CLASS XII (2025-26)
PHYSICS (THEORY)

Time: 3 hrs.   **Max Marks: 70**

UNIT	CHAPTERS	MARKS
Unit–I	**Electrostatics**	
	Chapter–1: Electric Charges and Fields	
	Chapter–2: Electrostatic Potential and Capacitance	16
Unit-II	**Current Electricity**	
	Chapter–3: Current Electricity	
Unit-III	**Magnetic Effects of Current and Magnetism**	
	Chapter–4: Moving Charges and Magnetism	
	Chapter–5: Magnetism and Matter	17
Unit-IV	**Electromagnetic Induction and Alternating Currents**	
	Chapter–6: Electromagnetic Induction	
	Chapter–7: Alternating Current	
Unit–V	**Electromagnetic Waves**	
	Chapter–8: Electromagnetic Waves	
Unit–VI	**Optics**	18
	Chapter–9: Ray Optics and Optical Instruments	
	Chapter–10: Wave Optics	
Unit–VII	**Dual Nature of Radiation and Matter**	
	Chapter–11: Dual Nature of Radiation and Matter	
Unit–VIII	**Atoms and Nuclei**	12
	Chapter–12: Atoms	
	Chapter–13: Nuclei	
Unit–IX	**Electronic Devices**	
	Chapter–14: Semiconductor Electronics: Materials, Devices and Simple Circuits	7
	Total	70

PHYSICS (PRACTICALS)

The record, to be submitted by the students, at the time of their annual examination, has to include:

• Record of at least 8 Experiments [with 4 from each section], to be performed by the students.

• Record of at least 6 Activities [with 3 each from section A and section B], to be performed by the students.

• Report of the project carried out by the students.

EVALUATION SCHEME

Time 3 hours   Max. Marks: 30

Topic	Marks
Two experiments one from each section	7+7
Practical record (experiment and activities)	5
One activity from any section	3
Investigatory Project	3
Viva on experiments, activities and project	5
Total	**30**

Monthly Planner

Month	Chapter	Topic	Practical's and Activities
April	**Ch 1: Electric Charges and Fields** **Ch 2: Electrostatic Potential and Capacitance**	Electric Charges, Coulomb's law, forces between multiple charges, continuous charge distribution. Electric field, electric field lines, electric dipole, electric field due to a dipole, torque on a dipole in uniform electric field. Electric flux, Gauss's theorem and its applications to find field. Electric potential, potential difference, system of charges, Equi-potential surfaces, electrical potential energy of a system of two point charges, 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	• To assemble the components of a given electrical circuit. • Assemble a household circuit comprising three bulbs, three (on/off) switches, a fuse and a power source.

		the plates, energy stored in a capacitor.	
May	**Ch 3: Current Electricity** **Ch 4: Moving Charges and Magnetism**	Electric current, flow of electric charges in a metallic conductor, drift velocity, mobility, Ohm's law, electrical resistance, V-I Characteristics, electrical energy and power, electrical resistivity and conductivity; temperature dependence of resistance. Internal resistance of a cell, combination of cells in series and in parallel, Kirchhoff's laws, Wheatstone bridge, meter bridge, Potentiometer. Magnetic field, Biot - Savart law and its application. Ampere's law and its applications Solenoids. Force on a moving charge in uniform magnetic, Force on a current-carrying conductor in a uniform magnetic field, force between two parallel current-carrying conductors, moving coil galvanometer-its current sensitivity and conversion to ammeter and voltmeter.	• To determine resistivity of two / three wires by plotting a graph for potential difference versus current. • To find resistance of a given wire / standard resistor using metre bridge.
June		**Summer vacation**	
		Term 1 Examination	
July	**Ch 5: Magnetism and Matter.** **Ch 6: Electromagnetic Induction.**	Current loop as a magnetic dipole, moment of a revolving electron, bar magnet as an equivalent solenoid, magnetic field lines; Electromagnetic induction; Faraday's laws, induced EMF and current; Lenz's Law, Eddy currents. Self and mutual induction.	• To determine resistance of a galvanometer by half-deflection method and to find its figure of merit. • To find the frequency of AC mains with a sonometer.
August	**Ch 7: Alternating Current** **Ch 8: Electromagnetic Waves**	Alternating currents, peak and RMS value of alternating current/voltage; reactance and impedance; LC oscillations, LCR series circuit, resonance; power in AC circuits AC generator and transformer. After studying students are able to understand the concept of Electromagnetic waves, their characteristics, their Transverse nature Electromagnetic spectrum.	• To study the variation in potential drop with length of a wire for a steady current. • To study the effect of intensity of light on LDR. • To find refractive index of a liquid by using convex lens and plane mirror.
September		**Half Yearly Examination**	

October	**Ch 9: Ray Optics and Optical Instruments Ch 10: Wave Optics**	Reflaction of light, Refraction of light, total internal reflection and its applications, optical fibers, refraction at spherical surfaces, lenses, thin lens formula, lens maker's formula, magnification, power of a lens. Microscopes and astronomical telescopes. Wave front and Huygen's principle, 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.	• To observe diffraction of light due to a thin slit. • To find the value of *v* for different values of *u* in case of a concave mirror and to find the focal length. • To find the focal length of a convex lens by plotting graphs between u and v or between 1/u and 1/v.
November	**Ch 11: Dual Nature of Radiation and Matter Ch 12: Atoms Ch 13: Nuclei Ch 14: Semiconductor**	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 Alpha-particle scattering experiment; Rutherford's model of atom; Bohr model, energy levels, hydrogen spectrum. Composition and size of nucleus Mass-energy relation, mass defect, nuclear fission, nuclear fusion. Energy bands in conductors, Semiconductor diode - I-V characteristics in forward and reverse bias, diode as a rectifier;	• To draw the I-V characteristic curve for a p-n junction diode in forward bias and reverse bias. • To identify a diode, an LED, a resistor and a capacitor from a mixed collection of such items.
December	**1st Pre-Board Examination**		
January	**Practical Examination**		
February	**2nd Pre-Board Examination**		
March	**Annual Examination**		