PH-123 GENERAL PHYSICS-I

Mechanics: Vector algebra and its applications, Line and Surface Integrals and their applications, Gradient, Curl, Divergence and applications, Newton's laws and their applications, Motion in two dimension, Moment of inertia, Angular momentum and its conservation, Work, energy and power, Efficiency, Work done by a variable force.

Properties of Matter: Elasticity, Bulk Modulus, Modulus of Rigidity, Young's Modulus, Poisson's ratio for rubber, Torsion Pendulum, Bending Beams, Fluids, Liquids and Gases, Hydrostatic Pressure, Hydrostatic Pressure due to Liquid Column, Manometer, Viscosity, Coefficient of Viscosity, Variation of Viscosity with Temperature, Molecular Forces, Surface Tension, Explanation of Surface Tension, Surface Films and Surface Energy, Capillary action in a liquid, Surface Tension and its variation with Temperature.

Heat & Thermodynamics: Temperature and heat, thermal properties of matter, laws of thermodynamics, statistical mechanics, Heat transfer, Heat engines and rerigrators

Waves and Optics: Wave properties, types and behaviour. The wave equation. Progressive and standing waves. Nature of sound: propagation, velocity, infrasonic and ultrasonic waves, Variation of velocity of sound with temperature, Sound intensity, loudness and the decibel. The Doppler Effect. Water waves, wave motion in deep and shallow water, tides. Principles of Meteorology, wind systems ,Electromagnetic spectrum: general properties of Reflection, Refraction, Snell's Law, Total internal reflection, fibre optics and their applications, lenses and associated applications. Interference, diffraction . Polarisation. Microscopes and Telescopes, Sextant, Spectrometer.