



Total marks: 100

Duration: 120 minutes

Level :XII (Science)

**Please note: The scoring is -0.33 marks per wrong attempt**

S.NO	SUBJECT
1	<b>ENGLISH</b> <ul style="list-style-type: none"><li>• Sentence Completion</li><li>• Grammar</li><li>• Vocabulary</li></ul>
2	<b>MATHEMATICS</b> <p><b>Number and operations</b></p> <ul style="list-style-type: none"><li>• Operations, ratio and proportion, averages, percentage, elementary number theory, fractions and decimals, sequences (Arithmetic Mean only,)</li></ul> <p><b>Algebra and functions</b></p> <ul style="list-style-type: none"><li>• Expressions (up to cubic level), equations (up to quadratic level), properties of functions (linear, polynomial, rational)</li></ul> <p><b>Geometry and mensuration</b></p> <ul style="list-style-type: none"><li>• Plane Geometry ( Lines and angles, triangles, square, rectangle, parallelogram, trapezium, rhombus, quadrilaterals and other polygons restricted to 4 sided figures, circles )</li><li>• Co-ordinate Geometry (lines and circles)</li><li>• Three-dimensional Solids (Surface area and volume of cubes, cylinders, cones, spheres and combination of shapes)</li></ul> <p><b>Trigonometry</b></p> <ul style="list-style-type: none"><li>• Application questions calculation of height and distances</li><li>• Right triangles, identities including expressing trig functions in terms of their complements and identities for negative angles</li></ul>
3	<b>PHYSICS</b> <p><b>Mechanics</b></p> <p><b>Kinematics</b>, such as velocity, acceleration, motion in one dimension.</p> <ul style="list-style-type: none"><li>• <b>Dynamics</b>, such as force, Newton's laws, statics, and friction</li><li>• <b>Energy and Momentum</b>, such as potential and kinetic energy, work, power, impulse, and conservation laws</li><li>• <b>Circular Motion</b>, such as uniform circular motion and centripetal force</li><li>• <b>Simple Harmonic Motion</b>, such as pendulum</li><li>• <b>Gravity</b>, such as the law of gravitation, orbits, and Kepler's laws</li></ul>

S.NO	SUBJECT
	<p>Electricity and magnetism</p> <ul style="list-style-type: none"> <li>• Electric Fields, Forces, and Potentials, such as Coulomb's law, induced charge, field and potential of groups of point charges, and charged particles in electric fields</li> <li>• Capacitance, such as parallel-plate capacitors and time-varying behavior in charging/ discharging</li> <li>• Circuit Elements and DC Circuits, such as resistors, light bulbs, series and parallel networks, Ohm's law, and Joule's law</li> <li>• Magnetism, such as permanent magnets, fields caused by currents, particles in magnetic fields, Faraday's law, and Lenz's law</li> </ul> <p>Waves and optics</p> <ul style="list-style-type: none"> <li>• General Wave Properties, such as wave speed, frequency, wavelength, superposition, standing wave diffraction and Doppler effect</li> <li>• Reflection and Refraction, such as Snell's law and changes in wavelength and speed</li> <li>• Ray Optics, such as image formation using pinholes, mirrors, and lenses</li> </ul> <p>Heat and thermodynamics</p> <ul style="list-style-type: none"> <li>• Thermal Properties, such as temperature, heat transfer, specific and latent heats, and thermal expansion</li> <li>• Laws of Thermodynamics, such as first and second laws, internal energy, entropy, and heat engine efficiency</li> </ul>
4	<p><b>CHEMISTRY</b> States of matter</p> <ul style="list-style-type: none"> <li>• Gases, including the kinetic molecular theory, Charles law, Boyle's law, the gas laws / relationships, molar volumes, density.</li> <li>• Liquids and Solids</li> </ul> <p>Reaction types</p> <ul style="list-style-type: none"> <li>• The chemistry of acids and bases</li> <li>• Conjugate acid- base pairs</li> </ul>
5	<p><b>GENERAL KNOWLEDGE</b></p> <ul style="list-style-type: none"> <li>• Geography (Capitals, Oceans, Ports, Waterways, produce of countries, weather etc.)</li> </ul>
6	<p><b>APTITUDE</b></p> <ul style="list-style-type: none"> <li>• Qualitative reasoning</li> <li>• Quantitative reasoning</li> <li>• Abstract reasoning)</li> <li>• Spatial reasoning</li> <li>• Logical reasoning</li> </ul>