)	1. General objective: Scientific temperament 2. Specific objective: to clear the concept of Urinogenital System 3. Questions based on previous knowledge 4. Synopsis: a) Types of Urinogenital System b) Evolution of Kidney and excretory ducts c) Comparative structures of Kidney and excretory ducts: fish, amphibian, reptile, birds and mammals 5. Homework after each class
Assessment of understanding: 1. Unit test for 30 marks: subjective/objective/oral 2. Group discussions 3. Class room quiz competitions				
UNIT-3				
1.	Nervous System - General plan of brain and spinal cord.	6	Animations and videos, ppt-presentations Black-board (whenever	1. General objective: Scientific temperament 2. Specific objective: to clear the concept of Nervous System 3. Questions based on

			needed)	<p>previous knowledge</p> <p>4. Synopsis:</p> <p>a) General plan of brain and spinal cord</p> <p>b) Comparative study of brain and spinal cord: fish, amphibian, reptiles, birds and mammal</p> <p>5. Homework after each class</p>
2.	Endocrine glands - classification and histology.	5	Animations and videos, ppt-presentations Black-board (whenever needed)	<p>1. General objective: Scientific temperament</p> <p>2. Specific objective: to clear the concept of Endocrine Gland</p> <p>3. Questions based on previous knowledge</p> <p>4. Synopsis:</p> <p>a) Introduction of endocrine glands</p> <p>b) Types of endocrine glands</p> <p>c) Classification</p> <p>d) General regulatory function and feedback mechanism</p> <p>e) Histology</p> <p>5. Homework after each class</p>
3.	Gonads and genital ducts.	5	Animations and videos, ppt-presentations Black-board (whenever needed)	<p>1. General objective: Scientific temperament</p> <p>2. Specific objective: to clear the concept of Gonads and Genital Ducts</p> <p>3. Questions based on previous knowledge</p> <p>4. Synopsis:</p> <p>a) Introduction of Gonads and genital ducts</p> <p>b) General structure and function of gonads and genital ducts</p> <p>c) Comparative study of gonads and genital ducts in fishes, amphibian, reptile and birds</p> <p>5. Homework after each class</p>

Assessment of understanding:

1. Unit test for 30 marks: subjective/objective/oral
2. Group discussions
3. Class room quiz competitions

UNIT-4

1.	Digestion and absorption of dietary components.	4	Animations and videos, ppt-presentations Black-board (whenever needed)	1. General objective: Scientific temperament 2. Specific objective: To clear the concept of Digestion and absorption of dietary components. 3. Questions based on previous knowledge 4. Synopsis: <ol style="list-style-type: none"> a) Alimentary canal b) Digestion in buccal cavity c) Digestion in stomach d) Digestion in intestine e) Absorption: passive and active f) Assimilation g) Ejection 5. Homework after each class
2.	Physiology of heart and Cardiac cycle	4	Animations and videos, ppt-presentations Black-board (whenever needed)	1. General objective: Scientific temperament 2. Specific objective: To clear the concept of circulation 3. Questions based on previous knowledge 4. Synopsis: <ol style="list-style-type: none"> a) Structure of heart b) Types of heart c) Types of circulation: single and double d) Physiology of heart e) Cardiac cycle 5. Homework after each class
3.	ECG.	2	Animations and videos, ppt-presentations Black-board (whenever needed)	1. General objective: Scientific temperament 2. Specific objective: To clear the concept of circulation 3. Questions based on previous knowledge 4. Synopsis:

				a) Introduction of ECG b) Working Principal of ECG c) Reading of electrocardiograph d) Electrocardiograph during abnormal cardiac condition 5. Homework after each class
3.	Blood Coagulation.	2	Animations and videos, ppt-presentations Black-board (whenever needed)	1. General objective: Scientific temperament 2. Specific objective: To clear the concept of phylum-Arthropoda 3. Questions based on previous knowledge 4. Synopsis: a) Introduction of Palaemon b) Morphology of Palaemon c) Anatomy of Palaemon d) Physiology of Palaemon e) Life cycle f) Economic importance 5. Homework after each class
4.	Respiration-Mechanism and control of breathing.	6	Animations and videos, ppt-presentations Black-board (whenever needed)	1. General objective: Scientific temperament 2. Specific objective: To clear the concept of Respiration 3. Questions based on previous knowledge 4. Synopsis: a) Introduction of respiration b) Types of respiration: Internal and external respiration c) Neuronal and chemical regulation of respiration d) Mountain Sickness e) Diving sickness 5. Homework after each class
Assessment of understanding: 1. Unit test for 30 marks: subjective/objective/oral 2. Group discussions				

3. Class room quiz competitions

Unit-5

1.	Excretion-Physiology of excretion, Osmoregulation.			<p>1. General objective: Scientific temperament</p> <p>2. Specific objective: To clear the concept of excretion and Osmoregulation</p> <p>3. Questions based on previous knowledge</p> <p>4. Synopsis:</p> <ul style="list-style-type: none"> a) Introduction of excretion b) Amminotelic animals, Ureotelic animals and Uricotelic animals c) Process of urine formation d) Ornithine cycle e) Composition of urine f) Osmoregulation mechanism g) Types of animals on the basis of osmoregulation h) Osmoregulation in aquatic environment: fresh water and marine water i) Osmoregulation in terrestrial environment: amphibians, reptiles, birds and mammals <p>5. Homework after each class</p>
2.	Physiology of Muscle contraction.			<p>1. General objective: Scientific temperament</p> <p>2. Specific objective: To clear the concept of connective tissue muscles</p> <p>3. Questions based on previous knowledge</p> <p>4. Synopsis:</p> <ul style="list-style-type: none"> a) Introduction of muscles b) Types of muscles: cardiac, stratified and non-stratified c) Ultrastructure of stratified muscle d) Sarcomere-unit of muscle contraction e) Mechanism of muscle

				<p>contraction-sliding filament theory</p> <p>f) Special conditions-fatigue, tetany, rigor mortis etc.</p> <p>5. Homework after each class</p>
3.	Physiology of nerve impulse, Synaptic transmission.			<p>1. General objective: Scientific temperament</p> <p>2. Specific objective: To clear the concept of nervous system</p> <p>3. Questions based on previous knowledge</p> <p>4. Synopsis:</p> <ul style="list-style-type: none"> a) Definition of neuron and glial cells b) Structure of neuron: myelinated and non-myelinated c) Structure of glial cells d) Nerve impulse mechanism and properties e) Synaptic transmission f) Difference between-simple and solitary nerve impulse conduction <p>5. Homework after each class</p>
4.	Ear and Eye - structure and function.			<p>1. General objective: Scientific temperament</p> <p>2. Specific objective: To clear the concept of sensory organs</p> <p>3. Questions based on previous knowledge</p> <p>4. Synopsis:</p> <ul style="list-style-type: none"> a) Introduction of eye: compound and simple eye b) Anatomical Structure of eye c) Mechanism of vision in human d) Eye disorders e) Introduction of ears f) Anatomical structure of ear g) Mechanism of hearing h) Hearing capacity and disorders <p>5. Homework after each class</p>

Assessment of understanding:

1. Unit test for 30 marks: subjective/objective/oral
2. Group discussions
3. Class room quiz competitions

ZOOLOGY

PAPER - II (paper code - 0864)

(VERTEBRATE ENDOCRINOLOGY, REPRODUCTIVE BIOLOGY BEHAVIOUR, EVOLUTION AND APPLIED ZOOLOGY)

UNIT-1				
S. No	Topic	No. of periods needed	Teaching Method	Lesson plan
1.	General Characters of Hormones	2	Animation, ppt-presentation, black board	<p>General objective: Scientific temperament</p> <p>Specific objective: to clear the concept of General Characters of Hormones</p> <p>Questions based on previous knowledge</p> <p>Synopsis:</p> <p>Definition of hormones</p> <p>Functions of hormones</p> <p>Properties of hormones</p> <p>Types of hormones</p> <p>Homework after each class</p>
2.	Hormone Receptor	2	Black board, ppt presentation, practical demonstration of microscope	<p>General objective: Scientific temperament</p> <p>Specific objective: to clear the concept of Hormone Receptor</p> <p>Questions based on previous knowledge</p> <p>Synopsis:</p> <p>Definition</p> <p>Properties of hormone receptors</p> <p>Types of hormone receptors</p> <p>Cell signalling pathway of hormone</p>

				Homework after each class
3.	Biosynthesis and secretion of thyroid, Adrenal ; Ovarian and testicular hormones.	4	Animations and videos, ppt-presentations Black-board (whenever needed)	<p>General objective: Scientific temperament</p> <p>Specific objective: to clear the concept of Biosynthesis and secretion of thyroid, Adrenal ; Ovarian and testicular hormones.</p> <p>Questions based on previous knowledge</p> <p>Synopsis:</p> <p>Biosynthesis of T4 and T3 hormones</p> <p>Secretion and inhibition of thyroxine hormones.</p> <p>Biosynthesis of adreno-corticoid hormones and medullary hormones</p> <p>Secretion and inhibition of adreno-corticoid and medullary hormones</p> <p>Biosynthesis and regulation of estrogen, progesterone, and testosterone hormones</p>
				Homework after each class
4.	Endocrine disorder due to hormones and other gland	2	Animation, ppt-presentation, black board	<p>General objective: Scientific temperament</p> <p>Specific objective: to clear the concept of Endocrine disorder due to hormones and other gland hormones.</p> <p>Questions based on previous knowledge</p> <p>Synopsis:</p> <p>Hypo and hyper secretion of pituitary hormones (disorder, symptoms, treatment)</p> <p>Hypo and hyper secretion of thyroid hormones (disorder, symptoms, treatment)</p> <p>Hypo and hyper secretion of adrenal hormones (disorder, symptoms, treatment)</p> <p>Hypo and hyper secretion of sex hormones (disorder, symptoms, treatment)</p>
				Homework after each class

Assessment of understanding:

4. Unit test for 30 marks: subjective/objective/oral
5. Group discussions
6. Class room quiz competitions

UNIT-2

1.	Reproductive cycle in vertebrate.	5	Animations and videos, ppt-presentations Black-board (whenever needed)	General objective: Scientific temperament Specific objective: to clear the concept of Reproductive cycle in vertebrate. Questions based on previous knowledge Synopsis: Female gonadal system Male gonadal system Estrous cycle in non primates Menstrual cycle in primates Homework after each class
2.	Menstruation, Lactation and pregnancy.	3	Animations and videos, ppt-presentations Black-board (whenever needed)	General objective: Scientific temperament Specific objective: to clear the concept of Menstruation, Lactation and pregnancy. Questions based on previous knowledge Synopsis: Phases of menstrual cycle Hormonal control of menstruation Mechanism of lactation Hormonal regulation of lactation Mechanism of pregnancy-changes over nine months Hormonal control during pregnancy Homework after each class
3.	Mechanism of parturition.	1	Animations and videos, ppt-presentations Black-board (whenever needed)	General objective: Scientific temperament Specific objective: to clear the concept of Mechanism of parturition. Questions based on previous knowledge Synopsis: Definition of parturition

				<p>Mechanism of parturition Hormonal control over parturition</p> <p>Homework after each class</p>
4.	Hormonal regulation of gametogenesis.	1	<p>Animations and videos, ppt-presentations Black-board (whenever needed)</p>	<p>General objective: Scientific temperament Specific objective: to clear the concept of Hormonal regulation of gametogenesis. Questions based on previous knowledge Synopsis: Oogenesis Spermatogenesis Hormonal control over oogenesis and spermatogenesis</p> <p>Homework after each class</p>
5.	Extra embryonic membrane	1	<p>Animations and videos, ppt-presentations Black-board (whenever needed)</p>	<p>General objective: Scientific temperament Specific objective: to clear the concept of Extra embryonic membrane Questions based on previous knowledge Synopsis: Definition Types of extra embryonic membrane Significance of extra ambryonic membrane</p> <p>Homework after each class</p>
<p>Assessment of understanding:</p> <ol style="list-style-type: none"> 1. Unit test for 30 marks: subjective/objective/oral 2. Group discussions 3. Class room quiz competitions 				
UNIT-3				
1.	Evidences of organic evolution	3	<p>Animations and videos, ppt-presentations Black-board (whenever needed)</p>	<p>General objective: Scientific temperament Specific objective: to clear the concept of Evidences of organic evolution Questions based on previous knowledge</p>

				Synopsis: Evidence from embryology Evidence from anatomy Evidence from biochemistry Evidence from fossil records Evidence from cell biology Evidence from molecular biology. Evidence from microbiology Homework after each class
2.	Theories of organic evolution	2	Animations and videos, ppt-presentations Black-board (whenever needed)	General objective: Scientific temperament Specific objective: to clear the concept of Theories of organic evolution Questions based on previous knowledge Synopsis: Lamarkism theory Darwin's theory Mutation theory Neo-darwinism Homework after each class
3.	Variation, Mutation, Isolation and Natural selection.	5	Animations and videos, ppt-presentations Black-board (whenever needed)	General objective: Scientific temperament Specific objective: to clear the concept of Variation, Mutation, Isolation and Natural selection. Questions based on previous knowledge Synopsis: Variation from mutation Variation from recombination Variation from migration Variation from inbreeding and assortative mating Mutation: definition Types of chromosomal mutation Types of gene mutation Mutation and evolution Significance of mutation Definition of natural selection Types of natural selection with examples.

				Homework after each class
4.	Evolution of Horse.	2	Animations and videos, ppt-presentations Black-board (whenever needed)	General objective: Scientific temperament Specific objective: to clear the concept of Evolution of Horse. Questions based on previous knowledge Synopsis: Migration of horses and types of horses Modification of molar teeth, middle digit and height of horse Homework after each class
Assessment of understanding: 1. Unit test for 30 marks: subjective/objective/oral 2. Group discussions 3. Class room quiz competitions				
UNIT-4				
1.	Introduction to Ethology	2	Animations and videos, ppt-presentations Black-board (whenever needed)	General objective: Scientific temperament Specific objective: to clear the concept of Introduction to Ethology Questions based on previous knowledge Synopsis: Definition History Instinct Learning Mating and fight for supremacy Living in groups Homework after each class
2.	Patterns of Behaviour Taxes, Rellexes, Drives and Stereotyped Behaviour	4	Animations and videos, ppt-presentations Black-board (whenever needed)	General objective: Scientific temperament Specific objective: to clear the concept of Patterns of Behaviour Taxes, Rellexes, Drives and Stereotyped Behaviour Questions based on previous knowledge Synopsis: Taxes: definition, classification

				<p>(aerotaxis, anemotaxis, barotaxis, galvanotaxis, hydrotaxis, rheotaxis, phototaxis, thermotaxis, thigmotaxis)</p> <p>Reflexes: types of human reflexes-myotatic, tendon, reflexes involving cranial nerves, infant reflexes, grading, reflex modulation</p> <p>Drives: hunger and thirst drive, hoarding drive, migratory drive, aggression drive, territorial drive, hormones in sexual drive, parental care drive</p> <p>Stereotype behaviour: eclosion behaviour, moulting behaviour, punding behaviour</p> <p>Homework after each class</p>
3.	Reproductive Behavioural Patterns.	2	<p>Animations and videos, ppt-presentations</p> <p>Black-board (whenever needed)</p>	<p>General objective: Scientific temperament</p> <p>Specific objective: to clear the concept of Reproductive Behavioural Patterns.</p> <p>Questions based on previous knowledge</p> <p>Synopsis:</p> <p>Behavioural pattern for mating and courtship</p> <p>Behavioural pattern in parental care</p> <p>Behavioural pattern in setting territory and defence</p> <p>Homework after each class</p>
4.	Hormones, Drugs and Behaviour.	2	<p>Animations and videos, ppt-presentations</p> <p>Black-board (whenever needed)</p>	<p>General objective: Scientific temperament</p> <p>Specific objective: to clear the concept of Hormones, Drugs and Behaviour.</p> <p>Questions based on previous knowledge</p> <p>Synopsis:</p> <p>Principles of drug action</p> <p>The classification of psychoactive drugs</p>

				<p>Drugs, experience, context and genes</p> <p>The hierarchical control of hormones (homeostatic hormones, reproductive hormones, stress hormones, ending a stress response)</p> <p>Homework after each class</p>
<p>Assessment of understanding:</p> <ol style="list-style-type: none"> 1. Unit test for 30 marks: subjective/objective/oral 2. Group discussions 3. Class room quiz competitions 				
Unit-5				
1.	Aquaculture	1	Class seminar, PPT, Black board	<p>General objective: Scientific temperament</p> <p>Specific objective: to clear the concept of Aquaculture</p> <p>Questions based on previous knowledge</p> <p>Synopsis:</p> <p>Characteristics of aquaculture</p> <p>Types of aquaculture (freshwater, brackish water, metahaline, mariculture)</p> <p>Significance of aquaculture</p> <p>Homework after each class</p>
2.	Sericulture	1	Class seminar, PPT, Black board	<p>General objective: Scientific temperament</p> <p>Specific objective: to clear the concept of Sericulture</p> <p>Questions based on previous knowledge</p> <p>Synopsis:</p> <p>Characteristics of Sericulture</p> <p>Types of Sericulture</p> <p>Significance of a Sericulture</p> <p>Homework after each class</p>
3.	Apiculture	1	Class seminar, PPT, Black board	<p>General objective: Scientific temperament</p> <p>Specific objective: to clear the concept of Apiculture</p>

				<p>Questions based on previous knowledge</p> <p>Synopsis: Characteristics of Apiculture Types of Apiculture Significance of Apiculture</p> <p>Homework after each class</p>
4.	Pisciculture	1	Class seminar, PPT, Black board	<p>General objective: Scientific temperament</p> <p>Specific objective: to clear the concept of Pisciculture</p> <p>Questions based on previous knowledge</p> <p>Synopsis: Characteristics of Pisciculture Types of Pisciculture Significance of Pisciculture</p> <p>Homework after each class</p>
5.	Poultry keeping	1	Class seminar, PPT, Black board	<p>General objective: Scientific temperament</p> <p>Specific objective: to clear the concept of Poultry keeping</p> <p>Questions based on previous knowledge</p> <p>Synopsis: Characteristics of Poultry keeping Types of Poultry keeping Significance of Poultry keeping</p> <p>Homework after each class</p>
6.	Elements of Pest Control - 1. Chemical control 2. Biological Control	1	Class seminar, PPT, Black board	<p>General objective: Scientific temperament</p> <p>Specific objective: to clear the concept of Elements of Pest Control</p> <p>Questions based on previous knowledge</p> <p>Synopsis: Characteristics of pest control Chemical pest control and its pros and cons Biological pest control and its pros and cons Mixed type of pest control</p>

				Homework after each class
Assessment of understanding: 1. Unit test for 30 marks: subjective/objective/oral 2. Group discussions 3. Class room quiz competitions				

LESSON PLAN**BSc III year**

13. Outline learning objective
14. Develop the introduction
15. Plan the main body of the lesson
16. Plan to check for understanding
17. Develop a conclusion and a preview
18. Create realistic timeline

ZOOLOGY**PAPER-II (Paper Code-0918)****(Genetic's, Cell Physiology, Biochemistry, Biotechnology And Biotechniques)****UNIT-1**

S. No.	Topic	No. of periods needed	Teaching Method	Lesson plan
1.	Linkage and Linkage maps	6	Animation, ppt-presentation , black board	1. General objective: Scientific temperament 2. Specific objective: to clear the concept of Genetics-Mendelian ratio 3. Questions based on previous knowledge 4. Synopsis: <ol style="list-style-type: none"> a. Experiment of Bateson and Punnett on Sweet Pea-Genetic Coupling and Genetic Repulsion b. Experiment of T. H. Morgan on Drosophila c. Linkage and Linked gene d. Experiment of Sturtevant-postulates e. Linkage Maps 5. Homework after each class
2.	Varieties of gene expression -	3	Black board, ppt	1. Based on previous General objective: Scientific temperament

	Multiple alleles ; lithogenesis ; Pleiotropic genes; gene interaction; epistasis.		presentation , practical demonstrati on of microscope	<p>2. Specific objective: introduction of Neo-Mendelism</p> <p>3. Questions knowledge</p> <p>4. Synopsis:</p> <ol style="list-style-type: none"> Multiple allelism; multiple alleles Theories of multiple alleles Pleiotropic genes Lithogenesis: example of pleiotropism Gene interaction Epistasis: dominant and recessive <p>5. Homework after each class</p>
3.	Sex chromosome systems and sex-linkage.	6	Animations and videos, ppt-presentations Black-board (whenever needed)	<p>1. Based on previous General objective: Scientific temperament</p> <p>2. Specific objective: to clear the concept of sex determination</p> <p>3. Questions knowledge</p> <p>4. Synopsis:</p> <ol style="list-style-type: none"> Introduction of sex chromosome XY;XO type Quantitative Ration Theory Sex-determining genes-tra/tra Sex-determination by Hormones Sex-determination by metabolism Sex-determination by environment Sex-linked genes: colour blindness; night blindness; Haemophilia <p>5. Homework after each class</p>
4.	Mutation and chromosomal alterations; meiotic consequences.	3	Black board, ppt presentation , practical demonstration of microscope	<p>1. General objective: Scientific temperament</p> <p>2. Specific objective: to clear the concept of mutation</p> <p>3. Questions based on previous knowledge</p> <p>4. Synopsis:</p> <ol style="list-style-type: none"> Introduction mutation in chromosome Chromosomal alteration: change in number and change in structure Change in number: euploidy and aneuploidy Change in structure: deletion, duplication, inversion, translocation

				f) Molecular basis of mutation g) Non disjunction: mutation in somatic cell and mutation in germplasm 5. Homework after each class
5.	Human genetics - chromosomal and single gene disorders (somatic cell genetics)	5	Black board, ppt presentation , practical demonstration of microscope	1. General objective: Scientific temperament 2. Specific objective: to clear the concept of cell transformation 3. Questions based on previous knowledge 4. Synopsis: a) Chromosomal disorder in somatic chromosome: Down syndrome, Patau's syndrome, Tay sach Disorder etc. b) Chromosomal disorder in sex-chromosome: turner's syndrome, Klinefelter's syndrome, super female etc c) Disorders due to point mutation: sickle cell anaemia, phenylketonuria, alkaptonuria, albinism, creatinism etc. 5. Homework after each class
Assessment of understanding: 1. Unit test for 30 marks: subjective/objective/oral 2. group discussions 6. 3.class room quiz competitions				
UNIT-2				
1.	General idea about pH and Buffer.	3	Animations and videos, ppt-presentations Black-board (whenever needed)	1. General objective: Scientific temperament 2. Specific objective: to clear the concept of pH 3. Questions based on previous knowledge 4. Synopsis: a) Introduction b) Calculation of Ph for strong acids and base c) Henson-Heselbatch equation d) Introduction of Buffer e) Isoelectric point f) Types of Buffers

				5. Homework after each class
2.	Transport across membrane - cell membrane; Mitochondria and Endoplasmic reticulum.	6	Animations and videos, ppt-presentations Black-board (whenever needed)	1. General objective: Scientific temperament 2. Specific objective: to clear the concept of structure and functions of plasma membrane 3. Questions based on previous knowledge 4. Synopsis: <ol style="list-style-type: none"> Osmosis: transport of water through membrane Active and passive transport Diffusion: simple and facilitated Types of facilitated diffusion Active diffusion Carrier proteins involve in active diffusion-Sodium pump, ABC complex protein, H⁺-K⁺ Pump, light dependent pump, Ca⁺ pump etc Bulk transport: exocytosis and endocytosis (Pinocytosis and phagocytosis) 5. Homework after each class
3.	Active transport and its mechanism; Active transport in Mitochondria and Endoplasmic reticulum.	2	Animations and videos, ppt-presentations Black-board (whenever needed)	1. General objective: Scientific temperament 2. Specific objective: to clear the concept of structure of mitochondria and endoplasmic reticulum 3. Questions based on previous knowledge 4. Synopsis: <ol style="list-style-type: none"> Active transport in mitochondria Active transport in endoplasmic reticulum 5. Homework after each class
4.	Hydrolytic enzymes - Their chemical nature, Activation and specificity.	2	Animations and videos, ppt-presentations Black-board (whenever needed)	1. General objective: Scientific temperament 2. Specific objective: to clear the concept of hydrolysis 3. Questions based on previous knowledge 4. Synopsis:

			needed)	a) Hydrolytic enzymes involve in carbohydrate digestion b) Hydrolytic enzymes involve in protein digestion (exopeptidase and endopeptidase) c) Hydrolytic enzymes involve in compounds consisting C-N bond hydrolysis d) Hydrolytic enzymes involve in breakdown of ester bond e) Hydrolytic enzymes involve in breakdown of non-ester and other bonds 5. Homework after each class
Assessment of understanding: 1. Unit test for 20 marks: subjective/objective/oral 2. Group discussions 3. Class room quiz competitions				
UNIT-3				
1.	Amino acids and Peptides - Basic structure and biological function.	4	Animations and videos, ppt-presentations Black-board (whenever needed)	1. General objective: Scientific temperament 2. Specific objective: to clear the concept of biochemistry 3. Questions based on previous knowledge 4. Synopsis: a) Introduction of amino acids b) Types of amino acids c) Structure of amino acids d) Physical and chemical properties of amino acids e) Peptide bonds-property, break down and formation f) Function and significance of peptide bond and amino acid in formation of 3 dimensional structure of protein 5. Homework after each class
2.	Carbohydrate and its metabolism - Glycogenesis; Gluconeogenesis; glycolysis, Glycogenolysis; Cori-cycle.	8	Animations and videos, ppt-presentations Black-board (whenever needed)	1. General objective: Scientific temperament 2. Specific objective: to clear the concept of biochemistry 3. Questions based on previous knowledge 4. Synopsis: a) Introduction of carbohydrate

				b) Classification of carbohydrates c) Physical and chemical properties of carbohydrates d) Glycolysis e) Kreb's cycle f) Glycogenesis g) Glycogenolysis h) Gluconeogenesis i) Cori-cycle 5. Homework after each class
3.	Lipid metabolism - Oxidation of glycerol; oxidation of fatty acid.	3	Animations and videos, ppt-presentations Black-board (whenever needed)	1. General objective: Scientific temperament 2. Specific objective: to clear the concept of biochemistry 3. Questions based on previous knowledge 4. Synopsis: a) 5. Homework after each class
4.	Protein metabolism - Deamination, Transamination, Transmethylation ; Biosynthesis of Protein	6	Animations and videos, ppt-presentations Black-board (whenever needed)	1. General objective: Scientific temperament 2. Specific objective: to clear the concept of biochemistry 3. Questions based on previous knowledge 4. Synopsis: a) Introduction b) Deamination c) Transamination d) Transmethylation e) Biosynthesis of protein 5. Homework after each class
Assessment of understanding: 1. Unit test for 30 marks: subjective/objective/oral 2. Group discussions 3. Class room quiz competitions				
UNIT-4				
1.	Biotechnology - Scope and importance.	3	Animations and videos, ppt-presentations Black-board (whenever needed)	1. General objective: Scientific temperament 2. Specific objective: to clear the concept of biotechnology 3. Questions based on previous knowledge 4. Synopsis: a) General Introduction

				b) Scope and importance of biotechnology in agriculture, food industries, medicines and sewage treatment 5. Homework after each class
2.	Recombinant DNA and Gene cloning.	6	Animations and videos, ppt-presentations Black-board (whenever needed)	1. General objective: Scientific temperament 2. Specific objective: to clear the concept of DNA and gene 3. Questions based on previous knowledge 4. Synopsis: a) DNA isolation b) Vector c) cDNA injection in host d) gene amplification-cloning e) PCR f) Merits and demerits of techniques 5. Homework after each class
3.	Cloned genes and other tools of biotechnology.	3	Animations and videos, ppt-presentations Black-board (whenever needed)	1. General objective: Scientific temperament 2. Specific objective: as above 3. Questions based on previous knowledge 4. Synopsis: a) Organogenesis b) Synthesis of biochemicals: insulin and interferons c) Gene manipulation d) Organogenesis e) Test-tube babies f) Hybridization 5. Homework after each class
	4. Applications of biotechnology in (i) Pharmaceutical industry, and (ii) Food processing industry.	5	Animations and videos, ppt-presentations Black-board (whenever needed)	1. General objective: Scientific temperament 2. Specific objective: to clear the concept of cell transformation 3. Questions based on previous knowledge 4. Synopsis: a) General Introduction b) Scope and importance of biotechnology in agriculture c) Scope and importance of biotechnology in food industries d) Scope and importance of

				biotechnology in medicines 5. Homework after each class
Assessment of understanding: 1. Unit test for 30 marks: subjective/objective/oral 2. Group discussions 3. Class room quiz competitions				
Unit-5				
1.	Principles and techniques of pH meter	3	Animations and videos, ppt-presentations Black-board (whenever needed)	1. General objective: Scientific temperament 2. Specific objective: to clear the concept of pH 3. Questions based on previous knowledge 4. Synopsis: a) Introduction b) Principle of pH meter c) Types and method of pH meter d) Importance of pH meter e) Significance and drawbacks of technique 5. Homework after each class
2.	Colorimeter	3	Animations and videos, ppt-presentations Black-board (whenever needed)	1. General objective: Scientific temperament 2. Specific objective: to clear the concept of wavelength and colors 3. Questions based on previous knowledge 4. Synopsis: a) Introduction b) Principle of colorimeter: Lambert-Beer's Law c) Methodology d) Significance and drawbacks of technique 5. Homework after each class
3.	Microscopy- Light microscopes, Phase contrast and Electron microscopes.	3	Animations and videos, ppt-presentations Black-board (whenever needed)	1. General objective: Scientific temperament 2. Specific objective: to clear the concept of cell transformation 3. Questions based on previous knowledge 4. Synopsis: a) Introduction b) Principle of microscopy:

				<p>resolution and magnification</p> <p>c) Methodology</p> <p>d) Types of microscopes</p> <p>e) Significance and limitations of microscopes</p> <p>5. Homework after each class</p>
4.	Centrifugation	3	Animations and videos, ppt-presentations Black-board (whenever needed)	<p>1. General objective: Scientific temperament</p> <p>2. Specific objective: to clear the concept of centrifugal force</p> <p>3. Questions based on previous knowledge</p> <p>4. Synopsis:</p> <p>a) Introduction</p> <p>b) Principle of centrifugation</p> <p>c) Methodology</p> <p>d) Types of centrifuge</p> <p>e) Significance and limitations of centrifugation</p> <p>5. Homework after each class</p>
5.	Separation of bio-molecules by chromatography, and Electrophoresis	4	Animations and videos, ppt-presentations Black-board (whenever needed)	<p>1. General objective: Scientific temperament</p> <p>2. Specific objective: to clear the concept of bio-molecules and their occurrence</p> <p>3. Questions based on previous knowledge</p> <p>4. Synopsis:</p> <p>a) Introduction</p> <p>b) Principle of chromatography</p> <p>c) Types of chromatography</p> <p>d) Significance and limitations of chromatography</p> <p>e) Principle of electrophoresis</p> <p>f) Types of electrophoresis</p> <p>g) Significance and limitations of electrophoresis</p> <p>5. Homework after each class</p>
6.	6. Histrochemical methods for determination of Protein, Lipids, and carbohydrate	4	Animations and videos, ppt-presentations Black-board (whenever needed)	<p>1. General objective: Scientific temperament</p> <p>2. Specific objective: to clear the concept of nature of biomolecules</p> <p>3. Questions based on previous knowledge</p> <p>4. Synopsis:</p> <p>a) Introduction</p>

				b) Methods of protein determination: qualitative and quantitative analysis c) Methods of Lipids determination: qualitative and quantitative analysis d) Methods of carbohydrate determination: qualitative and quantitative analysis 5. Homework after each class
Assessment of understanding: 1. Unit test for 30 marks: subjective/objective/oral 2. group discussions 3.class room quiz competitions				

ZOOLOGY
PAPER-I (Paper Code-0917)

(Ecology, Environmental-biology; Toxicology ; Microbiology and Medical Zoology)

UNIT-1

S. No.	Topic	No. of periods needed	Teaching Method	Lesson plan
1.	Aims and scopes of Ecology	6	Black board, ppt presentation	General objective: Scientific temperament Specific objective: to clear the concept of aims and scopes of Ecology Questions based on previous knowledge Synopsis: Definition of ecology History of ecology Branches of ecology Scope of ecology Homework after each class
2.	Major ecosystems of the	3	Black board, ppt	General objective: Scientific temperament

	world-Brief introduction Population- Characteristics and regulation of densities.		presentation	<p>Specific objective: to clear the concept of major ecosystems of the world, Brief introduction Population- Characteristics and regulation of densities.</p> <p>Questions based on previous knowledge</p> <p>Synopsis:</p> <p>Major ecosystems: artificial and natural ecosystem (terrestrial-forest, grassland, desert; aquatic-marine; fresh water-lentic and lotic ecosystems)</p> <p>Population: density and dispersion; sex ratio, survivorship curves, logistic and exponential model of population growth, r and k selection species, density dependent and density independent population growth, population cycles</p> <p>Homework after each class</p>
3.	Communities and Ecosystems	6	Black board, ppt presentation	<p>General objective: Scientific temperament</p> <p>Specific objective: to clear the concept of Communities and Ecosystems</p> <p>Questions based on previous knowledge</p> <p>Synopsis:</p> <p>Introduction</p> <p>Stratification</p> <p>Species richness</p> <p>Species diversity. Diversity index</p> <p>Dominance, abundance</p> <p>Ecotone</p> <p>Edge effect</p> <p>Homework after each class</p>
4.	Biogeochemical cycles	3	Black board, ppt presentation	<p>General objective: Scientific temperament</p> <p>Specific objective: to clear the concept of Biogeochemical cycles</p> <p>Questions based on previous knowledge</p> <p>Synopsis:</p> <p>Definition</p> <p>Importance</p> <p>Types: gas cycle and sedimentary cycle</p>

				Carbon cycle Oxygen cycle Nitrogen cycle Phosphorus cycle Sulphur cycle Water cycle How human disrupt these cycles Homework after each class
5.	Air and water pollution	5	Black board, ppt presentation	General objective: Scientific temperament Specific objective: to clear the concept of Air and water pollution Questions based on previous knowledge Synopsis: Introduction of pollution Nature, causes and burden of air and water pollution Source of air and water pollution Impact of air and water pollution on health Precaution, laws, and measure for controlling air and water pollution. Homework after each class
6.	Ecological succession			General objective: Scientific temperament Specific objective: to clear the concept of Ecological succession Questions based on previous knowledge Synopsis: Introduction of ecological succession Primary succession Secondary succession Autogenic succession Cyclic succession Allogenic succession Autotropic succession Heterotropic succession Induced succession Retrogressive succession Directional succession Homework after each class

Assessment of understanding:

1. Unit test for 30 marks: subjective/objective/oral

2. group discussions

7. 3.class room quiz competitions

UNIT-2

1.	General idea about pH and Buffer.	3	Animations and videos, ppt-presentation s Black-board (whenever needed)	<p>General objective: Scientific temperament</p> <p>Specific objective: to clear the concept of general idea about pH and Buffer</p> <p>Questions based on previous knowledge</p> <p>Synopsis:</p> <p>pH definition</p> <p>Equation of pH.</p> <p>Henderson-hasselbalch equation</p> <p>Acid-base concept</p> <p>Buffer system</p> <p>Buffer in living system</p> <p>Acidosis, alkalosis, tetany</p> <p>Homework after each class</p>
2.	Transport across membrane - cell membrane; Mitochondria and Endoplasmic reticulum.	6	Animations and videos, ppt-presentation s Black-board (whenever needed)	<p>General objective: Scientific temperament</p> <p>Specific objective: to clear the concept of transport across membrane - cell membrane; Mitochondria and Endoplasmic reticulum.</p> <p>Questions based on previous knowledge</p> <p>Synopsis:</p> <p>Diffusion: passive and facilitated</p> <p>Osmosis</p> <p>Active and passive transport</p> <p>Mass transport: endocytosis, exocytosis, phagocytosis and pinocytosis.</p> <p>Transport across inner and outer membrane of mitochondria</p> <p>Transport across endoplasmic reticulum</p> <p>Homework after each class</p>
3.	Active transport and its mechanism;	2	Animations and videos, ppt-	<p>General objective: Scientific temperament</p> <p>Specific objective: to clear the concept of</p>

			presentations Black-board (whenever needed)	cell biology Questions based on previous knowledge Synopsis: Ligand gated channel Voltage gated channel Uniportal transport Symportal transport Antiportal transport Homework after each class
4.	Hydrolytic enzymes - Their chemical nature, Activation and specificity.	2	Animations and videos, ppt-presentations Black-board (whenever needed)	General objective: Scientific temperament Specific objective: to clear the concept of hydrolytic enzymes. Questions based on previous knowledge Synopsis: Introduction of enzymes Properties of enzymes Types of hydrolytic enzymes Proteolytic enzymes, carbohydrase enzymes, nuclease enzymes, lipase enzymes, phosphorylase enzymes Activation and regulation of enzymes Homework after each class
Assessment of understanding: 1. Unit test for 20 marks: subjective/objective/oral 2. Group discussions 3. Class room quiz competitions				
UNIT-3				
1.	Amino acids and Peptides - Basic structure and biological function.	4	Animations and videos, ppt-presentations Black-board (whenever needed)	General objective: Scientific temperament Specific objective: to clear the concept of Amino acids and Peptides - Basic structure and biological function. Questions based on previous knowledge Synopsis: Introduction Structure of amino acid Properties of amino-acid Primary, secondary, tertiary and quaternary structures of amino acids Functions of protein and amino acids Homework after each class

2.	Carbohydrate and its metabolism - Glycogenesis; Gluconeogenesis; glycolysis, Glycogenolysis; Cori-cycle.	8	Animations and videos, ppt-presentations Black-board (whenever needed)	<p>General objective: Scientific temperament</p> <p>Specific objective: to clear the concept of Carbohydrate and its metabolism</p> <p>Questions based on previous knowledge</p> <p>Synopsis:</p> <p>Introduction</p> <p>Structure of carbohydrates</p> <p>Properties of carbohydrates</p> <p>Glycolysis and energy budget</p> <p>Kerb cycle and energy budget</p> <p>Cori cycle</p> <p>Glycogenesis</p> <p>Glycogenolysis</p> <p>Glyconeogenesis</p> <p>Biological functions of carbohydrates</p> <p>Homework after each class</p>
3.	Lipid metabolism - Oxidation of glycerol; oxidation of fatty acid.	3	Animations and videos, ppt-presentations Black-board (whenever needed)	<p>General objective: Scientific temperament</p> <p>Specific objective: to clear the concept of Lipid metabolism</p> <p>Questions based on previous knowledge</p> <p>Synopsis:</p> <p>Introduction of lipid</p> <p>Classification of lipids</p> <p>Structure and functions of lipids</p> <p>Beta-oxidation of lipid</p> <p>Homework after each class</p>
4.	Protein metabolism - Deamination, Transamination, Transmethylation ; Biosynthesis of Protein	6	Animations and videos, ppt-presentations Black-board (whenever needed)	<p>General objective: Scientific temperament</p> <p>Specific objective: to clear the concept of Protein metabolism</p> <p>Questions based on previous knowledge</p> <p>Synopsis:</p> <p>Protein catabolism- deamination, transamination and transmethylation of protein</p> <p>Ornithine cycle</p> <p>Biosynthesis of protein in prokaryotic and eukaryotic cells (transcription, post-transcriptional modification, translation, post-translational modifications)</p> <p>Homework after each class</p>
<p>Assessment of understanding:</p> <p>1. Unit test for 30 marks: subjective/objective/oral</p> <p>2. Group discussions</p>				

3. Class room quiz competitions

UNIT-4				
1.	Biotechnology - Scope and importance.	3	Animations and videos, ppt-presentations Black-board (whenever needed)	<p>General objective: Scientific temperament</p> <p>Specific objective: to clear the concept of cell biology</p> <p>Questions based on previous knowledge</p> <p>Synopsis:</p> <p>Introduction of biotechnology</p> <p>Branches of biotechnology</p> <p>Significance of biotechnology</p> <p>Homework after each class</p>
2.	Recombinant DNA and Gene cloning.	6	Animations and videos, ppt-presentations Black-board (whenever needed)	<p>General objective: Scientific temperament</p> <p>Specific objective: to clear the concept of biotechnology - Scope and importance</p> <p>Questions based on previous knowledge</p> <p>Synopsis:</p> <p>Natural process of recombination of DNA-conjugation, transformation, transduction, and recombination during pachetene stage of meiosis I.</p> <p>Recombination of DNA in lab: restriction endonuclease digestion, and ligation</p> <ol style="list-style-type: none"> 1. Gene cloning: Isolation of donor DNA fragment or gene. 2. Selection of suitable vector. 3. Incorporation of donor DNA fragment into the vector. 4. Transformation of recombinant vector into a suitable host cell. 5. Isolation of recombinant host cell. <p>Homework after each class</p>
3.	Cloned genes and other tools of biotechnology.	3	Animations and videos, ppt-presentations Black-board (whenever needed)	<p>General objective: Scientific temperament</p> <p>Specific objective: to clear the concept of cloned genes and other tools of biotechnology</p> <p>Questions based on previous knowledge</p> <p>Synopsis:</p> <p>Vectors: plasmid, cosmid, phage-virus</p> <p>Restriction enzymes</p> <p>Ligation enzymes</p> <p>Host</p>

				PCR Gene-machine Genomic library Electroporation Gene-gun Homework after each class
	4. Applications of biotechnology in (i) Pharmaceutical industry, and (ii) Food processing industry.	5	Animations and videos, ppt-presentations Black-board (whenever needed)	General objective: Scientific temperament Specific objective: to clear the concept of Applications of biotechnology Questions based on previous knowledge Synopsis: Pharmaceuticals: genetically engineered INSULIN Gene therapy Molecular diagnosis Transgenic animals-normal physiological development, study of disease, biological products, vaccine safety, chemical safety testing. Food processing industry: organic agriculture, GMO Crops, insect and pest resistant plants, HYV plants, fortified plants. Homework after each class
Assessment of understanding: 1. Unit test for 30 marks: subjective/objective/oral 2. Group discussions 3. Class room quiz competitions				
Unit-5				
1.	Principles and techniques of pH meter	3	Animations and videos, ppt-presentations Black-board (whenever needed)	General objective: Scientific temperament Specific objective: to clear the concept of principles and techniques of pH meter Questions based on previous knowledge Synopsis: Principle of pH meter pH electrode and reference electrode design types of pH meters Homework after each class

2.	Colorimeter	3	Animations and videos, ppt-presentations Black-board (whenever needed)	<p>General objective: Scientific temperament</p> <p>Specific objective: to clear the concept of Colorimeter</p> <p>Questions based on previous knowledge</p> <p>Synopsis:</p> <p>Principle of colorimeter-lambert-beer's law</p> <p>Ray diagram of colorimeter</p> <p>Significance and limitations of colorimeter</p> <p>Homework after each class</p>
3.	Microscopy- Light microscopes, Phase contrast and Electron microscopes.	3	Animations and videos, ppt-presentations Black-board (whenever needed)	<p>General objective: Scientific temperament</p> <p>Specific objective: to clear the concept of Microscopy</p> <p>Questions based on previous knowledge</p> <p>Synopsis:</p> <p>Principle of microscopy-resolution and magnification</p> <p>Types of microscopes</p> <p>Bright field, oblique illumination, dark field, dispersion staining</p> <p>Phase contrast</p> <p>Interference reflection</p> <p>Fluorescence</p> <p>Confocal</p> <p>x-ray</p> <p>electron microscopy</p> <p>scanning microscopy</p> <p>limitations</p> <p>Homework after each class</p>
4.	Centrifugation	3	Animations and videos, ppt-presentations Black-board (whenever needed)	<p>General objective: Scientific temperament</p> <p>Specific objective: to clear the concept of Centrifugation</p> <p>Questions based on previous knowledge</p> <p>Synopsis:</p> <p>Introduction</p> <p>Mathematical formula</p> <p>Principal of centrifugation machine</p> <p>Types: microcentrifuges; low-speed centrifuges; high speed centrifuges; ultracentrifuge</p> <p>Limitations and applications</p> <p>Homework after each class</p>

5.	Separation of bio-molecules by chromatography, and Electrophoresis	4	Animations and videos, ppt-presentations Black-board (whenever needed)	<p>General objective: Scientific temperament</p> <p>Specific objective: to clear the concept of chromatography, and Electrophoresis</p> <p>Questions based on previous knowledge</p> <p>Synopsis:</p> <p>Principle of chromatography</p> <p>Column and planar chromatography (paper and TLC)</p> <p>Displacement chromatography</p> <p>Physical state of mobile phase: gas and liquid</p> <p>Affinity: supercritical fluid</p> <p>Separation mechanism: ion exchange</p> <p>Size exclusion and expanded bed adsorption</p> <p>Homework after each class</p>
6.	6. Histo-chemical methods for determination of Protein, Lipids, and carbohydrate	4	Animations and videos, ppt-presentations Black-board (whenever needed)	<p>General objective: Scientific temperament</p> <p>Specific objective: to clear the concept of Histo-chemical methods</p> <p>Questions based on previous knowledge</p> <p>Synopsis:</p> <p>Homopolysaccharide: starch-iodine test; glycogen-carmines method; cellulose and chitin-calcofluor white staining method.</p> <p>Heteropolysaccharide: glycosaminoglycan-hale's colloidal iron method; periodic-acid-schiff reaction; alcian blue; iron diamine method</p> <p>Protein: biuret test, ninhydrin test, xanthoproteic test, saharouchi test, hopkin's test</p> <p>Lipid: oil red O method, osmium tetroxide method, bromine-sudan black method, marchi method, Nile blue method</p> <p>Homework after each class</p>
<p>Assessment of understanding:</p> <ol style="list-style-type: none"> 1. Unit test for 30 marks: subjective/objective/oral 2. group discussions 3. class room quiz competitions 				

Lesson Plan (Year 2022-2023)

M.A. Sem III (Geography)

Paper – XI

“Population Geography”

S.No.	Month	Unit	No. of Periods Needed	Proposed Syllabus	Topic
1	July	I	20		<ul style="list-style-type: none">• Definition and Scope of Pop. Geo.• Study of Population in Geography.• Definition of Population Geography• Relation with other subjects of S.S.• Approaches of Pop. Geography• Historical Development of Population Geography• Sources of population Data• Census and its history
2	August	II	12		<ul style="list-style-type: none">❖ Distribution of Population →• Concept of Population density• Factors affecting Population Distribution• Distribution and Density of population in Europe, Asia and in India.
3	September	II	12		<ul style="list-style-type: none">• Growth Of Population →• Measure of Decennial rate and• Measure of annual rate of Population growth.• Prehistoric and modern trends of Population growth.• Regional aspects of Population growth in India.• Demographic Transition in India.
4	October	III	8		<ul style="list-style-type: none">❖ Population Composition →• Population composition in terms of age and sex, rural, urban residence, educational status and occupational structure.• Fertility and Mortality of population:

					<ul style="list-style-type: none"> • Significance and factor. Indices and rates. • Human Development Index and its Components
5	November	IV	8		<ul style="list-style-type: none"> • Population Composition • Causes, characteristics and types. Methods of estimating value of internal migration. • Important international migrations of the world. • internal migration in India • Population and Resources: Population-Resource regions • Population Regions: Concept and methods, population regions of India, population policies of India.

Lesson Plan (Year 2022-2023)
M.A. Sem III (Geography)
Paper – XII

“SETTLEMENT GEOGRAPHY”

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S.No.	Month	Unit	No. of Periods Needed	Teaching method	Topic
1	July	I	12		<ul style="list-style-type: none"> • Meaning, Objectives and Scope of Settlement Geography • Evolution, Distribution, Types and Patterns of Rural Settlements • Rural House Types • Rural Service Centers.
2	August	I	16		<ul style="list-style-type: none"> • Definition, objective and scope of urban geography. General Name of city structure.

					<ul style="list-style-type: none"> • General Name of city structure •
3	September	II	12		<ul style="list-style-type: none"> • Evolution and growth of urban settlements • The Geographical setting of Urban Centers • Site, Situation and Location. • Rank-size relationship; Cities as Central Places, Central Place Theory, Growth Pole Theory. • City-Country Relationship : Umland, Rural-Urban Fringe.
4	October	III	8		<ul style="list-style-type: none"> • Internal structure morphology and land use. • theory of Urban structure the Concentric zone Theory, The Sector Theory, the Multiple Nuclei Theory. • Commercial Structure of Cities; The Central Business District (CBD). • Centrifugal and Centripetal forces in Geography, • Economic Base of Towns; Basic, Non-basic concept.
5	November	V	12		<ul style="list-style-type: none"> • Urban f\Functions; Functional Classification of Towns: • Webb, Harris, and Nelson Contemporary Urban Planning; • Types and elements, • Urban problems • Blight and Renuwal, Land use Planning, Urban and Metropolitan Planning in India.

Lesson Plan
M.A. Sem III (Geography)
Paper-XIII (A)

“ REMOTE SENSING TECHNIQUES”

S.No.	Month	Unit	No. of Periods Needed	Teaching method	Topic
1	August	I	8	Lecture Black Board Discussion ICT	<ul style="list-style-type: none"> • Historical development of remote sensing as a technology – • Relevance of remote sensing in Geography – • Concepts and basics: Energy source, energy and radiation principles, energy interactions in the

					atmosphere and earth surface features, <ul style="list-style-type: none"> • remote sensing systems: • platform sensors and radiation records. Microwave sensing interpretation of SLAR imageries, thermal imageries.
2	September	II	8	Lecture Black Board Discussion ICT	<ul style="list-style-type: none"> • Remote Sensing Satellite: platforms LANDSAT, SPOT, NOAA, RADARSAT, IRS, INSAT • principles and geometry of scanners and CCD arrays, • orbital characteristics and data products - MSS, TM, LISS I & II, SPOTPLA & MLA, SLAR. Recent trends in Satellite & Sensor System (World & India)
3	October	III	8	Lecture Black Board Discussion ICT	<ul style="list-style-type: none"> • Image Processing: Types of imagery, techniques of visual interpretation, ground verification transfer of interpreted thematic information to base maps-digital processing: • rectification and restoration, image enhancement - contrast manipulation, Classification: • Supervised and Unsupervised, post-classification analysis and accuracy assessment. • Selection of appropriate data for different applications
4	November	IV	8	Lecture Black Board Discussion ICT	<ul style="list-style-type: none"> • Applications : Air photo and image interpretations : • mapping land use and land cover, land evaluation, urban land use, landform and its processes • weather studies and studies of water resources : integration of Remote Sensing and GIS. • Remote sensing and hazard management, remote sensing and environmental management.

Lesson Plan
M.A. Sem III (Geography)
Paper XIV

“RESEARCH METHODOLOGY”

S.No.	Month	Unit	No. of Periods Needed	Teaching method	Topic
1	August	I	8	Lecture Black Board Discussion ICT	<ul style="list-style-type: none"> • Research Methodology-An Overview • Procedure of scientific Research, • Defining Research Problem • Formulating Hypothesis • Research Design.
2	September	II	8	Lecture Black Board Discussion ICT	<ul style="list-style-type: none"> • Methods of Data Collection: Observation, Questionnaire • Schedule and Interview • Sampling: Sampling Methods, Size of Sample
3	October	III	8	Lecture Black Board Discussion ICT	<ul style="list-style-type: none"> • Processing and Analysis of Data: • Processing- Editing, Coding, Classification and Tabulation • Analysis ; Measurement of Central Tendency • Dispersion, Correlation
4	November	IV	8		<ul style="list-style-type: none"> • Preparation of Research Reports: Steps, Layout and Types of Reports

Shri Kuleshwar Mahadev Govt. College Gobra Nawapara
Departmental Academic Calendar 2023-24 (Home Science Department)

Class	Paper	June	July	August	September	October	November	December	January	February	March	April
B.A. I	Paper I	Admission 2023-2024	Admission 2023-2024	Unit I	UNIT II	UNIT III	UNIT IV & Class seminar	UNIT V & Class seminar	Remedial classes, Revision, Prefinal Exam, Project	Practical Exam	Annual Exam	
	Paper II			Unit I	UNIT II	UNIT III	UNIT IV & Class seminar	UNIT V & Class seminar	Remedial classes, Revision, Prefinal Exam, Project			
B.A. II	Paper I			Unit I	UNIT II	UNIT III	UNIT IV & Class seminar	UNIT V & Class seminar	Remedial classes, Revision, Prefinal Exam, Project			
	Paper II			UNIT I	UNIT II	UNIT III	UNIT IV & Class seminar	UNIT V & Class seminar	Remedial classes, Revision, Prefinal Exam, Project			
B.A. III	Paper I			Unit I	UNIT II	UNIT III	UNIT IV & Class seminar	UNIT V & Class seminar	Remedial classes, Revision, Prefinal Exam, Project			
	Paper II			Unit I	UNIT II	UNIT III	UNIT IV & Class seminar	UNIT V & Class seminar	Remedial classes, Revision, Prefinal Exam, Project			

(Signature)
 Department Of Home Science

(Signature)
प्रभारी प्राचार्य
 श्री कुलेश्वर महादेव शासकीय महाविद्यालय
 गोबरा-नवापारा, जिला-रायपुर (छ.ग.)

Shri Kuleshwar Mahadev Govt. College Gobra Nawapara
Departmental Academic Calendar 2023-24 (Botany Department)

Class	Paper	June	July	August	September	October	November	December	January	February	March	April
B.Sc. I	Paper I	Admission 2023-2024	Admission 2023-24	Unit I	UNIT II	UNIT III	UNIT IV & Class seminar	UNIT V & Class seminar	Remedial classes, Revision, Prefinal Exam, Project	Practical Exam	Annual Exam	
	Paper II			Unit I	UNIT II	UNIT III	UNIT IV & Class seminar	UNIT V & Class seminar	Remedial classes, Revision, Prefinal Exam, Project			
B.Sc. II	Paper I			Unit I	UNIT II	UNIT III	UNIT IV & Class seminar	UNIT V & Class seminar	Remedial classes, Revision, Prefinal Exam, Project			
	Paper II			UNIT I	UNIT II	UNIT III	UNIT IV & Class seminar	UNIT V & Class seminar	Remedial classes, Revision, Prefinal Exam, Project			
B.Sc. III	Paper I			Unit I	UNIT II	UNIT III	UNIT IV & Class seminar	UNIT V & Class seminar	Remedial classes, Revision, Prefinal Exam, Project			
	Paper II			Unit I	UNIT II	UNIT III	UNIT IV & Class seminar	UNIT V & Class seminar	Remedial classes, Revision, Prefinal Exam, Project			

Department of Botany

I/C PRINCIPAL
Shri Kuleshwar Mahadev
Shaskiya Mahavidyalaya
Gobra-Nawapara, Raipur (C.G.)

Departmental Academic Calendar 2023-24											
Department of Chemistry											
Class	Paper	June	July	August	September	October	November	December	January	February	March
BSc I	I	Summer vacation Admission of 2023-24		Unit I & II	Unit I & II	Unit III & IV Science center visit	Unit IV	Unit V & VI	Remedial Classes Revision Internal Exam Project Work	Annual Practical Exam	Annual Theory Exam
	II			Unit I	Unit I	Unit II & III	Unit IV	Unit V & VI			
BSc II	I			Unit I & II	Unit I & II	Unit III Factory Visit	Unit V	Unit IV			
	II					Unit I	Unit II & III	Unit IV & V (Class seminar)			
	III			Unit I	Unit I	Unit II & III	Unit IV	Unit V			
BSc III	I			Unit I	Unit I	Unit II & III	Unit IV	Unit V (Class seminar)			
	II			Unit III	Unit III & Educational tour	Unit V	Unit IV	Unit II & I			
	III			Unit I	Unit I	Unit II & III	Unit IV	Unit V			

Note – The department will conduct unit test of 20 marks after the completion of each unit. Debate competition. Quiz competition. Chemistry research project is also planned for developing the interest of students in studying chemistry.

Dr. Madhurani Shukla
Department of Chemistry

Principal



श्री कुलेश्वर महादेव शासकीय महाविद्यालय, गोबरा नवापारा
जिला - रायपुर (छ.ग.)
मान्यता प्राप्त पं. रविशंकर शुक्ल विश्वविद्यालय, रायपुर (छ.ग.)

Departmental Academic Calendar 2023-24

Department of Mathematics

Class	Paper	June	July	August	September	October	November	December	January	February	March
BSc I	I	S u m m e r v a c a t i o n A d m i s s i o n s o f 2 0 2 3 - 2 4	Unit I	Unit II	Unit II & III	Unit III & IV	Unit IV	Unit V	Unit V & Revision class	Practical Exam & Revision class	A n n u a l T h e o r y e x a m
	II			Unit I	Unit II	Unit III	Unit IV	Unit V	Unit V & Revision Class	Practical Exam & Revision class	
BSc II	I			Unit I	Unit II & Unit III			Unit IV	Unit V		
	II			Unit I	Unit II	Unit III	Unit IV		Unit V		
	III					Unit I	Unit II	Unit III		Unit IV & V	
BSc III	II			Unit I	Unit II & Unit III			Unit IV	Unit V		
	I			Unit I	Unit II	Unit III	Unit IV		Unit V		
	III					Unit I	Unit II	Unit III		Unit IV & V	

Note: The department will conduct Unit test of 20 marks after the completion of each unit.

Debate competition, quiz competition, Chemistry research projects is also planned for developing interest of students in studying Chemistry.

Remedial classes and Competitive Coaching classes will be conducted by the department throughout the session

Nandani Sahu

Mrs. Nandani Sahu
Department of Mathematics

S. K. Vaidya
Mr. S. K. Vaidya

श्री कुलेश्वर महादेव शासकीय महाविद्यालय
गोबरा नवापारा, जिला - रायपुर

Shri Kuleshwar Mahadev Govt. College Gobra Nawapara
Departmental Academic Calendar 2023-24 (Physics Department)

Class	Paper	June	July	August	September	October	November	December	January	February	March	April
B.Sc. I	Paper I	Admission 2023-2024	Admission 2023-2024	Unit I	UNIT II	UNIT III	UNIT IV & Class seminar	UNIT V & Class seminar	Remedial classes, Revision, Prefinal Exam, Project	Practical Exam	Annual Exam	
	Paper II			Unit I	UNIT II	UNIT III	UNIT IV & Class seminar	UNIT V & Class seminar	Remedial classes, Revision, Prefinal Exam, Project			
B.Sc. II	Paper I			Unit I	UNIT II	UNIT III	UNIT IV & Class seminar	UNIT V & Class seminar	Remedial classes, Revision, Prefinal Exam, Project			
	Paper II			UNIT I	UNIT II	UNIT III	UNIT IV & Class seminar	UNIT V & Class seminar	Remedial classes, Revision, Prefinal Exam, Project			
B.Sc. III	Paper I			Unit I	UNIT II	UNIT III	UNIT IV & Class seminar	UNIT V & Class seminar	Remedial classes, Revision, Prefinal Exam, Project			
	Paper II			Unit I	UNIT II	UNIT III	UNIT IV & Class seminar	UNIT V & Class seminar	Remedial classes, Revision, Prefinal Exam, Project			



श्री कुलेश्वर महादेव शासकीय महाविद्यालय, गोबरा नवापारा

खिला - रायपुर (छ.ग.)

मान्यता प्राप्त प. शैक्षिक श्रुत विश्वविद्यालय, रायपुर (छ.ग.)

Departmental Academic Calendar 2023-24

Department of Zoology

Class	Paper	June	July	August	September	October	November	December	January	February	March
BSc I	I				Unit I & II	Unit III Science center visit	Unit IV & V				
	II				Unit I	Unit II	Unit III	Unit IV & V			
BSc II	I				Unit I & II	Unit III Zoological visit	Unit V	Unit IV			
	II					Unit I	Unit II & III	Unit IV & V (Class seminar)			
BSc III	II				Unit I	Unit II	Unit III & IV	Unit V			
	I				Unit I	Unit II Educational Tour	Unit III	Unit IV & V (Class seminar)			

Summer vacation
Admissions of 2023-24

Admission of 2023-24

Remedial classes
Revision
Internal exam
Project work
Annual Practical exam
Annual Theory exam

Note: The department will conduct Unit test of 20 marks after the completion of each unit.

Debate competition, quiz competition, Chemistry research projects is also planned for developing interest of students in studying Chemistry.

Remedial classes and Competitive Coaching classes will be conducted by the department throughout the session

Mrs. Dr. Razia Sultana
Department of Zoology

Principal
Mr. S. R. Vadde



श्री कुलेश्वर महादेव शासकीय महाविद्यालय, गोबरा नवापारा
जिला - रायपुर (छ.ग.)
मान्यता प्राप्त पं. रविशंकर शुक्ल विश्वविद्यालय, रायपुर (छ.ग.)

Departmental Academic Calendar 2023-24
Department of Political Science

Class	Paper	June	July	August /September/ October	November	December	January	February	March	February	March	April
BA I	I	Summer vacation, Admission Year 2023-24	Annual Examination 2022-23		Unit I	Unit II	Unit V	Unit III	Unit IV	Internal examination	Remedial and doubt classes	Annual examination
	II				Unit III	Unit I	Unit II	Unit IV	Unit V			
BA II	I				Unit I	Unit II	Unit III	Unit V	Unit IV			
	II				Unit I	Unit II	Unit III	Unit IV	Unit V			
BA III	I				Unit I	Unit III	Unit IV	Unit II	Unit V			
	II				Unit II	Unit V	Unit I	Unit III	Unit IV			

Note: The department will conduct Unit test of 15 marks after the completion of each unit.
Debate competition, quiz competition.

Mr. Ramesh Kumar Lalwani
Department of Political Science

8/3/24
I/C PRINCIPAL
Shri Kuleshwar Mahadev
Shaskiya Mahavidyalaya
Gaura-Nawapara, Raipur (C.G.)

* Student Profile *



YEAR- 2013-24

M.Sc. Ist Sem

S. NO.	Name	Father Name	cat.	Gender	Mobile No.	DOB	U.G. Passing Year	Under graduate marks (%)
1.	Aishwarya Sahu	Yad Ram Sahu	ABC	F	8319772214	4/3/2001	2023	71.78
2	Arvind Kumar	Vijay Kumar	ABC	M	6266121630	3/9/2000	2021	76.17
3	Bharti	Tikuram Sahu	ABC	F	6260350118	5/7/2001	2023	58.28
4	Bhisham Kumar	Mohan Lal	ABC	M	7898599802	15/03/2001	2023	64.56
5	Chandrakant Dew	Milap Ram	ABC	M	8966387518	24/09/2002	2023	62.67
6	Eshwari	Kamta Lal	ABC	F	9103845920	29/02/2000	2022	64.78
7	Gaileshwari	Kamta Prasad	ABC	F	6268919164	8/4/2002	2023	63.39
8	Kiran Sahu	Harichand	ABC	F	6261817561	24/02/2000	2021	56.39
9	Nidhi Verma	Mahesh Verma	ABC	F	9302560943	28/06/2001	2022	70.78
10	Ogeshwari	Sant Ram	ABC	F	6262301610	19/09/2000	2022	63.5
11	Pooja Sahu	Shatruhan Lal	ABC	F	7000584987	26/03/2000	2021	69.83
12	Prakash Patel	Khelu Ram Patel	ABC	M	9691166386	12/2/2001	2023	61.44
13	Priyanka bandhe	Naresh	SC	F	9304576501	27/07/1999	2020	59.17
14	Ravina	Heerachand	SC	F	7771876457	17/10/2002	2023	51.67
15	Sadhna	Meghnath	ABC	F	6266287418	10/06/2001	2022	69.28
16	Samiksha Sahu	Hulash Sahu	ABC	F	8225084145	29/11/2002	2023	69.61
17	Sandeep Kumar	Gopi Ram	ABC	M	7828288163	13/11/2002	2023	71.83
18	Semeshwari	Cheteshwar	ABC	F	6267669070	11/10/2000	2021	67.83
19	Shweta	Basant Sahu	ABC	F	9343331264	8/01/2003	2023	72.94
20	Sonika	Nand Kumar	ABC	F	6260029852	5/7/1999	2020	54.56
21	Tarini	Mool Chand	ABC	F	9171978499	11/12/2001	2022	73.56
22	Veena Patel	Laxminarayan	ABC	F	9302486286	12/2/2000	2022	64.39
23	Vipasa Sinha	Subalal	ABC	F	7828180370	4/11/2001	2023	73.67
24	Yogmaya	Jogiram	ABC	F	9981070010	01/01/2001	2022	72.17
25	Yuvendra Yadu	Tejendra	ABC	M	7999532749	7/6/2000	2021	65.33



Page 3-24

Page 3-24 (2nd Batch)



Sl. No.	Name	Class Test			
		Paper I	Paper II	Paper III	Paper IV
1	Arwind	10	11	11	-
2	Bharti	-	10	12	14
3	Bhisham	16	-	14	12
4	Chandrakant	-	12	13	11
5	Eshwari	11	-	10	11
6	Gaileshwari	13	14	12	13
7	Kiran Sahu	12	12	10	11
8	Nidhi Verma	14	13	12	10
9	Ogeshwari	10	10	-	-
10	Pooja Sahu	14	12	14	16
11	Prakash Patel	12	-	12	10
12	Ravina	10	-	-	10
13	Samiksha Sahu	14	12	12	11
14	Sandeep	15	15	14	16
15	Sarmeshwari	16	14	12	11
16	Shweta	14	13	12	11
17	Sohadra	12	12	-	-
18	Sonika	14	13	-	16
19	Veena Patel	14	13	11	-
20	Vipasa Sinha	15	13	11	14
21	Yagnmaya	14	12	12	-
22	Yuvendra Yadav	-	12	-	13

1st External Exam				2nd External Exam				Remarks
Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	
11	14	12	-	12	15	14	15	
10	12	12	11	12	13	13	13	
11	15	13	12	11	14	12	13	
14	12	13	13	11	13	13	12	
11	12	14	12	10	11	12	13	
13	13	14	15	14	13	14	14	
12	13	12	13	10	14	11	12	
14	15	15	13	13	16	14	13	
12	11	11	13	10	13	10	11	
14	14	13	15	15	15	13	14	
12	15	14	13	13	14	12	11	
13	12	15	14	12	11	13	13	
14	13	11	11	15	11	12	11	
16	15	14	13	15	16	14	14	
13	15	11	12	13	14	11	12	
14	14	14	15	14	15	13	14	
12	11	10	14	11	12	13	11	
14	10	13	13	13	11	13	12	
11	12	13	11	10	11	12	12	
15	11	13	12	14	15	12	12	
15	16	14	11	14	15	13	11	
14	14	16	15	15	15	14	14	

Head of Department - Chemistry
 Dr. Madhuvani Shukla
 Asst. Professor, Chemistry

2.5.1 Internal assessment 2023-24

कार्यालय प्राचार्य, श्री कुलेश्वर महादेव शासकीय महाविद्यालय,
गोबरा-नवापारा,

ग्राम तर्ही-483 113, पोस्ट पटेवा, जिला रायपुर (छत्तीसगढ़)

E-Mail : gsvt.gvr.college@gmail.com

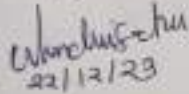
गोबरा-नवापारा, दिनांक 22/12/2023

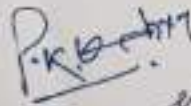
// सूचना //

महाविद्यालय के समस्त प्राध्यापकों/अतिथि शिक्षकों को सूचित किया जाता है कि प्री-फाइनल परीक्षा 2023-24 दिनांक 15/01/2024 से प्रारंभ होने जा रही है। इस हेतु प्रत्येक विषय के एक-एक प्रश्न-पत्र जिसमें सभी भाग शामिल हो और अधिकतम 50 अंकों सहित तैयार कर दिनांक 29/12/2023 तक संबंधित केन्द्राध्यक्ष तथा एक प्रति आंतरिक मूल्यांकन विभाग के पास जमा करना सुनिश्चित करेंगे।


Dr. K. K. Singh
22/12/23

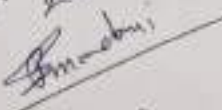

Dr. K. K. Singh
22/12/23

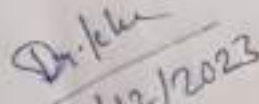

Dr. K. K. Singh
22/12/23

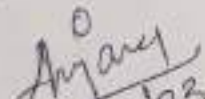

Dr. K. K. Singh
22/12/23

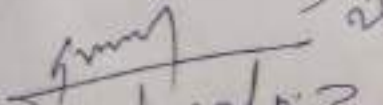

Dr. K. K. Singh
22/12/23


Dr. K. K. Singh
22/12/23


Dr. K. K. Singh
22/12/23


Dr. K. K. Singh
22/12/2023


Dr. K. K. Singh
22/12/23


Dr. K. K. Singh
22/12/23


(श्री एस.आर.कट्टी)
प्र. प्राचार्य

श्री कुलेश्वर महादेव शासकीय महाविद्यालय गोबरा-नवापारा
जिला-रायपुर (छ.ग.)

क्रमांक 1845/स्था./2023-24

गोबरा-नवापारा, दिनांक 13/12/2023

महाविद्यालय व राज 2023-2024 की कई-वार्षिक / प्री-माईनल परीक्षा
दिनांक 18/11/2023 से आयोजित हो रही है। उक्त परीक्षा को अंजल संवादन हेतु महाविद्यालय में
विद्यार्थियों की परीक्षा दीप का गलन किया जाता है। उक्त दीप में सहायक प्राध्यापक/कर्मचारी विद्यार्थियों
कार्य का दायित्व निर्वहन करते हैं -

क्र.	सहायक	केन्द्राध्यक्ष / सहायक केन्द्राध्यक्ष का नाम	अन्य सहायक एवं सहायक, तृतीय वर्ग, चतुर्थ वर्ग
1	सहायक	श्री एस.आर.वन्दे, प्र.प्राचार्य सहा. प्राध्या. (सहायक) केन्द्राध्यक्ष	अन्य सहायक :- डॉ. (श्रीमती) पुष्पा विहारी, अतिथि व्याख्याता श्री राजेश्वर मंडावी, अतिथि व्याख्याता कु. मंडावी योग, अतिथि व्याख्याता चतुर्थ वर्ग :- श्रीमती जयदीन मेता श्रीमती गीता साहू
2	कला	श्री टी.के.शरद सिंह सरकाप, सहा. प्राध्यापक (हिन्दी) केन्द्राध्यक्ष श्री जितेंद्र कुमार सिन्हा सहा. प्राध्या. (अर्थशास्त्र) सहायक केन्द्राध्यक्ष	अन्य सहायक :- श्री रमेश कुमार लहरे, सहा. प्राध्यापक श्री सुकेशचन्द्र कुमार काबरा, सहा. प्राध्यापक श्री रमेशचन्द्र सुलतकरे, अतिथि व्याख्याता श्रीमती नारायणी सुलतकरे, अतिथि व्याख्याता तृतीय वर्ग :- श्री नारायण प्रसाद सोनी, प्रयो. तकनीक विभाग चतुर्थ वर्ग :- श्रीमती मंजू शर्मा, प्रयो. परिवारिक श्री कुलेश्वर प्रसाद सिन्हा, प्रयो. परिवारिक ज.भा.कर्म :- श्री दीनदयाल मिश्रलहरे, प्रधान्य अधिकारी श्री राहुल साहू, श्रीमती सेवती यादव.
3	विज्ञान	डॉ. (श्रीमती) मधुरानी शुक्ला सहायक प्राध्यापक (रसा. शास्त्र) केन्द्राध्यक्ष डॉ. प्रेमचन्द्र कुमार उपाध्याय सहायक प्राध्यापक (भौतिक शास्त्र) सहायक केन्द्राध्यक्ष	अन्य सहायक :- श्रीमती नवनी साहू, सहा. प्राध्यापक श्री मनमोहन जोशी, अतिथि व्याख्याता चतुर्थ वर्ग :- श्री संजु वर्मा, प्रयो. परिवारिक श्री विनय कुमार मारकण्डे, प्रयो. परिवारिक ज.भा.कर्म :- श्रीमती सेवती यादव.

नोट :- 1. वीदाकीय कार्य का दायित्व निर्वहन सहा. प्राध्या./अतिथि व्या./स्व-वित्तीय एवं ज.भा.
शिक्षक करेंगे।

- परीक्षा संचालन के पश्चात् समस्त रिकार्ड आंतरिक मूल्यांकन विभाग में डॉ. (श्रीमती)
मधुरानी शुक्ला, के पास जमा करना सुनिश्चित करेंगे।
- समस्त प्रकार की बैठक व्यवस्था साफ-सफाई से लेकर टेबल एवं कुर्सी कक्षाओं में
रख-रखाव का कार्य स्थानीय प्रधान समिति के कर्मचारी करेंगे (श्रीमती गीता साहू, श्री
राहुल साहू, श्री रोशन सोनी, श्रीमती सेवती यादव।)

डॉ. (श्रीमती) मधुरानी शुक्ला
आंतरिक मूल्यांकन प्रभारी

(श्री एस.आर.वन्दे)
प्र.प्राचार्य

श्री कुलेश्वर महादेव शासकीय महाविद्यालय गोबरा नवापारा
जिला-रायपुर (छ.ग.)

गोबरा-नवापारा, दिनांक/12/2023

पृ. क्रमांक /स्था./2023-24

प्रतिलिपि :-

सर्व संबंधित डॉ./श्री/श्रीमती श्री कुलेश्वर
महादेव शासकीय महाविद्यालय गोबरा-नवापारा, जिला-रायपुर (छ.ग.) की ओर सूचनार्थ एवं पालनार्थ।

(श्री एस.आर.वन्दे)
प्र.प्राचार्य

श्री कुलेश्वर महादेव शासकीय महाविद्यालय गोबरा नवापारा
जिला-रायपुर (छ.ग.)

कार्यालय प्राचार्य, श्री कुलेस्वर महादेव सांस्कृतिक महाविद्यालय, गोंबरग-नवापारा,
ग्राम तहसी-493 113, पोस्ट पटेल, जिला रायपुर (अछासमण्ड)
E. मोबा : 9999 899 8999999999999999
गोंबरग-नवापारा, दिनांक 22/12/2023

प्री-वार्षिक परीक्षा 2023-24

समय 12.30 से 03.30 तक

दिनांक	दिन	B.Sc.- I	B.Sc.- II	B.Sc.- III
15.01.2024	रविवार	रसायन शास्त्र	रसायन शास्त्र	रसायन शास्त्र
16.01.2024	मंगलवार	वनस्पति शास्त्र/भौतिकी	वनस्पति शास्त्र/भौतिकी	वनस्पति शास्त्र/भौतिकी
17.01.2024	बुधवार	अंतुविज्ञान / भूगोल	अंतुविज्ञान / भूगोल	अंतुविज्ञान / भूगोल
18.01.2024	गुरुवार	अंग्रेजी	अंग्रेजी	अंग्रेजी
19.01.2024	शुक्रवार	हिन्दी	हिन्दी	हिन्दी

टिप :- परीक्षा समय से 10 मिनट पूर्व कक्षा में पहुंचें।

सहसंचालक
श्री. मधुसूदन शुक्ला
(अंतरिक मूल्यांकन विभाग)

(श्री एस.आर.वर्मा)
प्र. प्राचार्य
श्री कुलेस्वर महादेव सांस्कृतिक महाविद्यालय गोंबरग-नवापारा
जिला-रायपुर (छ.ग.)

22/12/23

22.12.2023

22/12/2023

22/12/23

22/12/23

कार्यालय प्राचार्य, श्री कुलेश्वर महादेव शासकीय महाविद्यालय, गोबर-नवापारा,
ग्राम तहसील-493 113, पोस्ट घटोवा, जिला रायपुर (छत्तीसगढ़)
E-Mail : gmt.gur.college@gmail.com

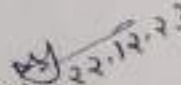
गोबर-नवापारा, दिनांक 22/12/2023

प्री-वार्षिक परीक्षा 2023-24

समय 12.30 से 03.30 तक

दिनांक	दिन	B.A.- I	B.A.- II	B.A.- III
15.01.2024	सोमवार	राजनैतिक विज्ञान / गृहविज्ञान	राजनैतिक विज्ञान / गृहविज्ञान	राजनैतिक विज्ञान / गृहविज्ञान
16.01.2024	मंगलवार	भूगोल / मनोविज्ञान	भूगोल / मनोविज्ञान	भूगोल / मनोविज्ञान
17.01.2024	बुधवार	अंग्रेजी साहित्य	अंग्रेजी साहित्य	अंग्रेजी साहित्य
18.01.2024	गुरुवार	अर्थशास्त्र	अर्थशास्त्र	अर्थशास्त्र
19.01.2024	शुक्रवार	हिन्दी साहित्य	हिन्दी साहित्य	हिन्दी साहित्य
20.01.2024	शनिवार	हिन्दी भाषा	हिन्दी भाषा	हिन्दी भाषा
22.01.2024	सोमवार	अंग्रेजी भाषा	अंग्रेजी भाषा	अंग्रेजी भाषा

टिप :- परीक्षा समय से 10 मिनट पूर्व कक्ष में पहुंचें।


संयोजक
डॉ. मधुरानी शुक्ला
(आंतरिक मूल्यांकन विभाग)


(श्री एस.एस.आर.वड्डे)
प्र. प्राचार्य
श्री कुलेश्वर महादेव शासकीय महाविद्यालय गोबर-नवापारा
जिला-रायपुर (छ.ग.)

कार्यालय प्राचार्य, श्री कुलेश्वर महादेव शासकीय महाविद्यालय, मोबरा-नवापरा,
छात्र तરી-803 113, पोस्ट पटेवा, जिला रायपुर (अन्तर्गत)

E-Mail : rajat_gupta_college@rajatgupta.com

मोबरा-नवापरा, दिनांक 22/12/2023

प्री-वार्षिक परीक्षा 2023-24

समय 9.00 से 12.00 तक

दिनांक	दिन	B.Com.- I	B.Com.- II	B.Com.- III
15.01.2024	सोमवार	व्या. संसार	निम्नीय लेखांकन	प्रबंधकीय लेखांकन
16.01.2024	मंगलवार	व्या. भवविचार	उद्यमिता के सिद्धांत	अर्थशास्त्र
17.01.2024	बुधवार	वित्तीय लेखांकन	आगत लेखांकन	अवकाश का
18.01.2024	गुरुवार	व्या. सर्वशास्त्र	व्या. प्रकाश	आंतराष्ट्रीय विपणन
19.01.2024	शुक्रवार	व्या. निवर्तन रूपरेखा	कंपनी अधिनियम	विपणन के सिद्धांत
20.01.2024	शनिवार	व्या. गणित	व्या. सांख्यिकी	आयकर
22.01.2024	सोमवार	हिन्दी भाषा	हिन्दी भाषा	हिन्दी भाषा
23.01.2024	मंगलवार	अंग्रेजी भाषा	अंग्रेजी भाषा	अंग्रेजी भाषा

टिप - परीक्षा समय से 10 मिनट पूर्व कक्ष में पहुंचें।

MJ
22/12/23
राजेश कुमार
ऑ. मधुरानी शुक्ला
(आंतरिक मूल्यांकन विभाग)

sh
(श्री एस.आर.वर्मा)
प्र. प्राचार्य
श्री कुलेश्वर महादेव शासकीय महाविद्यालय मोबरा-नवापरा
जिला-रायपुर (छ.ग.)

Pradeep
24/12/2023

Ajmer
22/12/23

उत्तर प्रश्निका वितरण

क्रमांक	विषय	प्रश्नोद्धारकर्ता	उ.प्र. प्रश्न	एक. प्रश्न
B.A.I	इतिहास	श्री. रमेश कुमार लाल	123	100
B.A.II	विज्ञान	डॉ. रमेश कुमार	214	100
B.A.III	राजनीति विज्ञान	—	158	100
B.A.I	अर्थशास्त्र	श्रीमती. मोनिका शर्मा	18	100
B.A.II	—	—	5	100
B.A.III	—	—	3	100
B.A.I	भूगोल	श्री. प्रवीण कश्यप	215	100
B.A.II	—	—	120	100
B.A.III	—	—	141	100
B.A.I	मनोविज्ञान	—	10	100
B.A.II	—	—	4	100
B.A.III	—	—	3	100
B.A.I	अंग्रेजी साहित्य	श्री. लालचंद शाह	07	100
B.A.II	—	—	05	100
B.A.III	—	—	Nil	100
B.A.I	अर्थशास्त्र	श्री. जिवेन्द्र बिन्दा सर	33	100
B.A.II	—	—	23	100
B.A.III	—	—	—	100

बारा - राजगीर बारा / राजगीर

10-6-2020

100-100000

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दिनांक - 17/01/2024
विषय :- अंग्रेजी साहित्य

Page No.	
Date	

क्रमांक	कक्षा	पूरा संख्या	विशक का नाम	हस्ताक्षर
B.A.I	05	07	1. डॉ. खेमप्रभा	Dr. Khem (Signature)
B.A.II	05	05	2. डॉ. रश्मि सोम बरोबर	
B.A.III	05			

18/01/2024

विषय :- अर्थशास्त्र

क्रमांक	कक्षा	पूरा संख्या	विशक का नाम	हस्ताक्षर
B.A.I	06	33	डॉ. खेमप्रभा	Dr. Khem
B.A.II	06	23	डॉ. रश्मि सोम बरोबर	Rashmi
B.A.III	06	20	श्रीमती लक्ष्मी शर्मा	Ms. Lakshmi

2023-24

B.Sc. I (Bio+Maths)

S. No.	Name	Unit test				Term			Remark
		I	II	III	IV	I st	II nd	III rd	
1	Anita	7	8	6	7	21	-	30	
2	Ankitadiaz	6	7	6	5	24	23	25	
3	Anusuya	8	6	7	6	30	26	32	
4	Dhagwat	6	6	7	7	15	16	18	
5	Dharti	7	5	6	6	23	24	31	
6	Bhawana	18	5	5	6	10	19	25	
7	Bhumika/	7	6	6	6	27	20	34	
8	Bhumika/	7	7	6	7	30	28	32	
9	Bhumika/	8	8	7	8	18	19	20	
10	Chandhel	7	7	7	8	16	15	17	
11	Chandan	7	6	7	6	-	20	35	
12	Chandrasekhar								
13	Chitrabanti	6	6	5	-	20	25	47	
14	Dageshwari	7	7	8	7	28	30	45	
15	Darmini	7	6	-	8	22	19	26	
16	Darshwari	8	6	5	6	16	11	17	
17	Devika	7	7	6	6	20	18	21	
18	Devki	7	5	7	-	-	19	18	
19	Devkumari	6	6	6	-	11	17	20	
20	Dhanrajy	5	7	-	6	12	-	17	
21	Digesh	6	5	7	5	30	23	45	
22	Dishadhrui	6	-	5	6	30	30	48	
23	Divya	7	6	7	-	11	12	17	
24	Droupadi	8	8	7	-	30	30	48	
25	Durga Patel	7	6	-	7	22	23	25	
26	Ganima	7	-	7	6	18	20	24	
27	Harshita	6	5	8	6	25	20	30	
28	Heena	6	6	6	-	20	23	28	
29	Himalaya	6	6	-	7	22	-	29	
30	Hina								

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S. No.	Name	Unit test				Term			Remark
		I	II	III	IV	I st	II nd	III rd	
94	Sarika	03	02	05	01	20	-	15	
95	Sarika Sahu	-	02	03	07	20	07	12	
96	Saurabh Sahu	01	03	-	05	20	22	24	
97	Shatruhan	01	-	05	07	14	21	18	
98	Sonali	03	07	07	-	23	11	20	
99	Sonam	04	03	02	02	25	08	20	
100	Suman	-	02	02	-	10	06	22	
101	Surendra	04	06	-	24	03	27	21	
102	Takshwari	03	-	05	07	15	23	18	
103	Tejaswita	04	04	03	02	17	11	15	
104	Thanshwar	07	03	04	-	21	-	12	
105	Titiksha Sahu	02	02	-	05	05	08	17	
106	Tulsi	03	03	04	-	21	15	23	
107	Umeshwari	02	02	02	03	17	14	21	
108	Varsha	05	07	07	03	13	-	22	
109	Vikas Kumar	04	03	04	07	15	16	13	
110	Vinay Sahu	03	04	05	-	13	14	15	
111	Vishnu	03	-	03	04	12	17	15	
112	Vanshu	05	07	07	-	13	21	17	
113	Vashtant	03	-	04	03	22	27	20	
114	Yogita Pal	05	05	07	08	15	18	-	

Prof. Dr. Madhuranishetty
HOD

Department of Chemistry
(Dr. Madhuranishetty)

INTERNAL EXAM 2023-24 CLASS B. Sc. - I

S. N.	SUB. - BOTANY NAME	UNIT TEST				I TERM	II TERM	PRE. FINAL	REMARK
		I	II	III	IV				
1	ANITA	2	3	4			11	12	
2	ANKITA DIWAN	4	3	4			12	17	
3	ANUSUYA	2	4	5			6	5	
4	BHAGWAT	2	4	5			10	13	
5	BHAWANA	2	4	6			15	18	
6	BHUMIKA	6	5	6			13	15	
7	BHUMIKA	5	5	5			11	13	
8	BHUMIKA SAHU	6	7	6			10	13	
9	CHANCHAL DHIRUW	4	3	4			04	5	
10	CHANDAN NAVRANGE	5	3	5			06		
11	CHANDRAHAS	4	3	4			15	19	
12	CHITRAKANT SEN	6	4	3			19	29	
13	DAGESHWARI	8	8	6			22	27	
14	DAMINI	2	3	4			10	14	
15	DANESHWARI SAHU	2	2	4			04	5	
16	DHANVI	7	1	3			07	10	
17	DISHA DHIRUW	4	3	7			20	28	
18	DIVYA	5	3	4			08	8	
19	DROUPADI SAHU	6	7	8			21	26	
20	DURGA PATEL	7	6	5			18	20	
21	GARIMA	2	3	4			15	18	
22	HARSHITA SONI	6	5	6			15	18	
23	HEENA	4	2	2			03	5	
24	HIMALAY	4	2	1			03	13	
25	HINA	3	2				13	A	
26	HINA	5	1				04	15	
27	HITESHWARI SAHU	6	5	3			03	20	
28	ISHA	3	3	2			11	15	
29	ISHU KANSARI	4	4				06		
30	JEETESHWARI	7	8				15	18	
31	JITENDRA PATEL	5	3				06		
32	KAJAL DIWAN	4		3			07		
33	KESHAR	3	4	2			07	5	
34	KHILESHWAR SAHU	6	3	2			06	17	
35	KHUSHABU SAHU	5	5	3			15	17	
36	KHUSHI SAHU	6	3	4			14	17	
37	KIRTI	3	2	1			03	8	
38	KUNDAN SAHU	5	4	3			10	13	
39	KUSUM	4	3	2			06		
40	LALITA	8	8	7			25	28	
41	LEENA	2	3	2			16	15	
42	LKESHWARI KOSRE	4	4	5			13	14	
43	MADHUMITA DEWANGAN	7	2	4			02	0	
44	MANISH	3	3	4			06		
45	MANISHA	6	5	6			15	20	
46	MANISHA	4	6	5			10	12	
47	MANJULATA	6	5	5			16	18	
48	MANSI	2	3	2			15	18	
49	MEERA PATEL	4	3	4			17	20	
50	MENAKA	3	4	4			14	17	
51	NAMRATA	1	2				04	5	
52	NANDANI KANSARI	6	6	5			09		

NEELIMA	3	2	3			10	9
NEHA	1	2	4			12	13
NEHA PATEL	4	2	2			21	25
OGESHWARI SAHU	4	3				16	15
PAYAL	3	3				17	18
POOJA	2	2				06	
POOJA PATEL	7	6	8			20	30
PRARTHANA	4	2	4			09	10
PREETI	3	4	3			10	20
PREMIN	2	3	4			06	
PRIYANKA SAHU	6	5	6			15	19
RATNESH SAHU	5	5	4			02	4
RESHMA SAHU	4	2				06	
RESHMI						10	11
RIDDHI KANSARI	6	3	4			16	14
SADHANA BHARTI	3	3	4			06	8
SAMEER		3	2			04	6
SANDHYA	4	4	3			03	4
SARITA NISHAD	3	5				11	14
SATYABALA	4	6				09	11
SEVATI PANDEY	6	5	6			08	11
SHASHANK SARVA	5	5	4			15	19
SHIKHA SHENDE	4	4	3			06	10
SMRITI		5				06	10
SONALI KUMBHAR	5	5	4			08	13
SUDHANSHU SHARMA	6	5	5			11	15
TAKESHWARI	7	6	7			07	13
TANAYA		7	3			08	
TANUSHREE	7	6	6			018	21
TANYA SAHU	4	3	2			15	
TARINI	4	4	5			11	13
TARINI SAHU	5	5				15	18
TEJKUMARI		6	3			05	2
THAMESHWARI						10	13
TILOCHAN	5	3	2			04	5
TRIPTI PATEL	4	4	3			05	8
TRIPTI PATEL	4	3				03	8
TULESH KUMAR	5	6	6			18	22
TWINKLE SAHU	6	3	4			15	
UMA SAHU	4	4	2			06	4
UMABHARTI	3	4				18	20
USHA YADAV	5	6	7			12	14
VANDNA	6	3				06	
VARSHA	3	4				03	8
VEDPRAKASH	3	3				06	
VEENA KANSARI		4	4			11	15
VIKAS KUMAR	3	5				06	8
YAMINI DHIWAR	5	3	3			10	11
YAMINI NISHAD	6	5	6			12	15

INTERNAL EXAM 2023-24 CLASS B. Sc. - II

SUB. - BOT ANY		UNIT TEST				I TERM	II TERM	PRE. FINAL	REMARK
S. N.	NAME	I	II	III	IV				
1	CHANDANI	5	3	5			8	10	
2	DIVYA	6	4	5			7	A	
3	KHUSHBU	4	4	4			9	11	
4	KISHOR KUMAR SAHU	4	5	5			10	12	
5	LUKESH KUMAR	5	2	6			9	10	
6	MAHIMA DEWANGAN	6	1	5			8	A	
7	MONISHA SAHU	6	4	6			11	12	
8	OMCHAND	4	3	4			7	8	
9	PAYAL NISHAD	1	3	3			8	9	
10	PUSHPANJALI	1	3	2			7	A	
11	RITIK KUMAR	4	5	2			8	10	
12	SUDARSHAN	2	5	5			9	11	
13	TAMESHWARI	2	6	5			12	14	
14	TOMESHWARI	3	4	5			10	12	
15	TULSI	2	4	5			15	17	
16	VANDANA SAHU	4	3	3			17	18	
17	VEDPRAKASH	5	6	6			17	19	
18	VIVEK DEWANGAN	4	3	4			11	15	
19	YOGESH KUMAR	5	5	4			13	16	
20	AJAY KUMAR		2	3			18	17	
21	ANITA	2					8	A	
22	BHARTI DHIRUW	4		2			15	18	
23	BHAVNA	3	2	3			12	17	
24	CHANDANI	3	4	4			11	15	
25	CHITRAREKHA	4	5	5			12	17	
26	DAMANI	2	5	3			13	17	
27	DAMINI	6	6	5			14	18	
28	DEVA SAHU	5	5	4			18	20	
29	DHANANJAY SINHA	6	7	6			19	22	
30	DIGESHWARI YADAV	4	3	3			11	15	
31	GITANJALI	5	4	4			10	12	
32	GOVIND KUMAR		5				10	13	
33	HEENA SINHA	1	4				11	16	
34	HEMANT KUMAR SAHU	7	2	7			16	20	
35	HINA SAHU	7	4	7			20	22	
36	HOMESHWARI	2	3	3			8	11	
37	HOMESHWARI	2	1	2			8	10	
38	HRITIKA NISHAD	8	8	7			18	20	
39	ISHA	1	3	2			13	14	
40	JYOTI	3	3	2			12	15	
41	KALPANA SAHU	7	8	6			20	25	
42	KAVITA KURRE (TC)	3					A	A	
43	KUMKUM	7	8	7			21	26	
44	LAXMI	2	2	3			8	11	
45	LEENA SAHU	7	8	7			20	23	
46	LEKHNI SAHU	3	2	2			8	10	
47	LILESH SAHU	5	3	4			13	17	
48	LILESHWARI	4	4	5			15	18	
49	LOMASH SONKAR	6	6	5			13	17	
50	MAMTA	4	3	2			12	16	
51	MAMTA SAHU	4	3	4			15	19	
52	MANJU SAHU	2	2	2			10	11	

	MANSI SAHU	6	5	5			14	17	
	MOHINEE	6	5	4			13	18	
	NAGESH	5	4	4			14	15	
0	NANDANI	4	5	5			14	14	
57	NEETU BHARTI	7	8	7			22	24	
58	NDINI	3	2	2			10	12	
59	OMESHWARI	2	1	2			10	13	
60	PARMANAND	4	5				11	13	
61	PARVATI PRAJAPATI	8	7	7			25	27	
62	PAYAL BANSWAR	4	2	2			10	13	
63	POOJA	5	6	5			11	14	
64	PREMA SAHU	2	4	2			16	15	
65	PURAN KUMAR	3	2				12	17	
66	PURNIMA	6	6	5			10	13	
67	PUSHPA PATEL	5	5	4			10	14	
68	PUSHPANJALI YADAV	4	3	3			8	15	
69	RAKESH KUMAR	3	2				8	15	
70	REETURAJ	3	2				9	16	
71	RITU	2		6			11	14	
72	RITU CHAKRADHARI	4		2			10	13	
73	ROHIT KUMAR	4	3				10	12	
74	ROMA PATEL	3		3			12	16	
75	SHASHIKALA SAHU	2	2	2			11	15	
76	SOHADRA	4		2				A	
77	TANUJA	5		3			4	A14	
78	VAISHALI	6		4			6	15	
79	VAISHNAVI DEWANGAN	7	8	7			10	17	
80	VANDANA						17	18	
81	VEDPRAKASH						15	19	
82	YOGESH KUMAR SONKAR	7	8	7			18	22	

INTERNAL EXAM 2023-24 CLASS B. Sc. - III

SUB. - BOTANY		UNIT TEST				I TERM	II TERM	PRE. FINAL	REMARK
S. N.	NAME	I	II	III	IV				
1	AARADHANA SAHU	2	2	3			11	8	
2	AARTI	2	1	1			12	ABSENT	
3	AKANKSHA SAHU	2	4	4			10	17	
4	ANAMIKA	2	2	2			9	17	
5	ANILU	6	7	7			8	10	
6	BHAGWAT SONKAR	2	6	8			12	20	
7	BHAGWATI	2	4	6			10	9	
8	CHANCHAL	2	2	7			14	17	
9	CHANCHAL SAHU	3	5	4			16	12	
10	CHANCHAL SAHU	2	2	3			15	8	
11	CHANDRAKALA	2	1	3			11	10	
12	CHEMIN	4	5	4			12	10	
13	CHUNESHWARI	3	2	3			13	11	
14	DAMINI	5	6	4			12	17	
15	DEEPAK CHAKRADHARI	2	1	5			12	10	
16	DHANESHWARI	8	7	4			14	21	
17	DHANITA	2	2	3			10	8	
18	DIGESHWARI	6	5	2			12	17	
19	DOLLY	2	3	2			08	12	
20	DURGESH DEWANGAN	3	2				10	10	
21	DUSHYANT KUMAR SAHU	2	1				07	8	
22	EKTA	2	1	1			06	9	
23	GAYATRI NISHAD	5	6	4			05	11	
24	GHANSHYAM PATEL	3	2	5			07	8	
25	GITANJALI	2	3	3			08	10	
26	GULSHAN KUMAR	2	2	3			06	8	
27	GYANCHAND	3	1	4			06	8	
28	HARISHANKAR	3	2				08	20	
29	HEMLATA	3	1				06	0	
30	HIMANSHU YADAW	2	2				10	8	
31	HOMITA SINHA	2	2	2			05	8	
32	ISHIKA AWSARIYA	3	1	2			07	10	
33	ISHWARI	2	2	1			07	9	
34	JALAM SING	6	7	7			06	25	
35	JHARNA	1	2	3			17	10	
36	JIGYASA SAHU	2	1	3			07	8	
37	JITESHWARI	4	6	2			06	11	
38	KANCHAN SINHA	3	2				06	14	
39	KARISHMA	2	3				09	11	
40	KESHAV	1	1				8	8	
41	KHUSHBOO	6	5				6	17	
42	KUSUM	2	5				8	10	
43	LALITA	8	2	2			7		
44	LATA	2	1	1			8	11	
45	LAXMI	3					6	8	
46	LAXMI	3	2				5	A	
47	LAXMI SAHU	2					6	10	
48	LEELIMA	1	1				6	8	
49	LEKHANI SAHU	3					7	15	
50	MADHU	4	4	4			11	12	
51	MADHU	5	3	3			3	A	
52	MAMTA	6	5	5			6	10	

	I	II	III	IV	I	II	Prefinal
56	NIANISHA	2	3			7	18
57	MEENAKSHEE CHELK	3	5	6		15	22
58	MENKA	5	4	6		16	20
59	MENKA	4	5	5		16	18
60	MINAKSHI	3	4	6		15	11
61	NAGENDRA KUMAR	2		3		14	10
62	NAGITA	5	6	4		13	17
63	NEHA SAHU	8	8	8		22	30
64	NIRMALA	3		4		14	A
65	OMPRAKASH	2	3	5		15	8
66	PALLAVI	1	2	5		11	8
67	PAWAN KUMAR	2		4		9	8
68	PEMENNDRA KUMAR	6	7	7		20	18
69	POOJA SAHU	3	2	3		10	10
70	POOJA SAHU	3	4	4		11	11
71	POOJA TANDAN	2	3	2		10	10
72	POONAM NAGARCHI	1		4		6	18
73	PRADEEP KUMAR	5	2	3		7	13
74	RAKESH KUMAR	3		4		6	
75	RITU	5	5	3		5	18
76	ROSHAN KUMAR DEWANGAN	5		4		10	12
77	RUPA	6	5	3		09	13
78	RUPESH KUMAR	2		2		06	9
79	SAKSHEE PATKAR	4	3	1		10 10	13
80	SAMIKSHA MISHRA	6	7	8		14	17
81	SARIKA	2		2		10 A	12
82	SARIKA SAHU	5	5	5		10	8
83	SONALI	2		2		6	9
84	SONAM	2	2	2		5	12
85	SUMAN	2	3	2		6	8
86	TAKESHWARI	3	1	3		7	15
87	TEJASVITA	3		4		8	15
88	THANESHWARI	4	4			9	12
89	TULSI	5		5		6	18
90	UMESHWARI	6	7	3		9	26
91	VARSHA	6		2		10	17
92	VINAY KUMAR SAHU	6		1		13	8
93	VISHNU	3		4		10	10
94	YANSHU KUMAR	2		3		06	18
95	YASHWANT	5	6	2		12	11
96	YOGITA PAL	1		1		09	

Shri Kuleshwar Mahadev Govt. College, Gobra Nawapara

Pre-Semester Exam Attendance Sheet

Class - PGDCA - 1ST Sem. (2023-24)

Sno/Name	Fundamental of Com. 21/11/2023	Office Automation 21/11/2023	Programming in C 25/11/2023
1. ANAM KOTIA	<u>Anam</u>	<u>Anam</u>	<u>Anam</u>
2. AMBILINATH	<u>Ambilini</u>	<u>Ambilini</u>	<u>Ambilini</u>
3. ANSHU VARDE	<u>Anshu</u>	<u>Anshu</u>	<u>Anshu</u>
4. ANSHU	<u>Anshu</u>	<u>Anshu</u>	<u>Anshu</u>
5. ANITA KUMAR	<u>Anita</u>	<u>Anita</u>	<u>Anita</u>
6. ARUNA SONAR	<u>Aruna</u>	<u>Aruna</u>	<u>Aruna</u>
7. ANIKA	<u>Anika</u>	<u>Anika</u>	<u>Anika</u>
8. ANSHU	<u>Anshu</u>	<u>Anshu</u>	<u>Anshu</u>
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16. ANEETA	<u>Aneeta</u>	<u>Aneeta</u>	<u>Aneeta</u>
17. ANEETA	<u>Aneeta</u>	<u>Aneeta</u>	<u>Aneeta</u>
18. ANEETA	<u>Aneeta</u>	<u>Aneeta</u>	<u>Aneeta</u>
19. ANEETA	<u>Aneeta</u>	<u>Aneeta</u>	<u>Aneeta</u>
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26. ANEETA	<u>Aneeta</u>	<u>Aneeta</u>	<u>Aneeta</u>
27. ANEETA	<u>Aneeta</u>	<u>Aneeta</u>	<u>Aneeta</u>
28. ANEETA	<u>Aneeta</u>	<u>Aneeta</u>	<u>Aneeta</u>
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33. ANEETA	<u>Aneeta</u>	<u>Aneeta</u>	<u>Aneeta</u>
34. ANEETA	<u>Aneeta</u>	<u>Aneeta</u>	<u>Aneeta</u>
35. ANEETA	<u>Aneeta</u>	<u>Aneeta</u>	<u>Aneeta</u>
36. ANEETA	<u>Aneeta</u>	<u>Aneeta</u>	<u>Aneeta</u>
37. ANEETA	<u>Aneeta</u>	<u>Aneeta</u>	<u>Aneeta</u>
38. ANEETA	<u>Aneeta</u>	<u>Aneeta</u>	<u>Aneeta</u>
39. ANEETA	<u>Aneeta</u>	<u>Aneeta</u>	<u>Aneeta</u>
40. ANEETA	<u>Aneeta</u>	<u>Aneeta</u>	<u>Aneeta</u>

Signature of
Principal - 23
Principal - 23
Principal - 40

Signature of
Principal - 23
Principal - 40

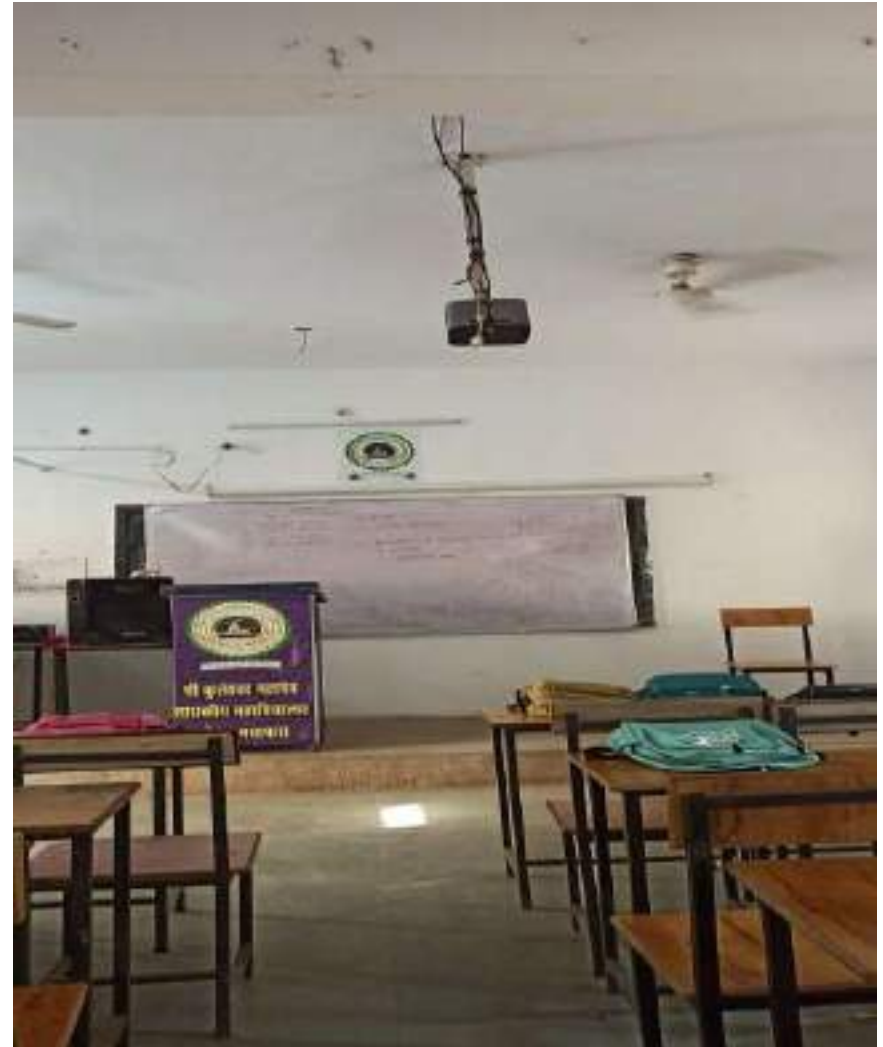
M.A. ECONOMICS First Semester
Internal assessment

Time Table

Time 11:30AM to 2:30PM

Date	Paper
28-11-2023	I Micro economics
29-11-2023	II Macro economics
30-11-2023	III Quantitative methods
01-12-2023	IV Indian economics
02-12-2023	V Industrial economics

Seminar hall/ICT



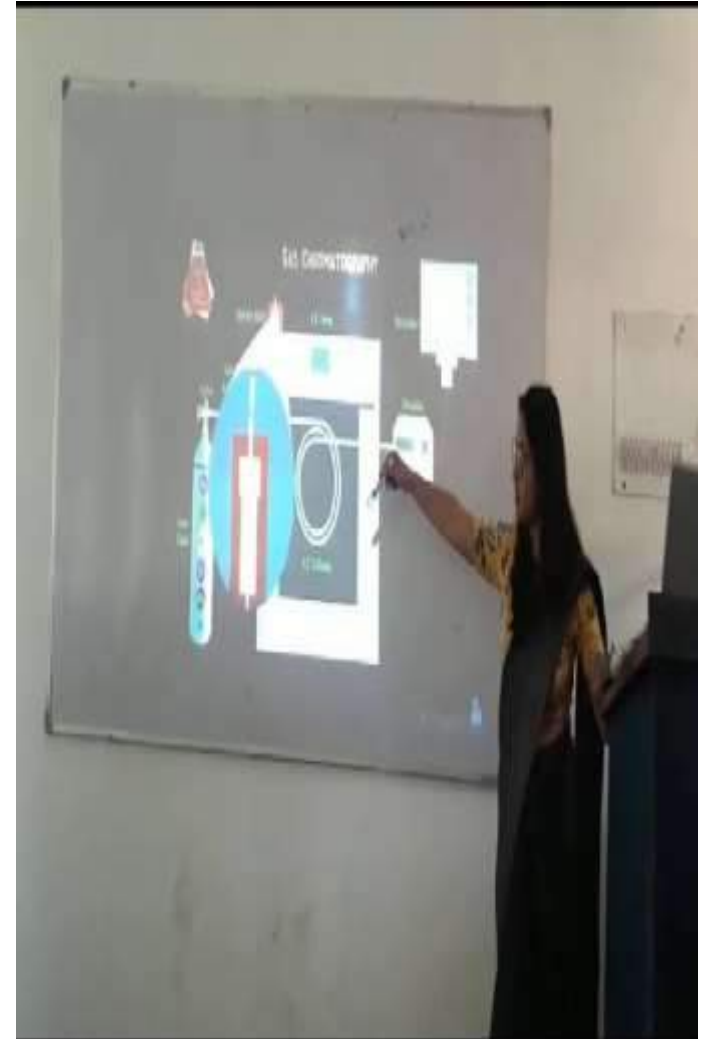
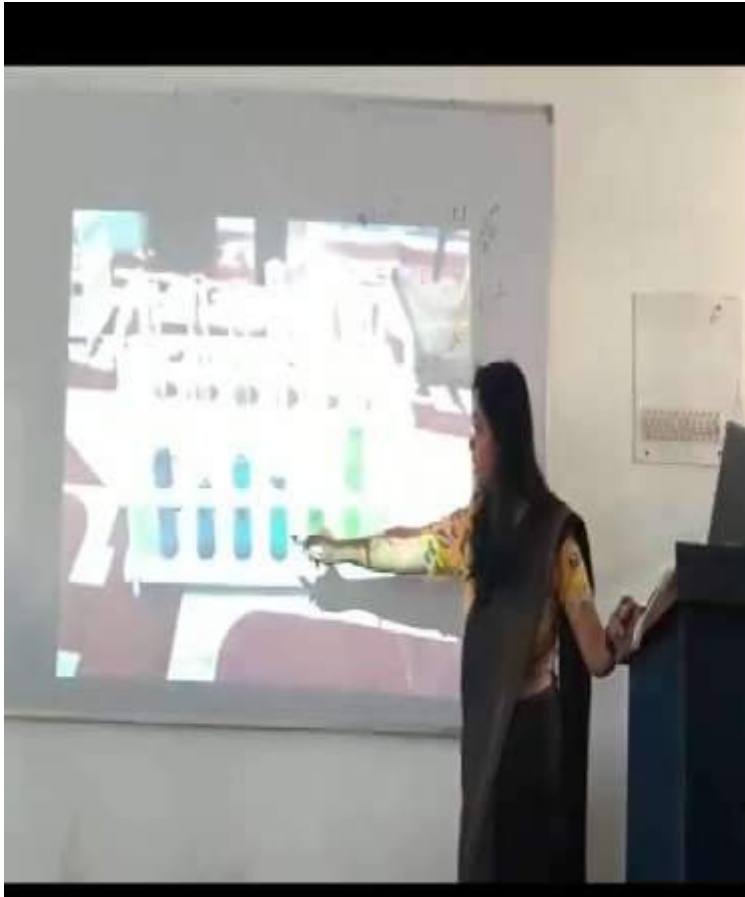
Seminar hall/ICT



ICT Classrooms



ICT Classrooms





श्री कुलेश्वर महादेव शासकीय महाविद्यालय गोबरा-
नवापारा रायपुर(छ .ग .)

समय सारणी वर्ष -2024

विषय -राजनीति विज्ञान

कक्षा -द्वितीय समेस्टर (राजनीति विज्ञान)

11.00 से 11.40	11.40 से 12.20	12.20 से 12.30	12.30 से 1.10	1.10 से 1.50	1.50 से 2.20	
प्रश्न पत्र 01 पाश्चात्य राजनीति चिंतन	प्रश्न पत्र 02 भारत में राज्यों की राजनीति	लघु अवकाश	प्रश्न पत्र 04 भारत की विदेश निति	प्रश्न पत्र 03 विकाशील देशों की तुलनात्मक राजनितिक	दीर्घ अवकाश	

Ramesh
विभागाध्यक्ष 23/05/2024

प्राचार्य

**SHRI KULESHWAR MAHADEV GOVT. COLLEGE GOBRA, NAWAPARA DIST.-
RAIPUR (C.G.)**

SCIENCE FACULTY TIME TABLE 2023-2024

Class	10:30 – 11:40 AM	11:00 – 11:40 AM	11:40 – 12:20 AM	12:20 – 01:00 PM	01:00 – 1:40 PM	1:40 – 2:10 PM	2:10 – 2:50 PM	2:50 – 4:50 PM	4:50 – 5:30 PM
	Morning Activity						Lunch Break		Other Activity
B.Sc. Part-I		Chemistry Room No. 12	FC Hindi Lang. Room No. 16 (Mon,Tue) FC English Lang. Room No. 16 (Wed,Thu) ENV Std. Room No. 16 (Fri, Sat)	Botany Room No. 16 Physics Room No 21		Zoology Room No. 16 Maths Room No 22	Zoology Practical (Mon,Tue) Botany Practical (Wed,Thu) Chemistry Practical (Fri,Sat) Physics Practical (Mon,Tue)		
B.Sc. Part-II			Chemistry Room No. 12	Zoology Room No. 20 Maths Room No 22	FC English Lang. Room No. 20 (Mon,Tue,Wed) FC Hindi Lang. Room No. 20 (Thu,Fri,Sat)	Botany Room No. 20 Physics Room No 21	Zoology Practical (Wed,Thu) Botany Practical (Fri,Sat) Chemistry Practical (Mon,Tue) Physics Practical (Wed,Thu)		
B.Sc. Part-III			Botany Room No. 18 Physics Room No 21	Chemistry Room No. 12	Zoology Room No. 18 Maths Room No 22	FC Hindi Lang. Room No. 18 (Mon,Tue,Wed) FC English Lang. Room No. 18 (Thu, Fri, Sat)	Zoology Practical (Fri,Sat) Botany Practical (Mon,Tue) Chemistry Practical (Wed,Thu) Physics Practical (Fri,Sat)		

Science Faculty :-

Dr. Madhurani Shukla, Asst.Prof. Chemistry
Dr. Razia Sultana, Asst. Prof. Zoology
Ku. Pushplata Kanwar, Asst.Prof. Botany

Dr. Premendra Kumar Upadhyay , Asst. Prof. Physics
Smt. Nandani Sahu, Asst. Prof. Maths.

Principal

Shri Kuleshwar Mahadev Govt.College Gobra-Nawapara, District- Raipur
Time Table (Session 2023-24)
Department of Commerce

Class	8 – 8.40 am	8.40 – 9.20 am	9.20 – 9.30	9.30 – 10.10 am	10.10 – 10.50 am	10.50- 11.30 am	11.30 – 12.30 pm
B.Com – I (Room No. 16)	Fin. A/C	Bus. Env. (M,T,W) Bus. Eco. (T,F,S)	Short Break	Bus. Maths	Hindi (M,T) English (W, Th.) Env.Stu. (F,S)	Bus. Comm. (M,T,W) BRFW (T,F,S)	Library, Extra Curriculum Activities, Remedial Class
B.Com – II (Room No. 18)	Prin. of Man. (M,T,W) Fund of Enter. (T,F,S)	Corporate A/c (M,T,W,T) Company law (F,S)		Business Statistics	Cost Accountingss	English (M,T,W) Hindi (T,F,S)	
B.Com – III (Room No. 20)	Indirect Tax (M,T,W,T) Auditing (F,S)	Prin. of Marketing (M,T,W) Int. Marketing (T,F,S)		Income Tax	Management Accounting	Hindi (M,T,W) English (T,F,S)	
M.Com - I Sem. (Room No. 21)	---	Man. Eco. (M,T,W) CLFW (T,F,S)		Income Tax Law and Accounts	Advance Accounting	Statistical Analysis	

(Shri S.R.Vadde)

I/C Principal

Shri Kuleshwar Mahadev Govt. College, Gobra Nawapara

District- Raipur (C.G.)

श्री कुलेश्वर महादेव शासकीय महाविद्यालय गोवरा-नवापारा, रायपुर (छ.ग.)

समय सारिणी वर्ष 2023-24

कला संकाय

कक्षा	11.00 से 11.40	11.40 से 12.20	12.20 से 12.30	12.30 से 1.10	1.10 से 1.50	1.50 से 2.20	2.20 से 3.00	3.00 से 3.40	3.40 से 4.10	4.10 से
बी.ए. भाग-1 (कक्ष)	अर्थशास्त्र	गृहविज्ञान / मनोविज्ञान प्रायोगिक	लघु अवकाश	राजनीति विज्ञान	भूगोल	दीर्घ अवकाश	हिन्दी साहित्य / अंग्रेजी साहित्य	हिन्दी भाषा सोम, मंगल अंग्रेजी भाषा बुध, गुरु पर्यावरण शनि	भूगोल प्रायोगिक	विशेष कोशिंग भूगोल
बी.ए. भाग-2 (कक्ष)	हिन्दी साहित्य / अंग्रेजी साहित्य	राजनीति विज्ञान गृहविज्ञान	भूगोल	अर्थशास्त्र	अर्थशास्त्र	दीर्घ अवकाश	हिन्दी साहित्य / अंग्रेजी साहित्य	हिन्दी भाषा बुध, गुरु अंग्रेजी भाषा सोम, मंगल	विशेष कोशिंग अर्थशास्त्र	खेलकूद
बी.ए. भाग-3 (कक्ष)	भूगोल	हिन्दी साहित्य / अंग्रेजी साहित्य	अर्थशास्त्र	अर्थशास्त्र	हिन्दी भाषा शुक्र, शनि अंग्रेजी भाषा सोम, मंगल	दीर्घ अवकाश	राजनीति विज्ञान गृहविज्ञान	भूगोल प्रेक्टिकल	विशेष कोशिंग राजनीति शास्त्र	खेलकूद

विभागाध्यक्ष

प्राचार्य

हिन्दी - विभाग

२०२३-२४

२-११२३-२४

श्री कुलेश्वर महादेव शासकीय महाविद्यालय गोदरा नवापारा जिला रायपुर (छ.ग.)

कक्षा	११.०० से ११.४० तक	११.४० से १२.२० तक	१२.२० से १२.३० तक	१२.३० से १.१० तक	१.१० से १.५० तक	१.५० से २.२० तक	२.२० से ३.०० तक	३.०० से ३.४० तक
बी.ए. भाग-एक	-	-	-	-	-	-	हिन्दी साहित्य श्री पुरुषोत्तम कावरा	हिन्दी भाषा (सोम, मंगल)
बी.ए. भाग-दो	हिन्दी साहित्य श्री एम.डी. जोशी	-	-	-	-	हिन्दी भाषा (शुक्र, शनि)	हिन्दी साहित्य श्री एम.डी. जोशी	-
बी.ए. भाग-तीन	-	हिन्दी साहित्य श्री टी.एस. मरकान	-	-	हिन्दी भाषा (शुक्र, शुक्र)	हिन्दी भाषा (शुक्र, शनि)	हिन्दी साहित्य श्री एम.डी. जोशी	-
एम.ए. पूर्व (हिन्दी)	प्रथम प्रश्न पत्र श्री पुरुषोत्तम कावरा	द्वितीय प्रश्न पत्र श्री एम.डी. जोशी	प्रश्न अवकाश			चतुर्थ प्रश्न पत्र श्री टी.एस. मरकान	द्वितीय प्रश्न पत्र (गुरु, शुक्र, शनि)	चतुर्थ प्रश्न पत्र (सोम, मंगल, बुध)
एम.ए. अंतिम (हिन्दी)	तृतीय प्रश्न पत्र श्री टी.एस. मरकान	प्रथम प्रश्न पत्र श्री पुरुषोत्तम कावरा	प्रश्न अवकाश			चतुर्थ प्रश्न पत्र (गुरु, शुक्र, शनि)	द्वितीय प्रश्न पत्र (सोम, मंगल, बुध)	चतुर्थ प्रश्न पत्र (सोम, मंगल, बुध)

विभागाध्यक्ष - हिन्दी

श्री कुलेश्वर महादेव शासकीय महाविद्यालय गोबरा-नवापारा, जिला-रायपुर (छ.ग.)
समय सारणी वर्ष 2023-24
स्नातकोत्तर अर्थशास्त्र

कक्षा/समय	11.00 से 12.20 बजे	12.20 से 12.30	12.30 से 1.10	1.10 से 1.50	2.20 से 3.00	3.00 से 3.40
M.A. Prvious	Reseach Methodology and Computer Application	Short Breake	Micro Economics II	Macro Economics	Indian Economics	Labour Economics

विभागाध्यक्ष

28-1-23

प्राचार्य

Shree Kuleshwar Mahadev Govt College, Gobra Nawapara

Class Time Table
Session 2023-24
Computer Department

		First semester					
		Time					
Class	9:30 to 10:10	10:10 to 10:50	10:50 to 11:00	11:00 to 11:40	11:40 to 12:10	12:10 to 1:05	1:05 to 2:00
PC/DCA	fundamentals of computer (Computer Lab)	Programming in C Practical (Computer Lab)	Short break	Office Automation Practical (Computer Lab)	Lunch break	programming in C Theory (Room no. 23)	Office Automation Theory (Room no. 23)
DCA	Information technology and OS (Room no. 23)	Office Automation Theory (Room no. 23)		Programming in C Theory (Room no. 23)		Office Automation Practical (Computer Lab)	Programming in C Practical (Computer Lab)

		Second semester					
		Time					
Class	9:30 to 10:10	10:10 to 10:50	10:50 to 11:00	11:00 to 11:40	11:40 to 12:10	12:10 to 1:05	1:05 to 2:00
PGDCA	Database Management System (Computer Lab)	programming in VB.NET Practical (Computer Lab)	Short break	HTML Practical (Computer Lab)	Lunch break	Programming in VB.NET Theory (Room no. 23)	Internet and Web Technology (Room no. 23)
DCA	E-Commerce (Room no. 23)	HTML and Internet application (Room no. 23)		GUI programming in Visual Basic theory (Room no. 23)		HTML Practical (Computer Lab)	GUI programming in Visual Basic Practical (Computer Lab)

Miss Pallavi Chaudhari

Mr. Shiv Patel



Principal
Shri Kuleshwar Mahadev
Shankya Mahavidyalaya
Gobra-Nawapara, Raipur (C.G.)



OFFICE OF THE PRINCIPAL

SHRI KULEHSVAR MAHADEVGOVT. COLLEGE GOBRA NAWAPARA RAIPUR (CG)

Email: govt.gnr.college@gmail.com

Website: www.gcgn.in



IQAC analysis of response and suggestions from feedback of stakeholders - students, teachers and alumni for the academic session 2023-24, was integrated to the action plan for upcoming academic session and Finally under the guidance of Principal, the IQAC Committee made recommendations and pledged sincere efforts to make the required changes for improvement of the Institution.

Analysis Report on Feedback from Stakeholders (2023-24)

1. Students' Feedback on Design and Review of Course Syllabus

The students provided feedback across several parameters, rated on a scale of Excellent, Good, Satisfactory, and Poor. Below are the key findings:

- **Course Objective Clarity:**
 - Majority rated as **Good (48%)**, followed by **Satisfactory (28%)**.
 - **Excellent rating** was relatively low at **16.8%**, with **Poor (7.2%)** indicating room for improvement in clarifying objectives.
- **Syllabus Organization:**
 - Received a high **Good rating (54.5%)**, with **Excellent (21.1%)** also reflecting positively.
 - **Satisfactory (18.6%)** and **Poor (5.7%)** ratings highlight minor dissatisfaction.
- **Syllabus Contents and Learning Outcomes:**
 - Both indicators were predominantly rated **Good** at **57.7%** and **50.5%**, respectively.
 - **Satisfactory ratings** hovered around **17-27%**, with **Poor** ratings under **8%**.
- **Course Utility and Optional Papers:**
 - Utility of the course scored **Good (50.9%)**, with only **14.7%** Excellent.
 - **Optional papers** received **Good (55.9%)** but also had **7.9%** **Poor** ratings.
- **New Teaching Techniques:**
 - Highly rated as **Good (63.8%)**, suggesting general satisfaction with teaching methods.

Suggestions for Improvement:

- Enhance clarity on course objectives and learning outcomes through better documentation and communication.
- Address gaps in references and optional paper utility by incorporating more diverse and updated materials.
- Build on the success of teaching techniques by integrating innovative approaches.

2. Teachers' Feedback on Design and Review of Course Syllabus

The teachers evaluated the syllabus with respect to relevance, structure, and skill-building potential.

- **Relevance and Curriculum Appropriateness:**
 - Predominantly rated as **Excellent (60%)**, with **Good (13.34%)** and **Satisfactory (20%)** showing scope for refinement.
- **Syllabus Structure and Skill Development:**
 - Both parameters scored highly at **80% Excellent**, emphasizing overall teacher satisfaction.
- **Outcome Alignment and Employment Readiness:**
 - These achieved **86.67% Excellent**, underscoring a strong alignment with educational outcomes and career readiness.
- **Global Competence and Professional Orientation:**



OFFICE OF THE PRINCIPAL

SHRI KULEHSVAR MAHADEVGOVT. COLLEGE GOBRA NAWAPARA RAIPUR (CG)

Email: govt.gnr.college@gmail.com

Website: www.gcgn.in



- While 80% rated global competence as **Excellent**, **13.34% Satisfactory** and **6.67% Poor** ratings indicate areas for enhancement.
- Professional orientation had **66.68% Excellent** but **26.68% Satisfactory** ratings, suggesting potential for further career-focused integration.

Suggestions for Improvement:

- Address interdisciplinary approaches to expand course applications.
- Enhance the use of innovative practices for broader impact.
- Strengthen global and professional orientation to meet evolving academic standards.

3. Alumni Feedback on Design and Review of Course Syllabus

The alumni feedback highlights their perspective on syllabus relevance, learning materials, and career support.

- **Learning Outcomes and Syllabus Organization:**
 - **Good ratings** dominate at **49.1%** and **40%**, respectively.
 - **Poor ratings (0% and 9.1%)** remain minimal but signal potential gaps in delivery.
- **Teachers' Learning Material and Reference Books:**
 - These saw **Excellent ratings** of **19.1%** and **9.1%**, respectively, indicating room for improvement in teaching resources.
- **Class Ambience:**
 - Received favorable feedback, with **Excellent (25.5%)** and **Good (47.3%)** ratings.
- **Career Guidance and Self-Betterment:**
 - While **Good ratings (39-50%)** were strong, **Poor ratings (25.5%)** in these areas require attention to better support students' career and personal development goals.

Suggestions for Improvement:

- Focus on improving reference materials and lab infrastructure to enhance learning resources.
- Strengthen career guidance and self-betterment programs through structured mentoring and skill development initiatives.

Overall Observations and Action Plan Recommendations

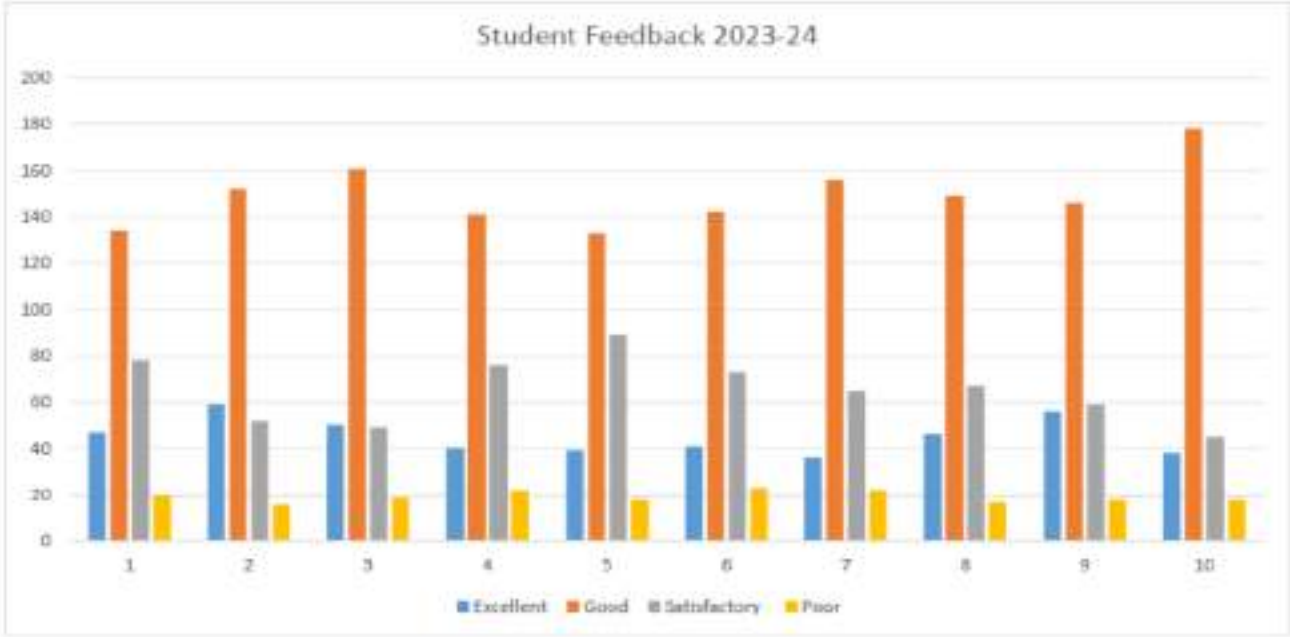
1. **Common Themes Across Stakeholders:**
 - While the syllabus and teaching methods are generally appreciated, clarity on objectives and integration of career-oriented components need improvement.
 - Resource gaps (e.g., references, lab materials) should be prioritized.
2. **Actionable Steps for 2024-25 Academic Year:**
 - **Students:** Focus on expanding study materials, adopting newer teaching techniques, and refining optional course offerings.
 - **Teachers:** Strengthen global orientation, interdisciplinary approaches, and innovative practices.
 - **Alumni:** Enhance career guidance and self-improvement sessions tailored to their feedback.

By addressing these areas, the institution can foster a more enriching and impactful academic experience for all stakeholders.



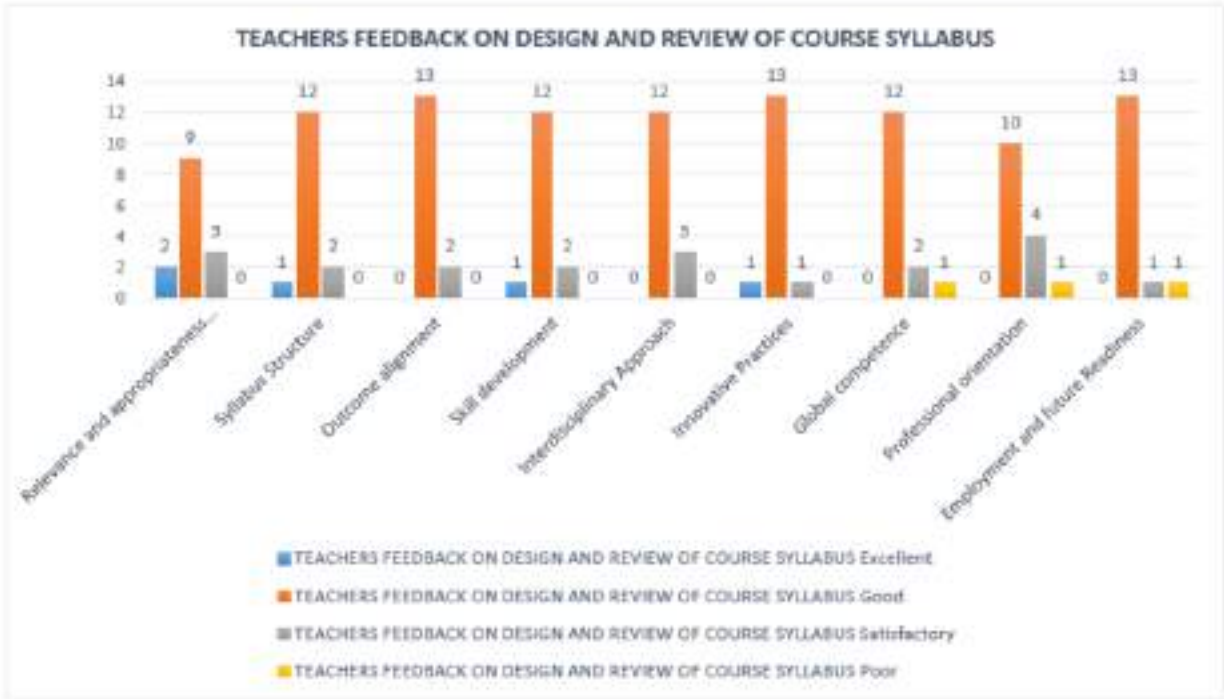
FEEDBACK ANALYSIS OF STALKHOLDERS (2023-24)

STUDENTS FEEDBACK ON DESIGN AND REVIEW OF COURSE SYLLABUS				
INDICATORS	Excellent%	Good%	Satisfactory%	Poor%
Course Objective Clarity	16.8	48	28	7.2
Syllabus Organization	21.1	54.5	18.6	5.7
Syllabus Contents	17.9	57.7	17.6	6.8
Course Learning Outcomes	14.3	50.5	27.2	7.9
Syllabus References	14	47.7	31.9	6.5
Course Utility	14.7	50.9	26.2	8.2
Course Optional Papers	12.9	55.9	23.3	7.9
Syllabus Teaching Compatibility	16.5	53.4	24	6.1
Syllabus Improvement Scope	20.1	52.3	21.1	6.5
New Teaching Techniques	13.6	63.8	16.1	6.5



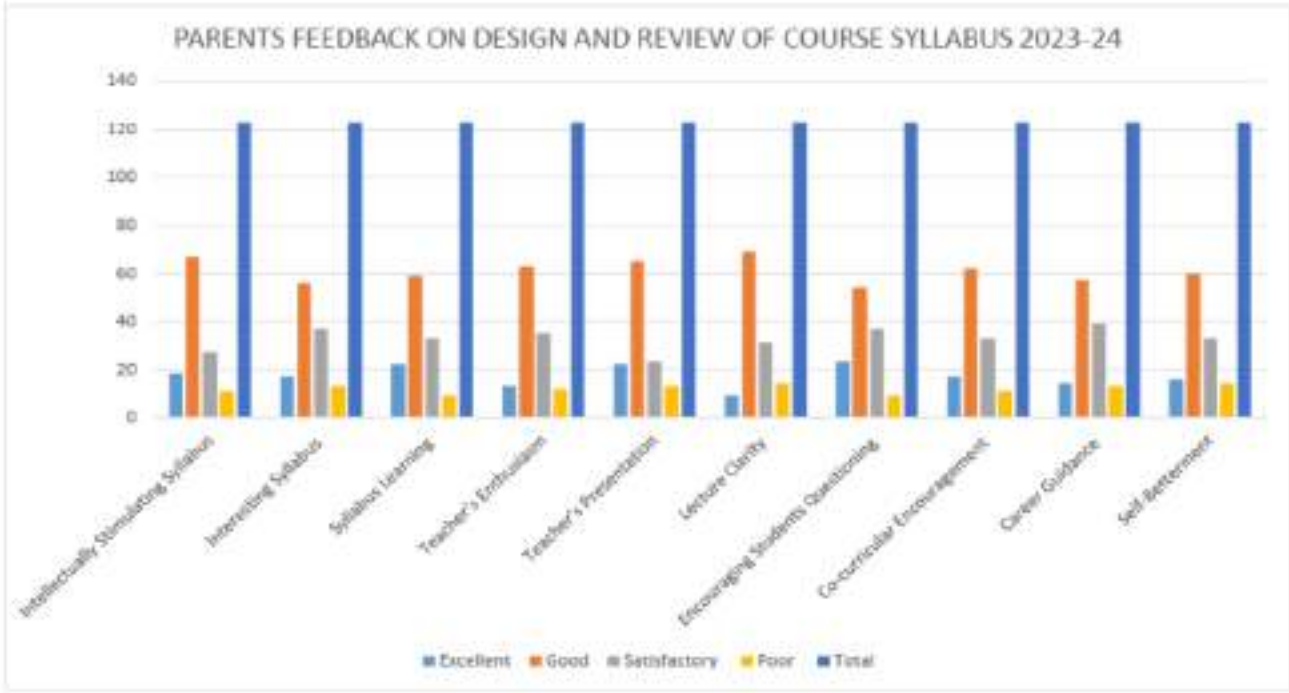


TEACHERS FEEDBACK ON DESIGN AND REVIEW OF COURSE SYLLABUS				
INDICATORS	Excellent	Good	Satisfactory	Poor
Relevance and appropriateness of the Curriculum	60	13.34	20	0
Syllabus Structure	80	6.67	13.4	0
Outcome alignment	86.67	0	13.4	0
Skill development	80	6.67	13.4	0
Interdisciplinary Approach	80	0	20	0
Innovative Practices	86.67	6.67	6.67	0
Global competence	80	0	13.34	6.67
Professional orientation	66.68	0	26.68	6.67
Employment and future Readiness	86.67	0	6.67	6.67





PARENTS FEEDBACK ON DESIGN AND REVIEW OF COURSE SYLLABUS				
INDICATORS	Excellent %	Good %	Satisfactory %	Poor %
Intellectually Stimulating Syllabus	14.6	54.5	22	8.9
Interesting Syllabus	13.8	45.5	30.1	10.6
Syllabus Learning	17.9	48	26.8	7.3
Teacher's Enthusiasm	10.6	51.2	28.5	9.8
Teacher's Presentation	17.9	52.8	18.7	10.6
Lecture Clarity	7.3	56.1	25.2	11.4
Encouraging Students Questioning	18.7	43.9	30.1	7.3
Co-curricular Encouragement	13.8	50.4	26.8	8.9
Career Guidance	11.4	46.3	31.7	10.6
Self-Betterment	13	48.8	26.8	11.4





ALUMNI FEEDBACK ON DESIGN AND REVIEW OF COURSE SYLLABUS				
INDICATORS	Excellent%	Good%	Satisfactory %	Poor %
Learning Outcomes Attainment	20.90	49.1	30	0
Syllabus Organization	24.50	40	26.4	9.1
Syllabus Contents	21.80	42.7	22.7	12.7
Teachers' learning Material	19.10	39.1	23.6	18.2
Reference Book and Lab	9.10	41.8	28.2	20.9
Class Ambience	25.50	47.3	24.5	2.7
Course Utility	16.40	50.9	26.4	6.4
Course Prospects	20.90	59.1	20	0
Career Guidance	16.40	39.1	19.1	25.5
Self-Betterment	15.50	37.3	21.8	25.5

