BLOOM PUBLIC SCHOOL
C-8 Vasant Kunj, New Delhi
Syllabus for the Session 2026-27

Class: XII
Subject: Physics

MONTH	CHAPTERS (NCERT TEXT BOOK)	CONTENT	PRACTICAL/ACTIVITY
April	**UNIT I** Chapter1: Electric Charges and Fields	Electric charges, Conservation of charge, Coulomb's law- force between two-point charges, forces between multiple charges; superposition principle and continuous charge distribution. Electric field, electric field due to a point charge, electric field lines, electric dipole, electric field due to a dipole, torque on a dipole in uniform electric field. Electric flux, statement of Gauss's theorem and its applications to find field due to infinitely long straight wire, uniformly charged infinite plane sheet and uniformly charged thin spherical shell (field inside and outside).	To determine the resistivity of two/ three wires by plotting a graph for potential difference versus current.
	Chapter 2: Electrostatic Potential and Capacitance	Electric potential, potential difference, electric potential due to a point charge, a dipole and system of charges; equipotential surfaces, electrical potential energy of a system of two-point charges and of electric dipole in an electrostatic field. Conductors and insulators, free charges and bound charges inside a conductor. Dielectrics and electric polarization, capacitors and capacitance, combination of capacitors in series and in parallel, capacitance of a parallel plate capacitor with and without dielectric medium between the plates, energy stored in a capacitor (no derivation, formulae only).	

May	**UNIT II** Chapter3: Current Electricity	Electric current, flow of electric charges in a metallic conductor, drift velocity, mobility and their relation with electric current; Ohm's law, V-I characteristics (linear and non-linear), electrical energy and power, electrical resistivity and conductivity, temperature dependence of resistance, Internal resistance of a cell, potential difference and emf of a cell, combination of cells in series and in parallel, Kirchhoff's rules, Wheatstone bridge.	
	UNIT III Chapter 4: Magnetic Effect of Current and Magnetism	Concept of magnetic field, Oersted's experiment. Biot - Savart law and its application to current carrying circular loop. Ampere's law and its applications to infinitely long straight wire. Straight solenoid (only qualitative treatment), force on a moving charge in uniform magnetic and electric fields. Force on a current- carrying conductor in a uniform magnetic field, force between two parallel current-carrying conductors-definition of ampere, torque experienced by a current loop in uniform magnetic field; Current loop as a magnetic dipole and its magnetic dipole moment, moving coil galvanometer its current sensitivity and conversion to ammeter and voltmeter.	To determine the resistance of a galvanometer by the half-deflection method and to find its figure of merit.
July	Chapter 5: Magnetism and Matter	Bar magnet, bar magnet as an equivalent solenoid (qualitative treatment only), magnetic field intensity due to a magnetic dipole (bar magnet) along its axis and perpendicular to its axis (qualitative treatment only), torque on a magnetic dipole (bar magnet) in a uniform magnetic field (qualitative treatment only), magnetic field lines. Magnetic properties of materials- Para-, dia- and ferro - magnetic substances with examples, Magnetization of materials, effect of temperature on magnetic properties.	To convert the given galvanometer (of known resistance and figure of merit) into a voltmeter of the desired range and to verify the same OR to convert the given galvanometer (of known resistance and figure of merit) into an ammeter of the desired range and to verify the same.
	UNIT IV Chapter 6: Electromagnetic Induction	Electromagnetic induction; Faraday's laws, induced EMF and current; Lenz's Law, Eddy currents. Self and mutual induction	

August	Chapter 7: Alternating Current **UNIT V** Chapter 8: Electromagnetic Waves **UNIT VI** Chapter 9: Ray Optics and Optical Instruments	Alternating currents, peak and RMS value of alternating current/voltage; reactance and impedance; LCR series circuit (phasors only), resonance, power in AC circuits, power factor, wattless current. AC generator, Transformer. Electromagnetic waves, their characteristics, their Transverse nature (qualitative ideas only). Electromagnetic spectrum (radio waves, microwaves, infrared, visible, ultraviolet, X- rays, gamma rays) including elementary facts about their uses. Refraction of light, total internal reflection and its applications, optical fibers, refraction at spherical surfaces, lenses, thin lens formula, lensmaker's formula, magnification, power of a lens, combination of thin lenses in contact, refraction of light through a prism. Optical instruments: Microscopes and astronomical telescopes (reflecting and refracting) and their magnifying powers.	To obtain a lens combination with specified focal length by using two lenses from a given set of lenses.
September	**UNIT VI** Chapter 9: Ray Optics and Optical Instruments (cont'd)	Refraction of light, total internal reflection and its applications, optical fibers, refraction at spherical surfaces, lenses, thin lens formula, lensmaker's formula, magnification, power of a lens, combination of thin lenses in contact, refraction of light through a prism. Optical instruments: Microscopes and astronomical telescopes (reflecting and refracting) and their magnifying powers. **MID TERM EXAMINATION**	To study nature and the size of the image formed by a convex lens. (for different distances of the candle from the lens)

October	**UNIT VI** Chapter 10: Wave Optics	Wave front and Huygen's principle, reflection and refraction of plane wave at a plane surface using wave fronts. Proof of laws of reflection and refraction using Huygen's principle. Interference, Young's double slit experiment and expression for fringe width, coherent sources and sustained interference of light, diffraction due to a single slit, width of central maximum.	To observe diffraction of light due to a thin slit.
	UNIT VII Chapter 11: Dual Nature of Radiation and Matter	Dual nature of radiation, Photoelectric effect, Hertz and Lenard's observations; Einstein's photoelectric equation-particle nature of light. Experimental study of photoelectric effect Matter waves-wave nature of particles, de- Broglie relation	
	UNIT IX Chapter 14: Semiconductor Electronics: Materials, Devices and simple Circuit	Energy bands in conductors, semiconductors and insulators (qualitative ideas only) Intrinsic and extrinsic semiconductors- p and n type, p- n junction Semiconductor diode - I-V characteristics in forward and reverse bias, application of junction diode -diode as a rectifier.	To draw the I-V characteristic curve for a p-n junction diode in forward and reverse bias.
November	**UNIT VI** Chapter 13: Nuclei	Composition and size of nucleus, nuclear force Mass- energy relation, mass defect; binding energy per nucleon and its variation with mass number; nuclear fission, nuclear fusion.	
	UNIT VIII Chapter 12: Atom	Alpha-particle scattering experiment; Rutherford's model of atom; Bohr model of hydrogen atom, Expression for radius of nth possible orbit, velocity and energy of electron in his orbit, of hydrogen line spectra (qualitative treatment only).	

December	Revision, Preboard Exam 1
January	Revision, Preboard Exam 1 Board Practical
February	Board Exam
March	Board Exam

PERIODIC ASSESSMENT -1	Chapter 1: Electric Charge and Fields Chapter 2: Electrostatic Potential and Capacitance.
PERIODIC ASSESSMENT -2	Chapter 3: Current Electricity Chapter 4: Moving charge and Magnetism Chapter 5: Magnetism and Matter
TERM-I EXAM	Chapter 1: Electric Charge and Fields Chapter 2: Electrostatic Potential and Capacitance Chapter 3: Current Electricity Chapter 4: Moving charge and Magnetism Chapter 5: Magnetism and Matter Chapter 6: Electromagnetic induction Chapter 7: Alternating Currents Chapter 8: Electromagnetic Waves

PREBOARD EXAMINATION	Chapter 1: Electric Charge and Fields Chapter 2: Electrostatic Potential and Capacitance Chapter 3: Current Electricity Chapter 4: Moving charge and Magnetism Chapter 5: Magnetism and Matter Chapter 6: Electromagnetic induction Chapter 7: Alternating Currents Chapter 8: Electromagnetic Waves Chapter 9: Ray Optics and Optical Instruments Chapter 10: Wave Optics Chapter 11: Dual Nature of Radiation and Matter Chapter 12: Atom and Nuclei Chapter 13: Nuclei Chapter 14: Semiconductor Electronics: Materials, Devices and simple Circuit
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