

CLASS XI (2025-26)
PHYSICS (THEORY)

TIME: 3 Hrs

Max Marks: 70

		No. of Periods	Marks
Unit-I	Physical World and Measurement	08	23
	Chapter-2: Units and Measurements		
Unit-II	Kinematics	24	
	Chapter-3: Motion in a Straight Line		
	Chapter-4: Motion in a Plane		
Unit-III	Laws of Motion	14	
	Chapter-5: Laws of Motion		
Unit-IV	Work, Energy and Power	14	17
	Chapter-6: Work, Energy and Power		
Unit-V	Motion of System of Particles and Rigid Body	18	
	Chapter-7: System of Particles and Rotational Motion		
Unit-VI	Gravitation	12	
	Chapter-8: Gravitation		
Unit-VII	Properties of Bulk Matter	24	20
	Chapter-9: Mechanical Properties of Solids		
	Chapter-10: Mechanical Properties of Fluids		
	Chapter-11: Thermal Properties of Matter		
Unit-VIII	Thermodynamics	12	
	Chapter-12: Thermodynamics		
Unit-IX	Behaviour of Perfect Gases and Kinetic Theory of Gases	08	
	Chapter-13: Kinetic Theory		
Unit-X	Oscillations and Waves	26	10
	Chapter-14: Oscillations		
	Chapter-15: Waves		
Total		160	70

PRACTICALS

Total Periods: 60

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 From Text Book	Learning objective	Practical's and Activities
April	Chapter-2: Units and Measurements	After studying students are able to understand the concept of Physics-scope and excitement; nature of physical laws; Physics, technology and society. Need for measurement: Units of measurement; systems of units; SI units, fundamental and derived	<ul style="list-style-type: none">• To measure diameter of a small spherical/cylindrical body and to measure internal diameter and depth of a given beaker/calorimeter using

		units. Length, mass and time measurements; accuracy and precision of measuring instruments; errors in measurement; significant figures. Dimensions of physical quantities, dimensional analysis and its applications.	Vernier Calipers and hence find its volume. <ul style="list-style-type: none"> • To measure diameter of a given wire and thickness of a given sheet using screw gauge.
May	Chapter-3: Motion in a Straight Line Chapter-4: Motion in a Plane	<p>After studying students are able to understand the concept of Elementary concepts of differentiation and integration for describing motion, uniform and non- uniform motion, average speed and instantaneous velocity, uniformly accelerated motion, velocity - time and position-time graphs.</p> <p>Relations for uniformly accelerated motion</p> <p>Scalar and vector quantities; position and displacement vectors, general vectors and their notations; equality of vectors, multiplication of vectors by a real number; addition and subtraction of vectors, relative velocity, Unit vector; resolution of a vector in a plane, rectangular components, Scalar and Vector product of vectors.</p> <p>Motion in a plane, cases of uniform velocity and uniform acceleration- projectile motion, uniform circular motion.</p>	<ul style="list-style-type: none"> • To determine radius of curvature of a given spherical surface by a spherometer.
Summer vacation			
July	Chapter-5: Laws of Motion Chapter-6: Work, Energy and Power	<p>After studying students are able to understand the Concept of Law of conservation of linear momentum and its applications.</p> <p>Equilibrium of concurrent forces, Static and kinetic friction, laws of friction, rolling friction, lubrication.</p> <p>Dynamics of uniform circular motion: Centripetal force, examples of circular motion</p>	<ul style="list-style-type: none"> • Using a simple pendulum, plot its $L-T^2$ graph and use it to find the effective length of second's pendulum.

		<p>vehicle on a level circular road, vehicle on a banked road.</p> <p>Work done by a constant force and a variable force; kinetic energy, work-energy theorem, power.</p> <p>Notion of potential energy, potential energy of a spring, conservative forces: conservation of mechanical energy (kinetic and potential energies); non-conservative forces: motion in a vertical circle; elastic and inelastic collisions in one and two dimensions.</p>	
PT-1 Examination			
August	<p>Chapter-7: System of Particles and Rotational Motion</p> <p>Chapter-8: Gravitation</p>	<p>After studying students are able to understand the concept of Centre of mass of a two-particle system, momentum conservation and centre of mass motion. Centre of mass of a rigid body; centre of mass of a uniform rod.</p> <p>Moment of a force, torque, angular momentum, law of conservation of angular momentum and its applications.</p> <p>Equilibrium of rigid bodies, rigid body rotation and equations of rotational motion, comparison of linear and rotational motions.</p> <p>Moment of inertia, radius of gyration, values of moments of inertia for simple geometrical Objects.</p> <p>Universal law of gravitation. Acceleration due to gravity (recapitulation only) and its variation with altitude and depth.</p> <p>Gravitational potential energy and gravitational potential, escape velocity, orbital velocity of a satellite, Geo-stationary satellites.</p>	<ul style="list-style-type: none"> • To make a paper scale of given least count, e.g., 0.2cm, 0.5 cm. • To determine mass of a given body using a meter scale by principle of moments. • To study the variation in range of a projectile with angle of projection.
Half yearly Examination			
September	Chapter-9: Mechanical	After studying students are able to understand the concept of Stress-	

	Properties of Solids	strain relationship, Hooke's law, Young's modulus, bulk modulus.	
October	Chapter-10: Mechanical Properties of Fluids Chapter-11: Thermal Properties of Matter	<p>After studying students are able to understand the concept of Pressure due to a fluid column; Pascal's law and its applications (hydraulic lift and hydraulic brakes), effect of gravity on fluid pressure.</p> <p>Viscosity, Stokes' law, terminal velocity, streamline and turbulent flow, critical velocity, Bernoulli's theorem and its applications.</p> <p>Surface energy and surface tension, angle of contact, excess of pressure across a curved surface, application of surface tension ideas to drops, bubbles and capillary rise.</p> <p>Heat, temperature, thermal expansion; thermal expansion of solids, liquids and gases, anomalous expansion of water; specific heat capacity; Cp, Cv. calorimetry; change of state - latent heat capacity.</p> <p>Heat transfer-conduction, convection and radiation thermal conductivity, qualitative ideas of Blackbody radiation, Wein's displacement Law, Stefan's law, and Greenhouse effect.</p>	<ul style="list-style-type: none"> • To find the force constant of a helical spring by plotting a graph between load and extension. • To determine specific heat capacity of a given solid by method of mixtures. • To study the relation between frequency and length of a given wire under constant tension using sonometer.
PT 2 Examination			
November	Chapter-12: Thermodynamics Chapter-13: Kinetic Theory	<p>After studying students are able to understand the concept of Thermal equilibrium and definition of temperature (zeroth law of thermodynamics), heat, work and internal energy. First law of thermodynamics, isothermal and adiabatic processes.</p> <p>Second law of thermodynamics: reversible and irreversible processes.</p> <p>Equation of state of a perfect gas, work done in compressing a gas.</p>	<ul style="list-style-type: none"> • To observe the decrease in pressure with increase in velocity of a fluid. • To study the factors affecting the rate of loss of heat of a liquid. • To study the effect of detergent on surface tension of water by observing capillary rise.

		Kinetic theory of gases - assumptions, concept of pressure. Kinetic interpretation of temperature; rms speed of gas molecules; degrees of freedom, law of equi-partition of energy (statement only) and application to specific heat capacities of gases; concept of mean free path, Avogadro's number.	
December	Chapter-14: Oscillations Chapter-15: Waves	After studying students are able to understand the concept of Periodic motion - time period, frequency, displacement as a function of time, periodic functions. Simple harmonic motion (S.H.M) and its equation; phase; oscillations of a loaded 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 (qualitative ideas only), resonance. Wave motion: Transverse and longitudinal waves, speed of travelling wave, displacement relation for a progressive wave, principle of superposition of waves, reflection of waves, standing waves in strings and organ pipes, Beats	
Model Test Paper			
January		Revision of chapters: Physical World, Units and Measurements, Motion in a Straight Line, Motion in a Plane, Laws of Motion, Work, Energy and Power, System of Particles and Rotational Motion, Gravitation	
February		Revision of chapters: Mechanical Properties of Solids, Mechanical Properties of Fluids, Thermal Properties of Matter, Thermodynamics, Kinetic Theory, Oscillations, Waves	

	Annual Examination
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