

**Broad Syllabus: For Recruitment Examination of Assistant Professor
In Geology**

Major Domain	Scope / Umbrella Terminologies for Question Setting
1. Earth & Solar System	Solar System & Origin of Earth; Planetary Evolution; Orbital Parameters & Kepler's Laws; Radioisotopes & Geochronology; Meteorites; Chemical Composition & Differentiation of Earth; Gravity, Magnetism, Geoid, Spheroid & Isostasy
2. Earth Processes & Geomorphology	Physiography; Weathering, Erosion, Transportation & Deposition; Soil Formation; Surface Energy Processes; Fluvial, Glacial, Aeolian, Coastal & Groundwater Landforms; Indian Physiography & River Basins
3. Earth Interior & Tectonics	Seismology; Earth's Interior & Seismic Properties; Stress-Strain & Rock Deformation; Folds, Faults & Joints; Earthquakes; Paleomagnetism; Seafloor Spreading; Plate Tectonics; Volcanism; Interplate & Intraplate Processes
4. Oceans & Atmosphere	Ocean-Floor Relief; Seawater Properties; Ocean Currents, Waves & Tides; Water Masses & Ocean Circulation; Atmospheric Structure & Dynamics; Radiation & Heat Budget; Clouds & Precipitation; Atmospheric & Oceanic Circulation; Climate & Sea-Level Change; ENSO; Indian Monsoon & Weather Systems; Atmospheric/Marine Pollution & Ozone Depletion
5. Environmental Earth Sciences	Atmosphere-Lithosphere-Hydrosphere-Biosphere Interactions; Hydrological Cycle & Water Management; Energy Resources & Sustainability; Ecology & Biodiversity; Land/Energy Use Impacts; Mineral Resource Conservation; Environmental Pollution & Natural Hazards.
6. Mineralogy & Crystallography	Crystal Chemistry & Structures; Crystal Systems & Symmetry; Crystallographic Axes & Miller Indices; Mineral Physical & Optical Properties; Microscopy & Spectroscopy; Mineral Groups; Silicates; Bonding; Lattice Defects; Polymorphism, Isomorphism & Solid Solutions
7. Igneous Petrology	Magma Genesis & Evolution; Crystallization & Phase Equilibria; Magma Mixing & Volatiles; Bowen's Reaction Series; Textures & Structures; Mineralogical & Chemical Classification; Petrogenesis of Major Igneous Rock Suites of India
8. Sedimentary Petrology	Sediment Formation & Transport; Sedimentary Processes; Textures, Structures & Classification; Carbonate, Arenaceous & Argillaceous Rocks; Conglomerates & Breccias; Sedimentary Facies & Depositional Environments; Paleoenvironments; Sedimentary Basins of India
9. Metamorphic Petrology	Metamorphic Processes; Textures, Structures & Fabrics; Grade & Facies; Metamorphic Reactions & Mineral Assemblages; Regional, Polyphase & Retrograde Metamorphism; Anatexis & Metasomatism; Tectonics-Metamorphism Relationships; Major Indian Metamorphic Terrains
10. Structural Geology & Geotectonics	Stress & Strain; Rock Mechanics & Fracturing; Brittle-Ductile Deformation; Shear Zones; Folds, Faults & Unconformities; Boudins, Foliation & Lineation; Tectonic Regimes; Plate Boundaries; Mantle Plumes; Field Structural Analysis; Himalayan Orogeny; Supercontinents
11. Paleontology & Stratigraphy	Origin & Evolution of Life; Fossils & Preservation; Invertebrate, Vertebrate, Plant & Microfossils; Mass Extinctions; Fossil Applications; Biostratigraphy & Correlation; Paleogeography & Paleoclimate; Geological Time Scale; Stratigraphic Classification; Indian Phanerozoic Stratigraphy
12. Geochemistry	Atomic Structure & Elemental Properties; Elemental Distribution & Mineral Chemistry; Ionic Substitution; Phase Rule; Thermodynamics; Redox & Eh-pH Systems; Mineral Assemblages; Geochemical Differentiation & Cycles; Marine,

	Groundwater & Atmospheric Geochemistry; Stable Isotopes
13. Economic Geology & Energy Resources	Ore Genesis & Surface Processes; Ore Microscopy & Fluid Inclusions; Ore–Metamorphism Relationships; Indian Mineral Deposits; Petroleum Origin, Migration & Entrapment; Source & Reservoir Rocks; Petroleum Exploration & Basins; Coal Origin, Classification & Resources; Nuclear & Non-conventional Energy Resources
14. Applied Geology	Remote Sensing & GIS; Engineering Geology; Mineral Exploration; Hydrogeology; Applications of Geological Data and Techniques
15. Geophysics & Meteorology	Gravity & Magnetic Fields; Geodynamics & Plate Tectonics; Seismology & Elastic Theory; Geophysical Exploration Methods; Electrical, Electromagnetic & Seismic Methods; Well Logging; Physical, Dynamic & Satellite Meteorology. Monsoon pattern in India: Past & Present.
16. Indian & Precambrian Geology	Indian Physiography, Drainage, Climate, Soils & Resources; Himalaya, Ganga–Brahmaputra Plains & Peninsular India; Precambrian Cratons; Granite–Greenstone Belts; Proterozoic Basins; Geochronology; Precambrian Life; Geology of Maharashtra
17. Quaternary Geology	Quaternary Stratigraphy & Dating; Oxygen-Isotope, Bio- & Magnetostratigraphy; Glacial–Interglacial Cycles; Sea-Level & Climate Change; Paleoclimate Proxies; Ice-Core, Marine & Continental Records; Fluvial, Glacial & Aeolian Records; Climate–Geomorphic Responses; Tectonic Geomorphology; Neotectonics & Natural-Hazard Assessment