

BIRLA HIGH SCHOOL – MUKUNDAPUR

SYLLABUS FOR ADMISSION TEST FOR ADMISSION TO CLASS XI 2026-27

PHYSICS

1. 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 (Derivation not required), magnification. Refraction; Laws of refraction, refractive index. Refraction of light by spherical lens; Image formed by spherical lenses; Lens formula (Derivation not required); Magnification. Power of a lens.

2. Human eye and Colourful World:

Functioning of a lens in human eye, defects of vision and their corrections, applications of spherical mirrors and lenses. Refraction of light through a prism, dispersion of light, scattering of light, applications in daily life.

3. Electricity:

Electric current, potential difference and electric current. Ohm's law; Resistance, Resistivity, Factors on which the resistance of a conductor depends. Series combination of resistors, parallel combination of resistors and its applications in daily life. Heating effect of electric current and its applications in daily life. Electric power, Interrelation between P, V, I and R.

CHEMISTRY

1. Chemical reactions:

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

2. Acids, bases and salts:

Their definitions in terms of furnishing of H^+ and OH^- ions, General properties, examples and uses, neutralization, concept of pH scale (Definition relating to logarithm not required), importance of pH in everyday life; preparation and uses of sodium hydroxide, bleaching powder, baking soda, washing soda and plaster of Paris.

3. Metals and non-metals:

Properties of metals and non-metals; Reactivity series; Formation and properties of ionic compounds; Basic metallurgical processes; Corrosion and its prevention.

MATHEMATICAL APTITUDE

1. Polynomials:

Zeros of a polynomial. Relationship between zeros and coefficients of quadratic polynomials.

2. Pair of Linear Equations in Two Variables:

Pair of linear equations in two variables and graphical method of their solution, consistency/inconsistency. Word problem, Solution of a pair of linear equations in two variables algebraically - by substitution, by elimination.

3. Quadratic Equations:

Standard form of a quadratic equation $ax^2 + bx + c = 0$, ($a \neq 0$). Solutions of quadratic equations (only real roots) by factorization, and by using quadratic formula. Relationship between discriminant and nature of roots.

4. Arithmetic progressions:

Derivation of the n^{th} term and sum of the first n terms of A.P. and their application.

5. Real Numbers: HCF, LCM of positive integers and word problems, simplification on irrational numbers.

6. Geometry – Similar Triangles (including Basic Proportionality Theorem): Definitions, examples, counter examples of similar triangles.

7. Coordinate Geometry: Classical definition of probability. Simple problems on finding the probability of an event.

8. Coordinate Geometry: Distance and section formula (internal division), mid-point.

MATHEMATICS

1. Polynomials:

Zeros of a polynomial. Relationship between zeros and coefficients of quadratic polynomials.

2. Pair of Linear Equations in Two Variables:

Pair of linear equations in two variables and graphical method of their solution, consistency/inconsistency. Word problem Solution of a pair of linear equations in two variables algebraically - by substitution, by elimination.

3. Quadratic Equations:

Standard form of a quadratic equation $ax^2 + bx + c = 0$, ($a \neq 0$). Solutions of quadratic equations (only real roots) by factorization, and by using quadratic formula. Relationship between discriminant and nature of roots.

4. Arithmetic progressions:

Derivation of the n^{th} term and sum of the first n terms of A.P. and their application.

5. Introduction to Trigonometry:

Trigonometric ratios of an acute angle of a right-angled triangle, relationships between the ratios. Proof and applications of the identity $\sin^2 A + \cos^2 A = 1$. Only simple identities to be given.

6. Real Numbers: HCF, LCM of positive integers and word problems, simplification on irrational numbers.

7. Geometry – Similar Triangles (including Basic Proportionality Theorem):

Definitions, examples, counter examples of similar triangles.

8. Probability:

Classical definition of probability. Simple problems on finding the probability of an event.

9. Coordinate Geometry: Distance and section formula (internal division), mid-point.

ENGLISH

READING: COMPREHENSION

UNSEEN PROSE:

(PASSAGE/EXTRACT FOLLOWED by VSAQ's & MCQ's INCLUDING VOCABULARY)

WRITING: COMPOSITION

LETTER WRITING (FORMAL & INFORMAL).

COMPOSITION: (any one)

STORY WRITING (BASED ON VERBAL OR VISUAL INPUT)

Or

NARRATIVE, DESCRIPTIVE, ARGUMENTATIVE

(in about 250-300 words)

GRAMMAR:

GAP-FILLING, SENTENCE COMPLETION /DIALOGUE-COMPLETION, REORDERING
WORD GROUPS INTO SENTENCES, EDITING PASSAGES, OMISSION, SENTENCE
TRANSFORMATION

TOPICS: ARTICLES, TENSES, PREPOSITIONS, CONJUNCTIONS NON-FINITES
CONDITIONALS SUBJECT –VERB CONCORD DIRECT & INDIRECT SPEECH ACTIVE &
PASSIVE VOICE

ARTICLES, TENSES, PREPOSITIONS, CONJUNCTIONS NON-FINITES CONDITIONALS
SUBJECT – VERB, CONCORD DIRECT & INDIRECT SPEECH ACTIVE & PASSIVE
VOICE