

# **Geology**

## **Paper – II**

### **I. PETROLOGY**

1. Rock Types:- Igneous, sedimentary and Metamorphic rocks; Rock cycle; characteristics of the rocks.

2. Igneous Rocks:- Forms of igneous rocks – Intrusive & extrusive forms; structures of igneous rocks; Textures of igneous rocks; classification of igneous rocks; introduction to origin of igneous rocks; Description of igneous rocks: Granite, syenite, Diorite, Gabbro, Dunite, Dolerite, Peridotite, Pegmatite, Andesite and Basalt.

3. Sedimentary Rocks: Formation of sedimentary rocks; structures of sedimentary rocks, Textures of sedimentary rocks; classification of sedimentary rocks – Clastic, Non-clastic and Residual rocks. Description of sedimentary rocks: Breccia, conglomerate, sand stone, shale, Lime stone and Laterite.

4. Metamorphic Rocks: Metamorphism; Agents and types of metamorphism; Zones of metamorphism; classification of metamorphic rocks; Structures and textures of metamorphic rocks; Description of Metamorphic rocks:- slate; Marble; Quartzite; Schist; Gneiss; charnockite and khondalite.

### **II. Economic Geology:**

1. Introduction – Classification of mineral deposits.
2. Processes of formation of mineral deposits: Magmatic, Hydrothermal, Residual and Mechanical concentration, Oxidation and supergene enrichment, sublimation, Evaporation, Sedimentation, Metamorphism and Contact meta somatic processes.
3. Metallic Minerals: origin, occurrence, distribution and uses of the following minerals: Gold; Iron; Manganese; Chromium; Copper; Lead & Zinc and Aluminium.
4. Non – Metallic Minerals: Origin, occurrence, distribution and uses of the following minerals: Muscovite Mica, Asbestos, Barite, Talc, Gypsum, Quartz, Corundum and Graphite.
5. Fuels: Coal – Types and formation of coal; Distribution of coal in India. Petroleum & Natural Gas – Formation, Distribution of Petroleum & Natural Gas in India.
6. Mineral riches of A.P.

### **III. Stratigraphy and Indian Geology:**

1. Introduction: Definition, objectives & Scope;
2. Introduction to Principles of Stratigraphy and Correlation

3. Geological Time scale.
4. Physiographic divisions of India
5. Archeans – Succession and Mineral Wealth of Archeans
6. Cuddaphas – Succession and Economic importance of Cuddaphas
7. Vindhyaans – Succession and Economic importance of Vindhyaans; Kurnool System
8. Gondwanas – Classification, Plant fossils and Economic importance of Gondwanas
9. Cretaceous system
10. Deccan Traps – Classification, Age and Economic importance of Deccan Traps
11. Siwalicks – Succession and Mammalian Fossils of Siwalicks

#### **IV. Palaeontology:**

1. Introduction – Definition of fossil; Conditions for Fossilisation; Modes of Preservations of Fossils and Importance of Fossils

*2. Classification, Morphological Characteristics and importance of the following:*

i) Corals

ii) Brachiopods

iii) Pelecypods

iv) Gastropods

v) Cephalopods

vi) Trilobites

vii) Echinoids

viii) Plant fossils