SYLLABUS

ENGLISH

(As per 10th class Grammar of NCERT) :-

1. Active & Passive, Avoiding Repetition, Comparisions, Conditionals, Connectors, Modals-Expressing Attitude, Nominalisation.

(05 Questions)

2. Non-finites, Preposition, Relatives, Reporter Speech, Subject Verb agreement, Articles, Determiners.

(05 Questions)

3. Countable and Uncountable Nouns, Detecting & Correcting errors, Dialogue Completion, Fill in the blanks with suitable words, Re-arranging jumble words or phrases.

(05 Questions)

4. Future time reference, Present Continuous Tense, Present Perfect Tense, Present Perfect VS Simple Past, Simple Past VS Past Pefect.

(05 Questions)

(Total Questions)

PHYSICS

(Syllabus As per NCERT)

(1) LIGHT — (20 Questions)

(i) Reflection and refraction :

Reflection :- Laws, spherical mirrors, Images formed by spherical mirrors (Concave and convex mirror) with ray diagram, uses of Mirrors, sign convention and Mirror formula, magnification.

Refractions :- Laws, refraction through glass lab, refractive index, refraction by spherical lenses, images formed by convex and concave lenses, sign convention and lens formula, magnification and power of a lens, Refraction through prism, application of refraction.

(ii) Human eye :- Power of accommodation, defects of vision and their correction.

(iii) Scatttering and dispersion of light and its simple applications :

(2) Electricity — (15 Questions)

Electric Current, Electric Potential, Potential difference, Ohms Law, Resistance, factor on which resistance of conductor depends

(3) Magnetic Effect of Electric Current — (10 Questions)

Magnetic field and field lines, Biot-Savarts law and its application, force on a current carrying conductor placed in magnetic field, Electric Motor, Electromagnetic Induction, Electric generator, domestic electric circuits.

(4) Sources of Energy and Environment — (05 Questions)

(i) Different forms of energy (Fossil fuels, wind energy, solar energy, tidal energy, geothermal energy and nuclear energy).

(ii) Eco-system and its components, ozone layer, management of natural resources.

(Total 50 Questions)

CHEMISTRY
(Syllabus As per NCERT)

(Total 30 Questions)

(1) Structure of the atom : **(05 Questions)**

Charged particles in matter, structure of an atom (Thomson's model of an atom, Rutherford's model of an atom, bohr's model of an atom, Neutrons), How are electronic distributed in different orbits (shells), valency, Atomic number, Mass number Isotopes & Isobars.

(2) Chemical Reactions & Equations : **(05 Questions)**

- Chemical Equation
  - Writing a Chemical Equation
  - Balanced Chemical Equation
- Types of Chemical Reactions
  - Combination Reaction
  - Decomposition Reaction
  - Displacement Reaction
  - Double Displacement reaction
  - Oxidation and Reduction
- Have you observed the effects of oxidation Reaction in everyday life ?
- Corrosion
- Rancidity

(3) Acids Bases and Salts **(05 Questions)**

- Understanding the Chemical properties of Acids and Bases.
  - Acids and Bases in the Laboratory
  - How do Acids and Bases react with metals ?
  - How do mental carbonates and metal Hydrogen carbonates react with Acids ?
  - How do Acids and Bases react with each other ?
  - Reaction of metallic oxides with Acids
  - Reaction of non metallic oxides with Base
  - What do all Acids and all Bases have in common ?
  - What happens to an Acid or a Base in Water solution ?
- How strong are Acid or Base solutions ?
  - Importance of pH in everyday life
  - Are plants and animals pH sensitive
  - What is the pH of the soil in your backyard
  - pH in our digestive system
  - pH change as the cause of tooth decay
  - Self defence by animals and plants through chemical war fare
- More about salts
  - Family of salts
  - pH of salts
  - Chemical from common salt
  - Common salts - A raw materials for chemicals
  - Sodium Hydroxide
  - Bleaching powder
  - Baking Soda
  - Uses of Sodium Hydrogen carbonate
  - Washing Soda
  - Uses of washing Soda
- Are the crystals of salts really dry ?
  - Plaster of Paris

(4) Metal & Non Metals **(05 Questions)**

- Metals
- Non-metals
- Chemical properties of metals
- What happens when metals are burnt in air ?
- What happens when metals react with watr ?
- What happens when metals react with acid ?
- How are metals react with solution of other metals salts
- The reactivity series
- How do metals and Non-metals reacts ?
- Properties of ionic compounts
- Occurrence of metals
  - Extraction of metals
  - Enrichment of ores
  - Extracting metals low in the activity series.
  - Extracting metals in the middle of activity series.
  - Extracting metals towards the top of the activity series.
  - Refining of metals
  - Electrolytic Refining
- Corrosion
  - Prevention of corrosion

(5) Carbon and its Compounds **(05 Questions)**

- Bonding in carbon - the covalent bond
- Versatile nature of carbon
  - Saturated and un-saturated compounds
  - Chains branches and ringhs
  - Will you be my friend ?
  - Homologous Series
  - Nomenclature of carbon compounds
- Chemical Properties of carbon compounds
  - Combustion
  - Oxidation
  - Addition reaction
  - Substitution reaction
- Some Important Carbon compound ethanol and ethanoic acid
  - Properties of ethanol
  - Properties of ethanoic acid
- Soap and detergents

(6) Periodic Classification of Elements **(05 Questions)**

- Making order out of chaos early attempts at the classification of elements
  - Dovereiner's Triads
  - Newlands Law of Octaves
- Making order out of Chaos Mendeleev's periodic table
  - Position of elements in the modern periodic table
  - Trends in the modern periodic table
    - Valency
    - Atomic size
    - Metallic and Non metallic properties

MATHEMATICS
(Syllabus As per NCERT)

1. **REAL NUMBERS** **(04 Questions)**
   - Introduction
   - Euclid's division lemma
   - The Fundamental Theorem of Arithmetic
   - Revisiting Irrational Numbers
   - Revisiting Rational Numbers and their Decimal Expansions
2. **Polynomials** **(02 Questions)**
   - Chemical Equation
   - Geometrical Meaning or zeros of Polynomial
   - Relationship between zeros and Coefficients of a Polynomial
   - Division Algorithm for Polynomials
3. **Pair of Linear Equations in two Variables** **(03 Questions)**
   - Introduction
   - Pair of Linear Equation in two variables
   - Graphical Method of solution of a Pair of Linear Equations
   - Algebraic Method of solving a pair of linear Equations
     - Substitution Method
     - Elimination Method
     - Cross-Multiplication Method
4. **Quadratic Equations** **(04 Questions)**
   - Introduction
   - Quadratic Equations
   - Solution of quadratic equations by factorization
   - Solution of quadratic equations by completing square
   - Nation of Roots
5. **Arithmetic Progression** **(05 Questions)**
   - Introduction
   - Arithmetic Progression
   - n^{th} term of A.P.
   - Sum of n terms of an A.P.
6. **Triangles** **(02 Questions)**
   - Similar Triangles
   - Criteria for similarity of triangles
   - Areas of Similar Triangles
   - Pythagoras Theorem
7. **Co-ordinate Geometry** **(04 Questions)**
   - Introduction
   - Distance Formula
   - Section Formula
   - Area of Triangle

8. **Trigonometry** **(04 Questions)**
   - Introduction
   - Trigonometric Ratio
   - Trigonometric Ratio of some specific Angles
   - Trigonometric Ratio of complementray Angles
   - Trigonometric Identities
   - Heights and Distances

9. **Circles** **(04 Questions)**
   - Introduction
   - Tangent to a Circle
   - Number of Tangents from a point to a Circle

10. **Constructions** **(02 Questions)**
   - Division of line segment
   - Construction of tangents to a circle

11. **Area Related to Circles** **(05 Questions)**
   - Introduction
   - Perimeter and Area of Circle
   - Areas of Sector and Segment of a Circle
   - Areas of combination of plane figures

12. **Surface Areas and Volumes** **(04 Questions)**
   - Introduction
   - Surface Area of combination of solids
   - Volume of a combination of solids
   - Conversion of solid from one Shape to Another
   - Frustum of a cone

13. **Statistics** **(03 Questions)**
   - Mean of Grouped Data
   - Mode of Grouped Data
   - Median of Grouped Data

14. **Probability** **(04 Questions)**
   - Introduction
   - Probability A Theoretical approach

(Total 50 Questions)