Subject distribution (approximate).

Mineralogy, petrology and geochemistry is the largest block, about 22 to 26 questions. It covers Mohs hardness, Goldschmidt’s classification, olivine, uniaxial minerals, polymorphs (the Al2SiO5 group), luster, magnetism, silicate structure, igneous textures, pillow lava, basalt chemistry, MORB, komatiites, rare earth elements, isotopes (stable versus radiogenic, Rb-Sr), trace elements and partial melting.

Metamorphic petrology is small but distinct, about 6 to 8 questions: Barrovian index minerals, P-T-t paths, metamorphic fluids, facies diagnostics (blueschist, granulite, eclogite) and migmatites.

Structural geology and tectonics gets about 12 to 15 questions: fold types, fault obliquity, brittle structures, foliation versus lineation, ophiolites, mid-oceanic ridges, the Himalayan collision, earthquake waves, the Richter scale and Earth’s magnetic field and gravity.

Stratigraphy, sedimentology and palaeontology is about 20 to 24 questions. It includes trace fossils and ichnology, taphonomy, fossil preservation types, index fossils, faunal succession, brachiopods, the age of vertebrates and amphibians, the chronostratigraphic unit, sequence stratigraphy, cross-bedding, ripple marks, fining-upward sequences, diagenesis, breccia and grain size control.

Economic geology and mineral exploration accounts for about 14 to 18 questions: skarn, kimberlite, the Bushveld complex, chromite hosts, banded iron formation, pathfinder elements, gold mining areas, the Singhbhum craton, concordant versus discordant ore bodies, gangue, uranium in Meghalaya and mining subsidence.

Indian and regional geology forms a noticeable block of about 10 to 12 questions: Assam shelf basin category, Assam Tertiary coal, the Raniganj coal formation, Sylhet Trap, Cuddapah basin, Spiti Triassic, K-T boundary and Deccan volcanism, Indo-Myanmar ophiolites, hydrocarbon basins and Domiasiat uranium.

Hydrogeology and environmental geology is about 15 to 18 questions: specific yield, aquifer types, infiltration, saturation zone, permeability, non-point pollution, landfill liners, ozone depletion, global warming effects, permafrost methane and sustainable development.

Geomorphology and surface processes comes to about 8 to 10 questions: weathering versus erosion, moraine, esker, talus, creep, tombolo, Davis cycle, soil horizons and plasticity index.

Recurring themes. Metamorphic facies and index minerals appear several times from different angles. Hydrogeology terms recur (specific yield, permeability, confinement, saturation). Palaeontology is spread across ichnology, taphonomy, preservation and index fossils. India and the North-East feature repeatedly through coal, uranium, traps, ophiolites and Assam basin classification.

Difficulty pattern. Mostly easy to moderate. Easy direct recall items include ozone layer location, Richter scale, vitreous luster and Rb-87 decay. A middle band needs specific Indian or technical knowledge: Assam shelf basin category, Sylhet Trap lithology, Domiasiat uranium type, Triassic of Spiti, the Goldschmidt classes and kimberlite occurrence.