Syllabus for the post of Senior Technical Assistant (Geology)

<table>
<thead>
<tr>
<th>Section</th>
<th>Questions</th>
<th>Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Knowledge / awareness</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>Mental Ability / I.Q. determination</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>Mathematical ability/reasoning</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>Language Proficiency (Punjabi &amp; English)</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>As per prescribed qualifications for job related</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>

GENERAL KNOWLEDGE / AWARENESS (10 Q)

MATHEMATICAL ABILITY (10 Q)
Number system, Simplification, HCF & LCM, Percentage, Average, Ratio & Proportion, Profit & Loss, Partnership, Time and Work, Time and Distance, Permutations & Combinations, Probability

MENTAL ABILITY / REASONING (10 Q)
Reasoning Ability: Analogy / Analogous Problems, Classification, Word formation, Ranking / Arrangement, Series, Coding & Decoding, Distance and Direction, Symbol & Notation, Scheduled Day or Date, problem based on Ages and Calendar, Data Interpretation.

LANGUAGE PROFICIENCY (ENGLISH 10 Q, PUNJABI 10 Q)
General English up to 10+2 standard
General Punjabi up to 10th standard

PROFESSIONAL (50 Q)

Hydrogeology and Environmental Geology
Hydrological characters of different rocks, aquifer evaluation, groundwater flow, characteristics of groundwater for different use, groundwater development and management, groundwater provinces of India; Groundwater recharge, Rainwater harvesting, environmental problems of mineral exploration, low temperature geochemistry, environmental planning and

Sedimentary Petrology  Textures and structures of igneous rocks, petrology of important sedimentary rocks, paleocurrent analysis, provenance studies, sedimentary basins in India.

Engineering Geology  Engineering properties of rocks and soil, geotechnical investigations for dams, reservoirs, tunnels, and mass movements. Rocks as construction materials, landslides.

Exploration Geology  Concepts of mineral exploration, methods of geological and geochemical prospecting drilling techniques, sampling, estimation of reserves, geophysical prospecting, mineral beneficiation, Marine mineral resources.

Stratigraphy  Principles of stratigraphy, stratigraphic classification, stratigraphy and tectonics of Precambrian rocks of India, Phanerozoic stratigraphy of peninsular and extra peninsular India.

Palaenontology  Theories of organic evolution, causes of extinction, morphology of common invertebrate and vertebrate fossils, Micro-palaentology and its applications, Palaeobotany for exploration.

Mineralogy and Geochemistry  Crystal chemistry, phase stability and properties of different mineral groups, chemical evolution of the earth, geochemical classification and distribution of elements, geochemistry of important elements.

Igneous Petrology  Textures and structures of igneous rocks, crystallization of magma and representations in phase diagrams, representations of chemical analysis of igneous rocks and their applications and limitations, petrology of different types of igneous rocks magmatism in relation to plate tectonics.

Metamorphic Petrology  Metamorphic textures, kinetics of metamorphic reactions, stability of common metamorphic minerals, geothermometry and geobarometry, different types of projection diagrams, metamorphism of different rocks, plate tectonics and metamorphism.

Structural Geology  Stress, strain, strain analysis, structural analysis, poly-deformed terrains, shear zones and migmatites; analysis of thrust belts, mechanisms of folding and fracturing. Introduction to petrofabrics.

Geotectonics  Variations of physical properties in the earth, crustal types and their evolution, evolution of ocean basins, concept of plate tectonics and tectonics of different types of plate boundaries with special reference to India.

Economic Geology  Classification of ore deposits, evolution of different types of ore deposits, origin, migration and accumulation of petroleum; coal geology and nuclear geology. National mineral policy, conservation and utilization of mineral resources.