

**ICSE · CLASS 10**

Physics (Science Paper 1)

Official CISCE Physics specification covering classical mechanics (turning effects, work, power, energy, machines), light optics, wave acoustics, current electricity & magnetism, calorimetry, and radioactivity.

Board: Council for the Indian School Certificate Examinations**Theory:** 80 Marks**Internal/Practical:** 20 Marks**Exam Duration:** 2 Hours

UNIT-WISE SYLLABUS & MARKS BREAKDOWN

UNIT	CHAPTERS & PRESCRIBED TOPICS	MARKS
Section 1	Force, Work, Power and Energy Turning effect of a force, moment of force, couple, equilibrium of bodies, principle of moments, centre of gravity; Work, power, energy: SI units, work done against gravity, kinetic energy formula ($\frac{1}{2}mv^2$), potential energy (mgh), law of conservation of mechanical energy (freely falling body, simple pendulum); Machines: Technical terms (MA, VR, Efficiency), Levers (Class I, II, III), Pulley systems (Single fixed, single movable, block and tackle)	16
Section 2	Light Refraction of light through glass slab and prism, laws of refraction, refractive index, lateral displacement, critical angle, total internal reflection, applications in prisms (30° - 60° - 90° , 45° - 45° - 90° , equilateral); Refraction through lenses: Convex and concave lenses, ray diagrams, principal focus, focal length, sign convention, lens formula, power of a lens, magnifying glass; Electromagnetic spectrum: Scope and properties of gamma, X-rays, UV, visible, IR, microwaves, radio waves	16
Section 3	Sound Reflection of sound waves, echoes, determination of speed of sound, radar, sonar, medical uses; Vibrations: Natural, damped, forced vibrations and resonance (loudness, pitch, quality of sound vs amplitude, frequency, waveform)	10
Section 4	Electricity and Magnetism Ohm's Law: $V=IR$, resistance, factors affecting resistance, resistivity, internal resistance of cell, EMF, terminal voltage; Resistors in series and parallel; Electrical energy and power ($P = VI = I^2R = V^2/R$); Household circuits: Main circuit, ring system, three-pin socket, switches, fuses, earthing; Magnetic effects: Oersted experiment, magnetic field around straight wire, circular coil, solenoid, electromagnet vs permanent magnet; Electromagnetic induction: Faraday's laws, Lenz's law, AC generator, transformer	20
Section 5	Heat (Calorimetry) Concepts of Heat and Temperature; Heat capacity and specific heat capacity ($Q = mc\Delta T$), principle of method of mixtures, domestic and climatic consequences of high specific heat of water; Latent heat: Specific latent heat of fusion (ice), phase change graphs, numerical problems on mixture methods	10
Section 6	Modern Physics	08

UNIT	CHAPTERS & PRESCRIBED TOPICS	MARKS
	Radioactivity: Nuclear structure, atomic number and mass number; Radioactivity as a nuclear phenomenon; Radiation: α , β , and γ emissions (properties, ionizing power, penetrating power, deflections in electric & magnetic fields); Nuclear fission and fusion; Radiation safety precautions	

INTERNAL / PRACTICAL ASSESSMENT SCHEME (20 MARKS)

EVALUATION COMPONENT	MARKS WEIGHTAGE
Practical Examination Execution of 10 laboratory experiments from mechanics, optics, and electrical circuits	20 Marks

RECOMMENDED REFERENCE LITERATURE

Prescribed Textbooks: Concise Physics Class 10 (Selina), Dalal Simplified ICSE Physics, Excellence Formula Compendium

The Excellence Tuition Edge

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