

M.L. Syal's Helix Institute

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HELIX SCHOLARSHIP CUM ADMISSION TEST FOR 11th NON-MEDICAL

Test Date : 27-10-2024

(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
- Pair of Linear Equation in Two Variables
- Quadratic Equations
- Arithmetic Progressions
- Coordinate Geometry
- Trigonometry & its application

APTITUDE AND LOGICAL THINKING

Section- C : 9 QUESTIONS (36 MARKS)

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

HSAT PATTERN

- The question paper will be of objective type in pen-paper format using OMR sheet.
- 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.
- 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.
- Each question carries 4 marks for correct answer.
- There will be **NO** negative marking.