উদ্ভাস উন্মেষ
শিক্ষা পরিবার

HSC Final Revision Course-2027 (Syllabus)

Physics 1st & 2nd Paper	
Lecture	**Syllabus**
P-01	**2nd paper Chapter-01 Thermodynamics:** Principle of Measuring Temperature, Measurement of Temperature, Thermodynamic System, Thermodynamic Variables, Thermodynamic Process, Heat, Work & Internal Energy, First Law of Thermodynamics, Molar Specific Heat, State Function & Path Function in Thermodynamics, Different Thermodynamic Processes
P-02	**2nd paper Chapter-01 Thermodynamics:** Concept of Second Law of Thermodynamics, Reversible and Irreversible process, Carnot Cycle, Refrigerator, Entropy, Entropy and Disorder.
P-03	**2nd paper Chapter-02 Electrostatics:** Concept of Charge, Surface Charge Density, Coulomb's Law, Electric Field Lines, Electric Potential & Potential Difference, Pathway of Potential and Charge, Electric Dipole, Electric Field Intensity and Potential for Electric Dipole.
P-04	**2nd paper Chapter-02 Electrostatics:** Insulators and Dielectrics, Capacitor and Capacitors, Combination of Capacitors, Stored Energy in Capacitor, Uses of Capacitors, Gauss Law, Electric Flux
P-05	**2nd paper Chapter-03 Current Electricity:** Current Flow, Ohm's Law, Effect of Temperature on Resistance, Specific Resistance, Electric Cell, Combination of Resistance, Potential Divider Law, Current Divider Law, Electrical Work and Electrical Energy, Joule's Laws of Heating Effect, Kilowatt-hour, Safety Fuse, Voltage at Different Points in a Circuit
P-06	**2nd paper Chapter-03 Current Electricity:** Combination of Cells, Kirchhoff's Law, Wheatstone Bridge, Different Electric Instruments.
P-07	**2nd paper Chapter-04 Magnetic Effects of Current & Magnetism:** Primary Concept of Magnetic Substance, Magnetic field, Magnetic force on a moving charge, Oersted's Principle, Biot-Savart's Law, Ampere's Law,
P-08	**2nd paper Chapter-04 Magnetic Effects of Current & Magnetism:** Lorentz Force, Hall Effect, Force Created on Electric Conductor Present in Magnetic Field,
P-09	**2nd paper Chapter-04 Magnetic Effects of Current & Magnetism:** Torque Acting on a Current Carrying Closed Circuit in a Magnetic Field, Magnetic Field and Magnetic Moment Created by the Orbital Motion of Electrons, Magnetic Field Created by the Spin of an Electron or its Rotation About its Axis, Geomagnetism, Magnets & Magnetic Materials, Source of Magnetism, Different types of Magnetic Materials, Hysteresis, Permanent magnets.
P-10	**1st paper Chapter-01 Physical World and Measurement:** (Full Chapter)
P-11	**1st paper Chapter-02 Vector:** Quantity, Scalar Quantity and Vector Quantity, Different Types of Vectors, Addition of Vectors: Resultant, Law of Parallelogram, Some Characteristics of Vector Addition, Subtraction of Vectors, Some Uses of Vector Components, Vector Division, River & Boat, Relative velocity
P-12	**1st paper Chapter-02 Vector:** Multiplication of Vector, Vector Calculas, Scalar and Vector Field, Vector operator, Gradient, Divergence & Curl.
P-13	**1st paper Chapter-03 Dynamics:** Rest and Motion, Equation of One-Dimensional Motion of a vector with respect to time, Describing Motion with Graphs, Motion of Free-Falling Bodies & Galileo's laws, Vertical Motion, Galiles's Laws from the Equation of Motion.
P-14	**1st paper Chapter-03 Dynamics:** Motion of an Object in a Curved Path, Projectile Motion, Circular motion, Some Quantities Related to Circular Motion. Equations of angular motion.
P-15	**1st paper Chapter-04 Newtonian Mechanics:** Basic Concept of force, Fundamental of Force, Newtonian Mechanics, Newton's Laws of Motion, Impulsive Force and Impulse of Force, Momentum, conservation of Momentum, collision,
P-16	**1st paper Chapter-04 Newtonian Mechanics:** center of Mass or Centroid, Rotational Inertia: Moment of Inertiat, Torque, Angular Momentum, Newton's Laws for Rotational Motion.
P-17	**1st paper Chapter-04 Newtonian Mechanics:** Applicability and Uses of Newton's Laws of Motion, Interrelationship of Newton's laws of motion, Uniform Circular Motion, Centrifugal Force, Vehicles in Curved Road & Banking of Road.
P-18	**1st paper Chapter-05 Work, Energy & Power:** Work, Constant Force and Variable Force, Work Done by Constant Force, Work Done by Variable Force, Dependency of Work Done of Path, Kinetic Energy & Work-Energy Theorem, Kinetic Energy of a Rotating Object, Kinetic Energy of an Object in Linear Rotational Motion, Relation between Momentum and Kinetic Energy, Conservative Force, Potential Energy.

P-19	**1st paper Chapter 05 Work, Energy & Power:** Work Done and Change in Mechanical Energy, Conservation of Mechanical Energy Principal of Conservation of Energy. Displacement of Center of Mass and Work done, Power, Efficiency.
P-20	**1st paper Chapter-06 Gravitation and Gravity:** Gravitation, Inertial, Mass & Gravitational Mass, Gravity and Acceleration Due to Gravity, Center of Gravity, Gravitational Field Intensity, Gravitational Potential, Relationship between Gravitational Field Intensity and Gravitational Potential.
P-21	**1st paper Chapter-06 Gravitation and Gravity:** Kepler's law about Motion of the planets, Relationship between Newton's Law of Gravitation and Kepler's Law, Escape Velocity, Motion of Satellite, Weightlessness in space, Exploration of Natural Resources & Research on Matter.
P-22	**1st paper Chapter-07 Structural Properties of Matter:** Bond, Intermolecular Forces and Elasticity of Matters, Intermolecular Attraction and Repulsion Forces and Potential Energy of Matter, Quantities Related to Elasticity, Types of Strain, Types of Stress, Hooke's Law, Modulus of Elasticity, Elastic Potential Energy, Poisson's Ration.
P-23	**1st paper Chapter-07 Structural Properties of Matter:** Flow of Fluids, Viscosity, Critical Velocity and Reynold's Number, Stokes' Law, Terminal Velocity, Surface Tension, Capillarity
P-24	**1st paper Chapter-08 Periodic Motion:** Characteristies of Periodic Motion, Oscillatory Motion, Simple Harmonic Motion, Relation among Displacement, Velocity and Acceleration of Simple Harmonic Motion, Graph of Simple Harmonic Motion, Relation between Simple Harmonic Motion and Circular Motion, Energy of an Object moving with Simple Harmonic Motion
P-25	**1st paper Chapter-08 Periodic Motion:** Application of Simple Harmonic Motion, Spring, Motion of Simple Pendulum, Segmentation of the Formula of Time Period of a Simple Pendulum, Determination of height of mountain and depth of mine.
P-26	**1st paper Chapter-09 Waves:** Waves and Energy, Differnt Quantities and Equations Related to Wave, Progressive Waves, Phase difference of Progressive Waves and Path Difference, Superposition of Waves, Stationary wave.
P-27	**1st paper Chapter-09 Waves:** Free & Forced Vibration, Beat Intensity of Waves, Harmonics and Musical Scales, Vibration of Air Colum in pipes open at one end and both ends.
P-28	**1st paper Chapter-10 Ideal Gas and Kinetics of Gases:** Gas, Laws of Gas, Gas laws and Related Graphs, Kinetic Theory of Gas, Different types of gas velocities.
P-29	**1st paper Chapter-10 Ideal Gas and Kinetics of Gases:** Degree of Freedom, Equipartition Law of Energy, Water Vapor and Air Pressure, Dew Point & Relative Humidity, Hygrometers & Determination of Humidity.
P-30	**2nd paper Chapter-05 Electromagnetic Induction & Alternating Current:** Electromagnetic Induction, Magnetic Flux, Faraday's Law of Electromagnetic Induction, Lenz's Law, Self Induction, Coefficient of Sefl Induction, Mutual Induction, Production of Alternating Current, Use of Mutual Induction: Transformer.
P-31	**2nd paper Chapter-06 Geometrical Optics:** Fermat's Principle, Reflection of Light, Refraction of Light, Apparent and real depth, Lens, Ray Diagram in a Lens, General Equation of Lens, Linear Magnification.
P-32	**2nd paper Chapter-06 Geometrical Optics:** Refraction of Light in Prism, Refraction on Spherical Surface, The Lensmaker's Equation, Combination of Lenses and Equivalent Lens.
P-33	**2nd paper Chapter-06 Geometrical Optics:** Spectrum, Defects of Vision, Optical Instruments, Vision-Aiding or Magnifying Instruments
P-34	**2nd paper Chapter-07 Physical Optics:** (Full Chapter)
P-35	**2nd paper Chapter-08 Introduction of Modern Physics:** Special Theory of Relativity, Galilean Transformation, Michelson-Morley Experiment, Lorentz Transformation, Time Dilation, Length Contraction, Relativistic Mass, Mass-Energy Equivalence
P-36	**2nd paper Chapter-08 Introduction of Modern Physics:** Blackbody radiation, X-ray, photoelectric effect, de Broglie wave, Compton effect, Heisenberg's Uncertainty principle
P-37	**2nd paper Chapter-09 Atomic Model and Nuclear Physics:** (Full Chapter)
P-38	**2nd paper Chapter-10 Semiconductor and Electronics:** Concept of Energy Bands, Semiconductor, Intrinsic and Extrinsic Semiconductor, p-n Junction and Diode, Biasing of p-n Junction, Diode in Circuits, Use of Diode as a Rectifier, Basic Configuration and Characteristics of Transistor
P-39	**2nd paper Chapter-10 Semiconductor and Electronics:** General Mathematical Problems of Transistors, Application of Kirchhoff's Laws in Transistors, Transistor as an Amplifier, Use of Transistor as a Switch, Number Systems, Binary Operations, Boolean Algebra
P-40	**2nd paper Chapter-11 Astronomy:** (Full Chapter)

	Higher Math 1st & 2nd Paper
Lecture	**Syllabus**
M-01	**1st Paper Chapter-03 Straight Line:** Cartesian and polar co-ordinate, determining distance between two points, problems related to internal and external division, centroid of triangle, area of triangle.
M-02	**1st Paper Chapter-03 Straight Line:** Locus, slope, equation of straight line, equation of a straight line passing through the points of intersection of another two straight lines, conditions for two straight lines to be mutually parallel or perpendicular.
M-03	**1st Paper Chapter-03 Straight Line:** Perpendicular distance, distance between two parallel straight lines, angle between two straight lines, equations of the angular bisector of the included angles between two non-parallel straight lines
M-04	**1st Paper Chapter-04 Circle:** Equation of circle, centre and radius of circle from general equation, intercepts of circle, conditions to touch the axes, equation of circle that passes through the points of intersection of straight line and another circle, equation of circle that passes through the points of intersection of another two circles
M-05	**1st Paper Chapter-04 Circle:** Conditions of two circles to touch each other, tangent and normal, chord of circle, common tangent of two circles, common tangent
M-06	**1st Paper Chapter-06 Trigonometric Ratios**: (Full chapter) **1st Paper Chapter-07 Trigonometric Ratios of Associative and Compound Angles:** Trigonometric ratio of associated angles and its rules,
M-07	**1st Paper Chapter-07 Trigonometric Ratios of Associative and Compound Angles:** Trigonometric ratio of compound angle. Converting the product of two trigonometric ratios into sums or differences form and vice versa, trigonometric ratio of multiple angles, trigonometric ratios of sub-multiple angles
M-08	**1st Paper Chapter-07 Trigonometric Ratios of Associative and Compound Angles:** Trigonometric identities, features of triangle, sine rule, cosine rule, proof using the area rule of triangle.
M-09	**1st Paper Chapter-05 Permutations and Combinations**: Addition Law, Multiplication Law, Factorial, Use of ${}^{n}P_{r}$ Formula, Permutations (Word formation, Number formation, Rearrangement)
M-10	**1st Paper Chapter-05 Permutations and Combinations:** Cyclic Permutation, Combination, Complementary Combination, Word Formation By Combination, Geometry Related Problems
M-11	**1st Paper Chapter-01 Matrix and Determinant:** Classification of matrices, equality, addition, subtraction and multiplication of the matrices, minor and co-factor, the values of determinant, singular and non-singular matrix, inverse matrix.
M-12	**1st Paper Chapter-01 Matrix and Determinant:** Characteristics of the determinant, proof related problems, value related problems, Cramer's Rule.
M-13	**1st Paper Chapter-02 Vector**: Full chapter
M-14	**1st Paper Chapter-08 Functions and Graph of Functions:** Set Mapping, Relations, Functions, One-One Function, Onto Function, Inverse function
M-15	**1st Paper Chapter-08 Functions and Graph of Functions:** Domain-Range, Composite Function
M-16	**1st Paper Chapter-09 Differentiation:** Limit, common features of limit, continuity-discontinuity of a function.
M-17	**1st Paper Chapter-09 Differentiation:** Problems regarding derivative with respect to x using the 1st principle, derivative using general formula, derivative of product and quotient of functions, derivative of associative functions, derivative of inverse functions.
M-18	**1st Paper Chapter-09 Differentiation:** Derivative of parametric equations, derivative of functions with another function as exponent, derivative of implicit functions, successive differentiation, physical applications of derivatives.
M-19	**1st Paper Chapter-09 Differentiation:** Geometric applications, increasing and decreasing functions, maximum and minimum value of a function, use of maxima and minima.
M-20	**1st Paper Chapter-10 Integration:** Integration as anti-derivative, methods of finding indefinite integral, linear properties of integral, integral of trigonometric functions, integration using substitution method.
M-21	**1st Paper Chapter-10 Integration:** Integration by parts, uv rule, integration of rational proper fractions, Intergration of Absolute Function.

M-22	**1st Paper Chapter-10 Integration:** Definite integral, some feature of definite integral, value of definite integral, area using definite integral.
M-23	**2nd Paper Chapter-03 Complex Numbers:** Introduction to i, series, complex numbers, modulus, argument, polar form, expression as A+iB
M-24	**2nd Paper Chapter-03 Complex Numbers:** Roots of complex number, its value and series, locus, proof related problems.
M-25	**2nd Paper Chapter-01 Real Number:** Full Chapter
M-26	**2nd Paper Chapter-04 Polynomial and Polynomial Equations:** Polynomial & Polynomial Equations, Formation of Equations from Roots, General Solutions of Quadratic Equations, Discriminant, Determining the Nature of Roots of a Quadratic Equation, Graphing, Maximum and Minimum Values and Lines of Symmetry of Quadratic Polynomial Functions
M-27	**2nd Paper Chapter-04 Polynomial and Polynomial Equations:** Relation Between Roots & Coefficients of a polynomial Equation, Equations with Roots in Progression, Common Roots, Values of Symmetric Expressions of Roots, Equations with Symmetric Roots.
M-28	**2nd Paper Chapter-06 Conics:** Conic identification, determining elements from standard equation of parabola.
M-29	**2nd Paper Chapter-06 Conics:** The rest of parabola, determining elements from equation of ellipse.
M-30	**2nd Paper Chapter-06 Conics:** The rest of ellipse, hyperbola, and tangent
M-31	**2nd Paper Chapter-07 Inverse trigonometric functions and trigonometric equations:** Problems related to inverse trigonometric function.
M-32	**2nd Paper Chapter-07 Inverse trigonometric functions and trigonometric equations:** General solution of trigonometric solution, extraneous solution.
M-33	**2nd Paper Chapter-02 Linear Programming:** (Full Chapter); **2nd Paper Chapter-10 Measures of Dispersions and Probability:** Measures of Dispersions
M-34	**2nd Paper Chapter-10 Measures of Dispersions and Probability:** Probability
M-35	**2nd Paper Chapter-05 Binomial Expansions:** Concept of binomial expansion, Pascal's Triangle, Number of Terms, General Term, Determination of the coefficient of terms, Middle Term, Ratio of two consecutive terms.
M-36	**2nd Paper Chapter-05 Binomial Expansions:** Conditions for the Infinite Binomial Series Expansion, General Term, Determination of coefficients of terms Using Fractional Fractions, Summation of Series, Divergent
M-37	**2nd Paper Chapter-08 Statics:** General idea of dynamics, resultant of two forces, theorem of perpendicular component.
M-38	**2nd Paper Chapter-08 Statics:** Equilibrium of forces, triangle law of equilibrium, Lami's theorem of equilibrium, condition of equilibrium of co-planar forces
M-39	**2nd Paper Chapter-08 Statics:** Resultant of two like parallel forces, its direction and point of action, as welll as that of unlike unequal parallel forces.
M-40	**2nd Paper Chapter-09 Motion of a particle moving in a straight line or plane:** Formulas of a particle moving in a straight line in uniform acceleration, distance at a particular instant and average velocity, velocity vs time graph, application of formulas regarding acceleration of vertically projected objected, maximum height and time to reach there and time of flight.
M-41	**2nd Paper Chapter-09 Motion of a particle moving in a straight line or plane:** Magnitude and direction of the resultant of two concurrent velocities, problems regarding crossing rivers, relative velocities
M-42	**2nd Paper Chapter-09 Motion of a particle moving in a straight line or plane:** Motion of projectiles in a vertical plane, position of the object and its velocity, range, maximum height, problems related to position and velocities.

	Chemistry 1st & 2nd paper
Lecture	**Syllabus**
C-01	**2nd Paper Chapter 03 Quantitative Chemistry:** Chemical Calculations and Concentration – Determination of molar volume of products from chemical equations, limiting reagent

C-02	**2nd Paper Chapter 03 Quantitative Chemistry:** Molar Concentration and Substances (Primary & Secondary) – Molarity, Molality, Normality, Percent Concentration, PPM, PPB, PPT, Dilution
C-03	**2nd Paper Chapter 03 Quantitative Chemistry:** Acid-Base Titration + Related Math – Indicators, Titration Equivalence Point, Titration Graph, Role of Indicator in Determining End Point of Reaction
C-04	**2nd Paper Chapter 03 Quantitative Chemistry:** Redox reaction (Basic Concepts) – Oxidation Number, Balancing Redox Reactions, Redox Titration (Determination of Metal Ion Content and Impurities)
C-05	**2nd Paper Chapter 03 Quantitative Chemistry:** Lodometry and Iodimetry, Determination of Solution Concentration Using Beer-Lambert Law – Spectroscopy (UV-Vis), Chromatography
C-06	**1st Paper Chapter 04 Chemical Changes:** Chemical reactions and reaction rate – Green chemistry, direction of reaction (Reversible and irreversible), reaction rate, rate constant, order of reaction, molecularity of reaction
C-07	**1st Paper Chapter 04 Chemical Changes:** Effect of temperature on reaction rate – (Arrhenius equation), activation energy, collision theory, effect of pressure, concentration, and catalyst on reaction rate ,Chemical equilibrium – Equilibrium and its dynamics, Le Chatelier's principle, effect of temperature, pressure, and concentration on equilibrium, application of Le Chatelier's principle in industrial production
C-08	**1st Paper Chapter 04 Chemical Changes:** Law of active mass , discussion of equilibrium constants of reactions (K_p and K_c), derivation of K_p and K_c mathematical relations, K_p and K_c mathematical problems
C-09	**1st Paper Chapter 04 Chemical Changes:** Acid-Base Equilibrium – Theories related to acids and bases, ionic product of water, dissociation constant of acids and bases, dissociation rate, strength of acids and bases
C-10	**1st Paper Chapter 04 Chemical Changes:** pH and pOH. buffer solutions
C-11	**1st Paper Chapter 04 Chemical Changes:** Thermo-chemistry, Thermo-chemical equations, heat of reaction, bond energy, Lavoisier and Hess's law, determination of heat of reaction using Lavoisier and Hess's law
C-12	**1st Paper Chapter 02 Qualitative Chemistry:** Fundamental particles of the atom, introduction & atomic models – discussion of Rutherford atomic model, discussion of Bohr atomic model, application of atomic models & quantum mechanics – derivation of v, r, n, E formulas from Bohr theory, related math, Quantum number, Orbital
C-13	**1st Paper Chapter 02 Qualitative Chemistry:** De Broglie Equation, Heisenberg Uncertainty Principle, Schrödinger Wave Equation, Related Math Electronic Configuration – Aufbau Principle, Hund's Rule, Pauli Exclusion Principle, Electromagnetic spectrum, hydrogen atomic spectrum +Rydberg discussion, Related Math Use of UV in fake currency and passport detection, Use of IR in medical science, Use of MRI in disease diagnosis
C-14	**1st Paper Chapter 02 Qualitative Chemistry:** Solubility and solubility product (Ksp), ionic product, application of solubility product, common ion effect and its impact on solubility, application of common ion effect, influence of pH on solubility ,Related Math
C-15	**1st Paper Chapter 02 Qualitative Chemistry:** Qualitative analysis (identification of ions) – flame test, Wet(precipitation) test (+ve and – ve ion identification), applications of qualitative chemistry (organic analysis, distribution law, solvent extraction, chromatography).
C-16	**1st Paper Chapter 03 Periodic Properties of elements and Chemical Bonding:** History, concept, and significance of periodic table; Determine position of elements from electronic configuration; block elements (s, p, d, f) and their chemical properties – s-block elements, p-block elements (Groups 13–18).
C-17	**1st Paper Chapter 03 Periodic Properties of elements and Chemical Bonding:** Chemical properties of d- and f-block elements; characteristics of transition elements.
C-18	**1st Paper Chapter 03 Periodic Properties of elements and Chemical Bonding:** Periodic properties – atomic radius, ionization energy, electron affinity, electronegativity, melting/boiling points, acidic/basic nature of oxides.
C-19	**1st Paper Chapter 03 Periodic Properties of elements and Chemical Bonding:** Chemical bonding, Overlapping of orbitals, hybridization, determination of hybridization state in central atom, relation between shape and hybrid orbital, effect of lone pair electrons on shape.
C-20	**1st Paper Chapter 03 Periodic Properties of elements and Chemical Bonding:** Effect of electronegativity on chemical bonds – Polarization or distortion of ions, covalent character in ionic compounds, Fajan's rules, effect of polarization in salts, weak chemical bonds – Van der Waals forces, hydrogen bonding, importance of hydrogen bonding, nomenclature of inorganic compounds

C-21	**2nd Paper Chapter 02 Organic Chemistry:** Introduction to Organic Compounds – Hydrocarbons and Organic Compounds, Homologous Series, Functional Groups, Nomenclature of Organic Compounds (Common Method, Derived Method, IUPAC Method)
C-22	**2nd Paper Chapter 02 Organic Chemistry:** Isomerism – Introduction, Classification, Structural Isomerism, Geometrical Isomerism (cis-trans isomerism, E-Z isomerism, Syn-Anti isomerism)
C-23	**2nd Paper Chapter 02 Organic Chemistry:** Stereoisomerism – Chiral Carbon, Enantiomer, Diastereomer, Racemic Mixture
C-24	**2nd Paper Chapter 02 Organic Chemistry:** Mechanisms of Organic Reactions – Bond Cleavage, Electrophile, Nucleophile, Carbocation, Carbanion, Aliphatic Hydrocarbons – Saturated Hydrocarbons (Alkanes and all related compounds), Unsaturated Hydrocarbons (Alkenes, Alkynes, and all related compounds)
C-25	**2nd Paper Chapter 02 Organic Chemistry:** Benzene and its Discussion – Aromaticity and Huckel's Principle, Strategies of Benzene Reactions and Preparation, Toluene and all related compounds, Phenol and all related compounds
C-26	**2nd Paper Chapter 02 Organic Chemistry:** Alkyl Halides and all related compounds – Nucleophilic Substitution (S_N1 & S_N2), Electrophilic Elimination (E_1 & E_2), Aryl Halides and all related compounds
C-27	**2nd Paper Chapter 02 Organic Chemistry:** Alcohols and Ethers and all related compounds
C-28	**2nd Paper Chapter 02 Organic Chemistry:** Aldehydes and Ketones – Preparation, Introduction, and all related compounds, Aromatic Aldehydes and Ketones and all related compounds
C-29	**2nd Paper Chapter 02 Organic Chemistry:** Carboxylic Acids and all related compounds – Benzoic Acid, Amines, Aniline, Aromatic Nitro Compounds, Benzene Diazonium Chloride, Polymers and Plasticity – Organic Polymers, IR Spectroscopy, Biomolecules, Transformation of Organic Compounds
C-30	**2nd Paper Chapter 01 Environmental Chemistry:** Atmosphere, Boyle's Law, Charles's Law, Avogadro's Law, Gay-Lussac's Law, Related Math Gas Combination Laws – Ideal Gas Equation (PV = nRT), Related Math
C-31	**2nd Paper Chapter 01 Environmental Chemistry:** Dalton's Law of Partial Pressures, Graham's Law of Diffusion, Diffusion, Effusion, Rate of Diffusion and Related Formulas, Gas Kinetics, Real Gases, Ideal Gas, Deviations, Compressibility Factor, Amagat Curve, Van der Waals Equation
C-32	**2nd Paper Chapter 01 Environmental Chemistry:**, Gas Cylinder Standardization Chemical Reactions in while Lightning Reactions, Nitrogen Fixation in Soil, Greenhouse Gases, Acid Rain – Causes, Effects, and Remedies of Acid Rain, Standards of Surface Water Purity – Hardness, pH, DO, BOD, COD, TDS, Water Pollution and Effects of Water Pollution
C-33	**1st Paper Chapter 01 Safe Use of Laboratory:** (Full Chapter) **1st Paper Chapter 05 Vocational Chemistry:** (Full Chapter)
C-34	**2nd Paper Chapter 04 Electrochemistry:** Conductors and Their Types, Conductivity in Electrolytic Analysis, Reactivity Series of Metals, Electrochemical Cell, Faraday's Laws + Related Math
C-35	**2nd Paper Chapter 04 Electrochemistry:** Electrode and Electrode Potential – Half-Reactions of Oxidation-Reduction, Electrodes and Their Types, Galvanic Cells, Indicator Electrodes, Cell Potential and Its Applications, Nernst Equation + Related Math
C-36	**2nd Paper Chapter 04 Electrochemistry:** Conversion of Chemical Energy into Electrical Energy Using Chemical Cells – Batteries, Fuel Cells and Their Types, Method of Determining pH of a Solution Using pH Meter + Related Math, **2nd Paper Chapter 05 Industrial Chemistry:** (Full Chapter)

Biology 1st & 2nd Paper	
Lecture	**Syllabus**
B-01	**2nd Paper Chapter 04:** Blood & Circulation (Up to the Heart)
B-02	**2nd Paper Chapter 04:** Blood & Circulation (From the Heart to the end)
B-03	**1st Paper Chapter 09:** Plant Physiology (Transpiration, Photosynthesis)
B-04	**1st Paper Chapter 09:** Plant Physiology (Absorption of mineral salts, Respiration)
B-05	**2nd Paper Chapter 03:** Digestion and Absorption (up to Digestion of food in Small Intestine)
B-06	**2nd Paper Chapter 03:** Digestion and Absorption (From the Digestive glands to the end)
B-07	**1st Paper Chapter 05:** Algae and Fungi
B-08	**1st Paper Chapter 06:** Bryophyta and Pteridophyta **1st Paper Chapter 12:** Environment, Distribution and Conservation of Living Organisms

B-09	**2nd Paper Chapter 08:** Coordination and Control (Nervous coordination)
B-10	**2nd Paper Chapter 08:** Coordination and Control (Eye, Ear & Hormonal Control)
B-11	**1st Paper Chapter 10:** Plant Reproduction
B-12	**2nd Paper Chapter 05:** Respiration and Breathing
B-13	**1st Paper Chapter 07:** Gymnosperms and Angiosperms
B-14	**2nd Paper Chapter 07:** Locomotion and Movement (Up to cartilage)
B-15	**2nd Paper Chapter 07:** Locomotion and Movement (From muscle tissue to the end)
B-16	**1st Paper Chapter 08:** Tissue and Tissue System
B-17	**2nd Paper Chapter 10:** Protection of Human Body (Immunity)
B-18	**1st Paper Chapter 01:** Cell and Its structure (Up to chromosome)
B-19	**1st Paper Chapter 01:** Cell and Its structure (From nucleic acid to Genetic code)
B-20	**1st Paper Chapter 11:** Biotechnology
B-21	**1st Paper Chapter 02:** Cell Division
B-22	**2nd Paper Chapter 06:** Wastes and Elimination
B-23	**1st Paper Chapter 03:** Cell Chemistry (Carbohydrates, amino acids)
B-24	**1st Paper Chapter 03:** Cell Chemistry (Protein, lipid, enzyme)
B-25	**2nd Paper Chapter 09:** Continuation of Human Life
B-26	**1st Paper Chapter 04:** Microorganism/Microbe (Virus)
B-27	**1st Paper Chapter 04:** Microorganism/Microbe (Bacteria, Malarial parasite)
B-28	**2nd Paper Chapter 01:** Animal Diversity and Classification (Up to Nematoda)
B-29	**2nd Paper Chapter 01:** Animal Diversity and Classification (From Mollusca to the End)
B-30	**2nd Paper Chapter 11:** Genetics and Evolution
B-31	**2nd Paper Chapter 02:** Animal Identity (Hydra, Rohu fish)
B-32	**2nd Paper Chapter 02:** Animal Identity (Grasshopper) **2nd Paper Chapter 12:** Animal Behaviour

বাংলা ১ম ও ২য় পত্র	
লেকচার	**সিলেবাস**
Ban-01	**১ম পত্র:** গদ্য: বাঙ্গালার নব্য লেখকদিগের প্রতি নিবেদন **২য় পত্র:** ব্যাকরণ- বাংলা উচ্চারণের নিয়ম [বিগত বছরের প্রশ্ন সমাধান]
Ban-02	**১ম পত্র:** গদ্য: অপরিচিতা **২য় পত্র:** ব্যাকরণ- বাংলা বানানের নিয়ম [বিগত বছরের প্রশ্ন সমাধান]
Ban-03	**১ম পত্র:** কবিতা: বিভীষণের প্রতি মেঘনাদ **২য় পত্র:** ব্যাকরণ- উচ্চারণ ও বানান - রিভিউ ও বোর্ড প্র্যাকটিস
Ban-04	**১ম পত্র:** কবিতা: সোনার তরী, ঋতু বর্ণন **২য় পত্র:** ব্যাকরণ- বাংলা ভাষার ব্যাকরণিক শব্দশ্রেণি; (পার্ট-০১) (বিশেষ্য, সর্বনাম, বিশেষণ) [বিগত বছরের প্রশ্ন সমাধান]
Ban-05	**১ম পত্র:** গদ্য: সাহিত্যে খেলা **২য় পত্র:** বাংলা ভাষার ব্যাকরণিক শব্দশ্রেণি (পার্ট-০২) (ক্রিয়া, ক্রিয়াবিশেষণ, যোজক, আবেগ, অনুসর্গ) [বিগত বছরের প্রশ্ন সমাধান]
Ban-06	**১ম পত্র:** গদ্য: বিলাসী **২য় পত্র:** ব্যাকরণ- বাংলা শব্দগঠন প্রক্রিয়া: সমাস (পার্ট-০১) (দ্বন্দ্ব, বহুব্রীহি, অব্যয়ীভাব) [বিগত বছরের প্রশ্ন সমাধান]
Ban-07	**১ম পত্র:** গদ্য: যৌবনের গান **২য় পত্র:** ব্যাকরণ- বাংলা শব্দগঠন প্রক্রিয়া: সমাস (পার্ট-০২) (তৎপুরুষ, কর্মধারয়, দ্বিগু) [বিগত বছরের প্রশ্ন সমাধান]
Ban-08	**১ম পত্র:** কবিতা: বিদ্রোহী **২য় পত্র:** বাংলা শব্দগঠন প্রক্রিয়া: সমাস নির্ণয় ও বোর্ড প্র্যাকটিস।

Ban-09	**১ম পত্র:** গদ্য: অর্ধাঙ্গী **২য় পত্র:** ব্যাকরণ- বাংলা শব্দগঠন প্রক্রিয়া: উপসর্গ [বিগত বছরের প্রশ্ন সমাধান]
Ban-10	**১ম পত্র:** গদ্য: জীবন ও বৃক্ষ, **২য় পত্র:** বাংলা শব্দগঠন প্রক্রিয়া: প্রকৃতি ও প্রত্যয় (পার্ট-০১) (প্রকৃতি ও প্রত্যয় পরিচয়) [বিগত বছরের প্রশ্ন সমাধান]
Ban-11	**১ম পত্র:** গদ্য: ঘাসি-পিসি **২য় পত্র:** বাংলা শব্দগঠন প্রক্রিয়া: প্রকৃতি ও প্রত্যয় (পার্ট-০২) (বিশদ আলোচনা) [বিগত বছরের প্রশ্ন সমাধান]
Ban-12	**১ম পত্র:** কবিতা: তাহারেই পড়ে মনে, কবিতা: পদ্মা **২য় পত্র:** সমাস, প্রকৃতি ও প্রত্যয়; রিভিউ ও বোর্ড প্র্যাকটিস [বিগত বছরের প্রশ্ন সমাধান], নির্মিতি- দিনলিপি, অভিজ্ঞতা বর্ণন, ভাষণ ও প্রতিবেদন [বিগত বছরের প্রশ্ন সমাধান]
Ban-13	**১ম পত্র:** গদ্য: কপিলদাস ঘুর্ঘুর শেষ কাজ, কবিতা: প্রতিদান **২য় পত্র:** ব্যাকরণ- বাক্যতত্ত্ব (পার্ট-০১) (বাক্যতত্ত্ব সংক্রান্ত প্রশ্ন ও উত্তর, সরল-জটিল -যৌগিক) [বিগত বছরের প্রশ্ন সমাধান]
Ban-14	**১ম পত্র:** কবিতা: ফেব্রুয়ারি ১৯৬৯, কবিতা: সুচেতনা **২য় পত্র:** ব্যাকরণ- বাক্যতত্ত্ব (পার্ট-০২) (অর্থ অনুসারে বাক্যের শ্রেণিবিভাগ ও বাক্য রূপান্তর); [বিগত বছরের প্রশ্ন সমাধান]
Ban-15	**১ম পত্র:** গদ্য: রেইনকোট, কবিতা: আঠারো বছর বয়স **২য় পত্র:** ব্যাকরণ- বাংলা ভাষার অপপ্রয়োগ ও শুদ্ধ প্রয়োগ (পার্ট-০১) (সাধারণ আলোচনা ও বাক্যের অপপ্রয়োগ ও শুদ্ধ প্রয়োগ)
Ban-16	**১ম পত্র:** কবিতা: আমি কিংবদন্তির কথা বলছি **২য় পত্র:** ব্যাকরণ- বাংলা ভাষার অপপ্রয়োগ ও শুদ্ধ প্রয়োগ (পার্ট-০২) (অনুচ্ছেদের অপপ্রয়োগ ও শুদ্ধীকরণ) নির্মিতি-সংলাপ ও খুদেগল্প [বিগত বছরের প্রশ্ন সমাধান]
Ban-17	**১ম পত্র:** গদ্য: গন্তব্য কাবুল **২য় পত্র:** নির্মিতি-পারিভাষিক শব্দ ও অনুবাদ [বিগত বছরের প্রশ্ন সমাধান]
Ban-18	**১ম পত্র:** গদ্য: নেকলেস, কবিতা: প্রত্যাবর্তনের লজ্জা **২য় পত্র:** নির্মিতি- বৈদ্যুতিন চিঠি, পত্রলিখন ও আবেদনপত্র [বিগত বছরের প্রশ্ন সমাধান]
Ban-19	**সহপাঠ:** উপন্যাস- লালসালু **২য় পত্র:** নির্মিতি- সারাংশ, সারমর্ম, সারসংক্ষেপ ও ভাব-সম্প্রসারণ [বিগত বছরের প্রশ্ন সমাধান]
Ban-20	**সহপাঠ:** নাটক- সিরাজউদ্দৌলা **২য় পত্র:** নির্মিতি- প্রবন্ধ-নিবন্ধ রচনা [বিগত বছরের প্রশ্ন সমাধান]

English 1st & 2nd Paper	
Lecture	**Syllabus**
E-01	**1st Paper:** Unit-1: Education and Life (Lesson-1, 2), Flow Chart; **2nd Paper:** Gap Filling without Clues (Article); Board Style Practice, Report Writing.
E-02	**1st Paper:** Unit-1: Education and Life (Lesson-3, 4), Information Transfer; **2nd Paper:** Gap Filling without Clues (Preposition), Use of Preposition, Paragraph.
E-03	**1st Paper:** Unit-2: Art and Craft (Lesson-1, 2); **2nd Paper:** Pronoun antecedent; Pronoun Reference; Board Style Practice.
E-04	**1st Paper:** Unit-2: Art and Craft (Lesson-3, 4), Summary; **2nd Paper:** Degree of Comparison; Board Style Practice.
E-05	**1st Paper:** Unit-3: Myths and Literature (Lesson-1, 3); **2nd Paper:** Right form of Verb (Part-1).
E-06	**1st Paper:** Unit-3: Myths and Literature (Lesson-2, 4), Gap filling with Clues; **2nd Paper:** Right form of Verb (Part-2).
E-07	**1st Paper:** Unit-4; History (Lesson-1); Gap filling without clues (Part-1), Graphs; **2nd Paper:** Sentence Transformation [Simple, Complex and Compound (Part-1)]: Board Style Practice.
E-08	**1st Paper:** Unit-4: History (Lesson- 2, 3); **2nd Paper:** Sentence Transformation [Simple, Complex and Compound (Part-2)]: Board Style Practice.
E-09	**1st Paper:** Unit-5: Human Rights (Lesson-4, 5), Charts, Gap filling without clues (Part-2); **2nd Paper:** Modifier & its types (Part-1); Board Style Practice.

E-10	**1st Paper:** Unit-6: Dreams (Lesson-1), Reading for Pleasure (Part-1); **2nd Paper:** Modifier & its types (Part-2); Board Style Practice.
E-11	**1st Paper:** Unit-7: Youthful Achievers (Lesson-1, 2); **2nd Paper:** Connector with basic (Part- 1); Board Style Practice.
E-12	**1st Paper:** Unit-7: Youthful Achievers:(Lesson-3), Appreciating Poems/ Stories (Part-1); **2nd Paper:** Connector with basic (Part- 2); Board Style Practice.
E-13	**1st Paper:** Unit-8: Relationships (Lesson-1, 4), Rearrange, Informal letter; **2nd Paper:** Connector (Board Practice), Formal letter/email.
E-14	**1st Paper:** Unit-8: Relationships (Lesson-3), Story writing; **2nd Paper:** Sentence Transformation (Affirmative to Negative and vice versa).
E-15	**1st Paper:** Unit-9: Adolescence (Lesson- 1), Reading for pleasure (Part-2); **2nd Paper:** Sentence Transformation (Other 5 types of sentences); Board Style Practice.
E-16	**1st Paper:** Unit-9: Adolescence (Lesson- 2, 3), Appreciating Poems/ Stories (Part-2); **2nd Paper:** Completing sentence with given phrases; Board Style Practice.
E-17	**1st Paper:** Unit-9: Adolescence (Lesson-4) Unit-10: Lifestyle (Lesson-2); **2nd Paper:** Completing Sentence (without clues); Board Style Practice.
E-18	**1st Paper:** Unit-10: Lifestyle (Lesson-3, 4), Paragraph; **2nd Paper:** Narrative Style (Part-1); Board Style Practice.
E-19	**1st Paper:** Unit-10: Lifestyle (Lesson-5), Unit-11: Peace and Conflict (Lesson-1); **2nd Paper:** Narrative Style (Part-2); Board Style Practice.
E-20	**1st Paper:** Unit-11: Peace and Conflict (Lesson-2, 3), Appreciating Poems/ Stories (Part-3); **2nd Paper:** Voice change; Board Style Practice.
E-21	**1st Paper:** Unit-12: Environment and Nature (Lesson-1, 2); **2nd Paper:** Punctuation & Capitalization; Board Style Practice.
E-22	**1st Paper:** Unit-12: Environment and Nature (Lesson-3, 4, 5); **2nd Paper:** Use of Synonym and Antonym; Composition.

ICT	
Lecture	**Syllabus**
ICT-01	**Chapter-03:** Number System- Introduction, Conversion, 1's Complement, 2's Complement
ICT-02	**Chapter-03:** Boolean Algebra, Truth Table, Function, Logic Gate.
ICT-03	**Chapter-03:** Code, Digital Device- Half Adder, Full Adder, Flip-flop, Register, Counter.
ICT-04	**Chapter-04:** Introduction to Web Design & HTML- Website, Classification, Structure, Introduction to HTML Tags, Hyperlink, Image,
ICT-05	**Chapter-04:** Introduction to Web Design & HTML- List, Table, Form.
ICT-06	**Chapter-05:** Programming Language, Translator, Steps of programming, Algorithm, Flowchart
ICT-07	**Chapter-05:** Examples of Algorithm, Flowchart, C Program, Variable, Input-Output
ICT-08	**Chapter-05:** Datatype, Operator, Conditional Statement, Loop, Array, String,Function.
ICT-09	**Chapter-01:** Information & Communication Technology: World & Bangladesh Perspective. (Full Chapter)
ICT-10	**Chapter-02:** Communication System & Networking (Up until Topology)
ICT-11	**Chapter-02:** Communication System & Networking: Topology, Cloud Computing **Chapter -06:** Database Management System: Computer Memory,Database Management System, Relational Database Management System,Datatype
ICT-12	**Chapter -06:** Key,Database Relationship,Query Language,Sorting,Indexing,Encryption