

# M.L. Syal's Helix Institute

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## SYLLABUS OF SCHOLARSHIP cum ADMISSION Test (30-10-2022)–Non-Medical-(JEE)

[for Students studying in 10th and moving to 11th Non-Medical for JEE (Advanced)]

Duration of Test : 1 hr. 50 minutes

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)

- Number systems
- Algebra
- Coordinate Geometry
- Geometry
- Trigonometry
- Mensuration
- Statistics & Probability

### APPTITUDE AND LOGICAL THINKING (Section- C)

9 QUESTIONS (36 MARKS)

Alphanumeric series ; Blood Relations ; Coding-Decoding ; Dices ; Directions ; Arithmetic aptitude ; Age problems

#### Pattern of test :

- i. The question paper will be of objective type in pen-paper format using OMR sheet.
- ii. There will be 65 objective type questions
- iii. Each question carries **4** marks for correct answer.
- iv. There will be no negative marking.