INTERMEDIATE –SYLLABUS
(w.e.f 2014-15)
GEOLOGY – PAPER –I

I Physical Geology:

1. Geology – Introduction, Branches – Its relation with other disciplines – Scope and applications.
2. Solar system, Origin and Age of the earth
3. Earth's Interior (Crust, Mantle and Core) and Exterior (Atmosphere, Hydrosphere and Biosphere).
4. Rock Weathering – physical, Chemical and Biological.
5. Geological Agents and their action – Erosion, Transportation and Deposition.
6. Wind – Geological action, Erosional and depositional land forms.
7. Geological action of rivers, Stages of river development, Erosional and depositional land forms.
8. Glaciaers – Types, geological action and land forms.
9. Geological action of underground water - Stalactites and stalagmites, Karst Topography.
10. Oceans – Coastal and Submarine geological processes, Coral reefs, Tsunamis.
11. Valcanoes – Definition, parts, types and products.
12. Earthquakes – Definition, Seismic waves, types, Seismograph, effects and distribution in the world.
13. Concept of Continental drift and plate tectonics.

II Structural Geology

1. Structural Geology – Definition and objectives, Strike and dip, Clinometer/Brunton compass
2. Study of important structural features - folds, faults, Joints and unconformities.

III Crystallography

1. Introduction to Crystallography, Crystal – Definition, Morphology, Axes, Elements of Symmetry, Forms, Parameters and Indices.

2. Classification of crystals into 7 crystal systems.

3. Morphological study of Normal class of Cubic, Tetragonal, Hexagonal, Trigonal, Orthorhombic, Monoclinic and Triclinic systems.

IV Mineralogy

1. Introduction, Mineral – Definition and types, Physical properties of Minerals.

2. Silicate structures.

3. Descriptive mineralogy – Physical properties, chemical composition and mode of occurrence of the following mineral groups:

i. Quartz
ii. Feldspars
iii. Pyroxenes
iv. Amphiboles
v. Micas
vi. Other minerals – Olivine, Garnet, Topaz, Kyanite, Calcite, Talc, Beryl, Corundum, Apatite, Gypsum and Barytes.

4. Optical Mineralogy – Introduction, thin sections, Polarizing Microscope, Optical properties of minerals.

PRACTICALS

(Physical Geology, Crystallography and Mineralogy)

I Geomorphological models of Rivers, Ground water and volcanoes.

II Crystallography : Simple, Normal class forms.

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

Tetrigonal system: Basal Pinacoid, Prisms and Pyramids

Orthorhomibic : 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.