

**INTERMEDIATE –SYLLABUS**  
**(w.e.f 2009-10)**  
**GEOLOGY – PAPER –I**

**I Physical Geology:**

1. Definition and branches of Geology. It's relation with other disciplines scope and importance of Geology.
2. Solar system
3. Origin of the earth and age of the earth
4. Interior of the earth – size, dimension and shape
5. Earth movements – Introduction to Continental drift and plate tectonics
6. Earth quakes – seismic waves, types and effects
7. Volcanoes – Origin, types, forms and products of Volcanoes
8. Weathering – physical and Chemical, causes, factors and products of weathering
9. Rivers – Types of rivers, Geological process of erosion and deposition. Different Stages of river development. Land forms – Erosional and depositional
10. Glaciers – Types of glaciers, geological process and land forms.
11. Marine – Types of oceans – Relief and zones of ocean basins. Geological process marine erosion and deposition. Coral reefs
12. Ground water – Hydrological cycle, occurrence and vertical distribution. Aquifers. Geological action of ground water. Stalactites and stalagmites.
13. wind or Eolian process – Erosional and depositional land forms

**II Structural Geology**

1. Introduction to structural Geology – Its scope and objects. Strike and dip. Clinometer - compass
2. A brief study on folds, faults, Joints and unconformities.

**III Crystallography**

1. Crystal definition – Face, Edge, Solid angle, Interfacial angle, contact - Goniometer. Crystal parameters.
2. Different types of symmetry and forms.
3. Classification of crystals into 7 systems.
4. Morphological study of cubic, Tetragonal, Hexagonal, Trigonal, Orthorhombic, Monoclinic and Triclinic systems.

## **IV Mineralogy**

1. Mineral definition – Rock forming and Economic minerals – Physical properties of minerals viz – Colour, Streak, Form, Luster, Fracture, Cleavage, Hardness and Specific gravity.
2. Silicate structures.
3. Descriptive mineralogy – Physical properties, chemical composition and mode of occurrence of the following mineral groups
  - i. Quartz
  - ii. Feldspars – Ophoclase, Microcline and Plagioclase.
  - iii. Feldspathoids – Leucite and Nephelene.
  - iv. Pyroxenes – Enstatite, Hypersthene, Diopside and Augite.
  - v. Amphiboles – Anthophyllite, Tremolite, Actinolite and Hornblende.
  - vi. Garnets – Grossularite, Pyrope and Almandine
  - vii. Micas – Muscovite and Biotite
  - viii. Other minerals – Olivine, Topaz, Kyanite, Calcite, Talc, Beryl, Corundum, Apatite, Gypsum and Tourmaline

## **PRACTICALS**

(Physical Geology, Crystallography and Mineralogy)

I Geomorphology models of Rivers, – Ground water and volcanoes.

II Crystallography : Simple Normal class forms.

Cubic system : Cube, octahedron, Dodecahedron, Tetrahedron,  
Trapezohedron and Hexaoctahedron Trisoctahedron.

Tetragonal system: Basal Pinacoid, Prisms and Pyramids

Orthorhombic : Pinacoids, Prisms and Pyramids

Monoclinic : Pinacoids & Pyramids

Triclinic : Pinacoid, Prisms & Pyramids

Hexagonal : Prisms & Pyramids

III Mineralogy: Identification of rock forming minerals as per the theory syllabus.