

**SCHEME AND SYLLABUS FOR RECRUITMENT TO THE POST OF
ASSISTANT GEOLOGISTS IN MINING SERVICE**

<u>PART-A:</u> Written (Competitive) Examination (Objective Type) – P.G. Degree Standard			
i) General Studies & Mental ability	150 Marks	150 Questions	150 Minutes
ii) Geology Subject:			
Paper-I	150 Marks	150 Questions	150 Minutes
Paper-II	150 Marks	150 Questions	150 Minutes
<u>PART-B:</u> Interview (Oral Test)	50 Marks		

SYLLABUS

GENERAL STUDIES & MENTAL ABILITY

1. General Science – Contemporary developments in Science and Technology and their implications including matters of every day observation and experience, as may be expected of a well-educated person who has not made a special study of any scientific discipline.
2. Current events of national and international importance.
3. History of India – emphasis will be on broad general understanding of the subject in its social, economic, cultural and political aspects with a focus on AP Indian National Movement.
4. World Geography and Geography of India with a focus on AP.
5. Indian polity and Economy – including the country's political system- rural development – Planning and economic reforms in India.
6. Mental ability – reasoning and inferences

GEOLOGY (PAPER-I)

1. Earth as a planet of the Solar System; Origin and Age of Earth; Isostasy, Tectonic movements, Earthquakes, Mountain building; Continental Drift, Seafloor spreading, Plate-tectonics; Endogenous and Exogenous dynamic processes; Land forms and drainage patterns; Geomorphic Cycle; Geomorphology of Folded and Faulted regions; Application of Geomorphology in Engineering Projects.
2. Crystals, Symmetry elements, Classification of Crystals; Principles of Crystal Chemistry; Optical characters of Minerals; Universal stage; Structure, Physical and Optical characters, and paragenesis of the following groups of silicates; Felspars, Felspathoids, Pyroxenes, Amphiboles, Garnets, Micas and Zeolites.
3. Evolution of Magmas, Phase Equilibria, Ternary Systems; Correlation between magma types and tectonic regimes. Major and trace elements as tectonic indicators. Structure and Textures of igneous rocks. Petrography and Petrogenesis of the important types of igneous rocks; problems of precambrian crustal evolution.
4. Transportation, Deposition, and Post Depositional history of sediments with special emphasis on Diagenesis. Provenance and Provenance indicators; Sedimentary Textures and Structures; General classification of Sedimentary Rocks; Sedimentary environments; Sedimentary basins in the light of Geosynclinal Theory and Plate-tectonics.
5. Metamorphism and Metamorphic processes; Metamorphic reactions; Geothermobarometry in metamorphism; Zones, facies and Grades of Metamorphism; Microstructures; Classification of Metamorphic Rocks; Metasomatism, Ultrametamorphism and Anatexis; Metamorphism and Plate-tectonics.

6. Palaeontology, Fossil, Conditions and Modes of preservation of fossils; Index and zone fossils; Evolutionary changes in Foraminifera, Brachiopods, Trilobites, Nautiloidea and Ammonoidea; General characteristics of Amphibians, Reptiles, Apes and Mammals; Evolution and Extinction of Dinosaurs; Evolution of Horse, Elephant and Man; Paleobotany (Important Plant Fossils); Microfossils and their use.

7. Principles of Stratigraphy; Facies and their use in Correlation and Paleogeography reconstructions; Archeans, Eoprocambrian Unconformity; Dharwar; Gondwana system; Importance of Deccan traps and their age; Siwaliks, Pleistocene glaciation and its significance in Indian Stratigraphy; Geology of Andhra Pradesh with special reference to Cuddapahs, Kurnools and Tertiaries.

GEOLOGY (PAPER-II)

1. Structural Geology Objectives stress and strain; primary and secondary structures; folds and fold systems, Mechanism of folding; Recognizing the top of a bed; faults, description, recognition of faults in the field; joints, joint systems and their origin; foliation and lineation - types, origin, their importance in the study of structures; structures and tectonics of India.

2. Economic Geology, its scope; factors that define Economic worthiness of mineral deposits; Mineral resources and their peculiarities; Stratiform and stratabound deposits; Geothermometry and Geobarometry; Ore-bearing fluids and their migration; Common forms and structures of ore deposits; ore textures; classification of Mineral deposits; processes of formation of Mineral deposits - Magmatic Segregation, Contact Metasomatism, Hydrothermal processes, Sedimentation, Residual and Mechanical concentration, Submarine volcanic and Exhalative processes, Bacterial processes, Oxidation and Supergene enrichment and Metamorphism; Metallogenic epochs and provinces of India.

3. Uses, Geology, Mode of occurrence, Origin and Distribution (in India) of Ores of precious metals, Ferrous Group of Metals, Non-ferrous group of Metals, Light metals; occurrence, origin and distribution (in India) of Minerals used in the following industries - Ceramics, Refractories, Fluxes, Fertilizers and Chemicals, Cement. Origin and Distribution (in India) of fuels. Geology and distribution of Economic Minerals in Andhra Pradesh.

4. Ground water in the Hydrological Cycle; Origin and Age of ground-water; Types of Aquifers, Rock properties - Formation of aquifers; Artisan well; vertical distribution of Ground water in different Geological Formations, and distribution in different Rocks types; Ground water movement, Darcy's Law, storage coefficient; Saline water intrusion into Aquifers, Relation between fresh water and salt water; Investigation for Ground water; Recharging ground water.

5. Geological considerations in the selection of Reservoir sites, Dam sites; Case histories of some major dams; Geological considerations in tunnel alignment; Physical and Engineering properties of different building materials; foundations for different types of Bridges; Coastal Erosion; Geological studies in the laying of Roads, Designing High ways and Railways; Civil Engineering works-Importance of the study of Soils, ground water, mass movements, earthquakes.

6. Prospecting and Exploration; Geological Criteria and guides; Geochemical prospecting - Dispersion and Mobility of Elements, Pathfinders- Distribution of elements in igneous rocks and minerals, Primary environments, Primary Halos and primary dispersion, Secondary environments and secondary Dispersion; Geochemical Anomalies; Geophysical Exploration significance of Density, magnetic, Electrical and Elastic properties of rocks; principles and application of Geophysical methods of exploration; Sampling Methods; Reserve estimation.

7. Aerial Photography its scope and limitations; Aerial Photography technique; Viewing, Measuring and Plotting Instruments; Application of Photogeology in Geological studies; Basic principles of Remote Sensing; Satellite Remote Sensing - Landsat, Indian Remote Sensing Satellite; Fundamentals of Image processing and Image enhancement techniques; Application of Remote Sensing in Geological studies.