C.No: 562/SS/1/2005

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

**PART-A: Written (Competitive) Examination (Objective Type) – P.G. Degree Standard**

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<tr>
<td>i) General Studies &amp; Mental ability</td>
<td>150 Marks</td>
<td>150 Questions</td>
<td>150 Minutes</td>
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<td>ii) Geology Subject:</td>
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<tr>
<td>Paper-I</td>
<td>150 Marks</td>
<td>150 Questions</td>
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<td>Paper-II</td>
<td>150 Marks</td>
<td>150 Questions</td>
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**PART-B: 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, Phases 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 pre-cambrian crustal evolution.


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, Nautilioidea and Ammonioidea; 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, Eparchean Unconformity; Dharwars; 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; Metallogenie epochs and provinces of India.


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.