

## Exam Schedule for PHYSICS

Time		1/2 year course for XI & XII	
		Class – XI Part	Class – XII part
Aug. (unit -I)	1 <sup>st</sup> . wk.	<p>► <b>Physics And Measurement</b> Physics, technology and society, S I units, Fundamental and derived units. Least count, accuracy and precision of measuring instruments, Errors in measurement, Dimensions of Physical quantities, dimensional analysis and its applications</p>	<p>► <b>Electrostatics</b> Electric charges: Conservation of charge, Coulomb's law-forces 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 a , uniform electric field. Electric flux, Gauss's law and its applications to find field due to infinitely long uniformly charged straight wire, uniformly charged infinite plane sheet and uniformly charged thin spherical shell</p>
	2 <sup>nd</sup> . wk.	<p>► <b>Kinematics (One dimensional motion)</b> Frame of reference. Motion in a straight line: Position- time graph, speed and velocity. Uniform and nonuniform motion, average speed and instantaneous velocity Uniformly accelerated motion, velocity-time, position- time graphs, relations for uniformly accelerated motion.</p>	<p>► <b>Electric potential</b> and its calculation for a point charge, electric dipole and system of charges; Equipotential surfaces, Electrical potential energy of a system of two point charges in an electrostatic field. Conductors and insulators, Dielectrics and electric polarization,</p>
	3 <sup>rd</sup> . wk.	<p>► <b>Two Dimensional Motion</b> Scalars and Vectors, Vector addition and Subtraction, Zero Vector, Scalar and Vector products, Unit Vector, Resolution of a Vector. Relative Velocity, Motion in a plane, Projectile Motion, Uniform Circular Motion</p>	<p>► capacitor, 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</p>
	4 <sup>th</sup> .wk.	<p>► <b>Comprehensive Test : One Exam on Class – XI; Unit – I Syllabus</b> ► <b>Comprehensive Test : One Exam on Class – XII; Unit – I Syllabus</b></p>	
Sept. (Unit -II)	1 <sup>st</sup> . wk.	<p>► <b>Laws Of Motion</b> Force and Inertia, Newton's First Law of motion; Momentum, Newton's Second Law of motion; Impulse; Newton's Third Law of motion. Law of conservation of linear momentum and its applications,</p>	<p>► <b>Current Electricity</b> Electric current, Drift velocity, Ohm's law, Electrical resistance, Resistances of different materials, V-1 characteristics of Ohmic and nonohmic conductors, Electrical energy and power, Electrical resistivity, Colour code for resistors; Series and parallel combinations of resistors; Temperature dependence of resistance</p>
	2 <sup>nd</sup> . wk.	<p>► <b>Friction and Dynamics of uniform circular motion</b> Equilibrium of concurrent forces. Static and Kinetic friction, laws of friction, rolling friction. Dynamics of uniform circular motion: Centripetal force and its applications.</p>	<p>► Electric Cell and its Internal resistance, potential difference and emf of a cell, combination of cells in series and in parallel. Kirchoff's laws and their applications. Wheatstone bridge, Metre bridge. Potentiometer- principle and its applications.</p>
	3 <sup>rd</sup> . wk.	<p>► <b>Work, Energy And Power</b> Work done by a constant force and a variable force; kinetic and potential energies, workenergy theorem, power. Potential energy of a spring, conservation of mechanical energy, conservative and nonconservative forces,</p>	<p>► <b>Revision of Unit – I and II</b></p>
	4 <sup>th</sup> .wk.	<p>► <b>Comprehensive Test : One Exam on Class – XI; Unit – I + II Syllabus</b> ► <b>Comprehensive Test : One Exam on Class – XII; Unit –I+ II Syllabus</b></p>	
Oct. (Unit – III )	1 <sup>st</sup> . wk.	<p>► <b>Collision</b> Elastic and inelastic collisions in one and two dimensions ► Centre of mass of a two-particle system, Centre of mass of a rigid body</p>	<p>► <b>Magnetic Effects Of Current</b> Biot- Savart law and its application to current carrying circular loop. Ampere's law and its applications to infinitely long current carrying straight wire and solenoid. Force on a moving charge in uniform magnetic and electric fields. Cyclotron. Force on a currentcarrying 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; Moving coil galvanometer, its current sensitivity and conversion to ammeter and voltmeter.</p>
	2 <sup>nd</sup> . wk.	<p>► <b>Rotational Motion (Part 1)</b> Basic concepts of rotational motion; moment of a force, torque, angular momentum, conservation of angular momentum and its applications; moment of inertia, radius of gyration.</p>	<p>► <b>Magnetism</b> Current loop as a magnetic dipole and its magnetic dipole moment. Bar magnet as an equivalent solenoid, magnetic field lines; Earth's magnetic field and magnetic elements. Para-, dia- and ferro- magnetic substances. Magnetic susceptibility and permeability, Hysteresis, Electromagnets and permanent magnets</p>
	3 <sup>rd</sup> . wk.	<p>► <b>Rotational Motion (Part 2)</b> Values of moments of inertia for simple geometrical objects, parallel and perpendicular axes theorems and their applications. Rigid body rotation, equations of rotational motion</p>	<p>► <b>Electromagnetic Induction And Alternating Currents</b> Electromagnetic induction; Faraday's law, induced emf and current; Lenz's Law, Eddy currents. Self and mutual inductance. Alternating currents, peak and rms value of alternating current/ voltage; reactance and impedance; LCR series circuit, resonance; Quality factor, power in AC circuits, wattless current. AC generator and transformer</p>

	4 <sup>th</sup> .wk.	<p>► <b>Comprehensive Test : One Exam on Class – XI; Unit – III Syllabus</b></p> <p>► <b>Comprehensive Test : One Exam on Class – XII; Unit – III Syllabus</b></p>	
Nov.(Unit –IV)	1 <sup>st</sup> . wk.	<p>► <b>Gravitation</b> The universal law of gravitation. Acceleration due to gravity and its variation with altitude and depth. Kepler's laws of planetary motion. Gravitational potential energy; gravitational potential. Escape velocity. Orbital velocity of a satellite. Geo-stationary satellites</p>	<p>► <b>Electromagnetic wave:</b> Electromagnetic waves and their characteristics. Transverse nature of electromagnetic waves. Electromagnetic spectrum (radio waves, microwaves, infrared, visible, ultraviolet, Xrays, gamma rays). Applications of e.m. waves</p>
	2 <sup>nd</sup> . wk.	<p>► <b>Properties of Solid and Liquid (Part – 1):-</b> Elastic behaviour, Stress-strain relationship, Hooke's Law, Young's modulus, bulk modulus, modulus of rigidity. Pressure due to a fluid column; Pascal's law and its applications. Viscosity, Stokes' law, terminal velocity, streamline and turbulent flow, Reynolds number. Bernoulli's principle and its applications. Surface energy and surface tension, angle of contact, application of surface tension-drops, bubbles and capillary rise.</p>	<p>► <b>Optics</b> Reflection and refraction of light at plane and spherical surfaces, mirror formula, Total internal reflection and its applications, Deviation and Dispersion of light by a prism, Lens Formula, Magnification, Power of a Lens, Combination of thin lenses in contact, Microscope and Astronomical Telescope (reflecting and refracting) and their magnifying powers</p>
	3 <sup>rd</sup> . wk.	<p>► <b>Properties of Solid and Liquid (Part – 2) Heat :-</b> Heat, temperature, thermal expansion; specific heat capacity, calorimetry ; change of state, latent heat. Heat transfer conduction, convection and radiation, Newton's law of cooling</p>	<p>► <b>Wave optics:</b> wavefront and Huygens' principle, 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. Resolving power of microscopes and astronomical telescopes, Polarisation, plane polarized light; Brewster's law, uses of plane polarized lights and Polaroids</p>
	4 <sup>th</sup> .wk.	<p>► <b>Comprehensive Test : One Exam on Class – XI; Unit – IV Syllabus</b></p> <p>► <b>Comprehensive Test : One Exam on Class – XII; Unit – IV Syllabus</b></p>	
Dec. (Unit – v)	1 <sup>st</sup> . wk.	<p>► <b>Thermodynamic</b> Thermal equilibrium, zeroth law of thermodynamics, concept of temperature. Heat, work and internal energy. First law of thermodynamics. Second law of thermodynamics: reversible and irreversible processes. Carnot engine and its efficiency</p>	<p>► <b>Dual Nature of Matter and radiation</b> Dual nature of radiation. Photoelectric effect, Hertz and Lenard's observations; Einstein's photoelectric equation; particle nature of light. Matter waves-wave nature of particle, de Broglie relation. Davisson Germer experiment</p>
	2 <sup>nd</sup> . wk.	<p>► <b>Kinetic Theory of Gas</b> Equation of state of a perfect gas, work done on compressing a gas .Kinetic theory of gases- assumptions, concept of pressure. Kinetic energy and temperature: r.m.s speed of gas molecules; Degrees of freedom, Law of equipartition of energy ,applications to specific heat capacities of gases; Mean free path, Avogadro's number</p>	<p>► <b>Atoms and Nuclei</b> Alpha-particle scattering experiment; Rutherford's model of atom; Bohr model, energy levels, hydrogen spectrum. Composition and size of nucleus, atomic masses, isotopes ,isobars; isotones. Radioactivity-alpha, beta and gamma particles/rays and their properties ,radioactive decay law. Mass-energy relation, mass defect; binding energy per nucleon and its variation with mass number, nuclear fission and fusion.</p>
	3 <sup>rd</sup> . wk.	► <b>Continuation of Unit -V</b>	► <b>Continuation of Unit -V</b>
	4 <sup>th</sup> . wk.	<p>► <b>Comprehensive Test : One Exam on Class – XI; Unit – V Syllabus</b></p> <p>► <b>Comprehensive Test : One Exam on Class – XII; Unit – V Syllabus</b></p>	
Jan. (Unit – vi)	1 <sup>st</sup> . wk.	<p>► <b>Oscillations</b> Periodic motion - period, frequency, displacement as a function of time. Periodic functions. Simple harmonic motion (S.H.M.) and its equation; phase; oscillations of a spring -restoring force and force constant; energy in S.H.M.- kinetic and potential energies; Simple Pendulum - derivation of expression for its time period; Free, forced and damped oscillations, resonance</p>	<p>► <b>Electronic Devices</b> Semiconductors; semiconductor diode: 1-V characteristics in forward and reverse bias; diode as a rectifier; 1-V characteristics of LED, photodiode, solar cell and Zener diode; Zener diode as a voltage regulator. Junction transistor, transistor action, characteristics of a transistor; transistor as an amplifier (common emitter configuration) and oscillator. Logic gates (OR, AND, NOT, NAND and NOR). Transistor as a switch</p>
	2 <sup>nd</sup> . wk.	<p>► <b>Wave</b> . Wave motion. Longitudinal and transverse waves, speed of a wave. Displacement relation for a progressive wave. Principle of superposition of waves, reflection of waves, Standing waves in strings and organ pipes, fundamental mode and harmonics, Beats, Doppler effect in sound</p>	<p>► <b>Communication Systems</b> Propagation of electromagnetic waves in the atmosphere; Sky and space wave propagation, Need for modulation, Amplitude and Frequency Modulation, Bandwidth of signals, Bandwidth of Transmission medium, Basic Elements of a Communication System (Block Diagram only).</p>
	3 <sup>rd</sup> . wk.	► <b>Continuation of unit -VI</b>	► <b>Continuation of unit -VI</b>
	4 <sup>th</sup> . wk.	► <b>Comprehensive Test : One Exam on Class – XI; Unit – VI Syllabus</b>	► <b>Comprehensive Test : One Exam on Class – XII; Unit – VI Syllabus</b>
F	1 <sup>st</sup> . wk.		► <b>Comprehensive Test on Full Syllabus Class – XII</b>

	2 <sup>nd</sup> . wk.	▶ Comprehensive Test on Full Syllabus Class - XI	x
	3 <sup>rd</sup> . wk.	x	▶ Comprehensive Test on Full Syllabus Class - XII
	4 <sup>th</sup> . wk.	▶ Comprehensive Test on Full Syllabus Class - XI	x
Mar.	1 <sup>st</sup> . wk.	x	▶ Comprehensive Test on Full Syllabus Class - XII
	2 <sup>nd</sup> . wk.	▶ Comprehensive Test on Full Syllabus Class - XI	x
	3 <sup>rd</sup> . wk.	x	▶ Comprehensive Test on Full Syllabus Class - XII
	4 <sup>th</sup> . wk.	▶ Comprehensive Test on Full Syllabus Class - XI	x
Apr.	1 <sup>st</sup> . wk.	▶ 02 Exams on NEET/ JEE MAIN Level (Full Syllabus)	
	2 <sup>nd</sup> . wk.	▶ 02 Exams on NEET/JEE MAIN Level (Full Syllabus)	
	3 <sup>rd</sup> . wk.	▶ 02 Exams on NEET/JEE MAIN Level (Full Syllabus)	
	4 <sup>th</sup> . wk.	▶ 02 Exams on NEET/JEE MAIN Level (Full Syllabus)	