

**HELIX SCHOLARSHIP CUM ADMISSION TEST FOR 11th NON-MEDICAL**

**Test Date : 5-11-2023**

**(for Students studying in 10th and moving to 11th Non-Medical for IIT-JEE)**

Time Duration : 1 Hr. 50 Min

**HSAT SYLLABUS**

Total Marks : 260

**SCIENCE**

**Section- A : 36 QUESTIONS (144 MARKS)**

• **Light – Reflection and Refraction**

Reflection of light by curved surfaces; Images formed by spherical mirrors, centre of curvature, principal axis, principal focus, focal length, mirror formula, magnification. Refraction; Laws of refraction, refractive index. Refraction of light by spherical lens; Image formed by spherical lenses; Lens formula ; Magnification. Power of a lens.

• **Human eye and colourful world**

Refraction of light through a prism, dispersion of light, scattering of light, applications in daily life.

• **Chemical reactions and equations**

Chemical equation, Balanced chemical equation, implications of a balanced chemical equation, types of chemical reactions: combination, decomposition, displacement, double displacement, precipitation, neutralization, oxidation and reduction.

• **Acids, Bases and Salts**

Their definitions in terms of furnishing of  $H^+$  and  $OH^-$  ions, General properties, examples and uses, concept of pH scale, importance of pH in everyday life; preparation and uses of Sodium Hydroxide, Bleaching powder, Baking soda, Washing soda and Plaster of Paris.

• **Metals and non-metals**

Properties of metals and non-metals; Reactivity series; Formation and properties of ionic compounds.

**MATHEMATICS**

**Section- B : 20 QUESTIONS (80 MARKS)**

- Real Numbers      • Polynomials      • Quadratic Equations      • Triangles
- Coordinate Geometry      • Arithmetic Progressions
- Pair of Linear Equation in Two Variables

**APTITUDE AND LOGICAL THINKING**

**Section- C : 9 QUESTIONS (36 MARKS)**

- Alphanumeric Series      • Directions      • Blood Relations      • Arithmetic Aptitude
- Coding-Decoding      • Age Problems      • Dices

**HSAT PATTERN**

- i. The question paper will be of objective type in pen-paper format using OMR sheet.
- ii. There will be 65 objective type questions. Section-A will have 36 Questions and Section-B will have 20 Questions and Section-C will have 9 Questions.
- iii. Section-A will carry 144 Marks and Section-B will carry 80 Marks and Section-C will carry 36 Marks. Total Question Paper will carry 260 Marks.
- iv. Duration of Test will be 1 hour 50 minutes.
- iii. Each question carries 4 marks for correct answer.
- iv. There will be **NO** negative marking.