

DEPARTMENT OF APPLIED GEOLOGY

UNIVERSITY OF MADRAS

ENTRANCE EXAMINATION FOR M.Sc. APPLIED GEOLOGY (2023-2024)

Details of the question paper

i. Marks

Entrance Exam - 40 Marks

Interview - 10 Marks

ii. No. of questions- 40 (Each question carries ONE marks; No Negative marks for wrong answers.)

iii. Pattern

Objective type (MCQ, Fill in the Blanks, Match, etc.)

iv. Duration

Entrance Exam- 10:00 AM to 12:00 Noon (2 Hours); followed by Interview.

v. Reporting Time – 9:00 AM

vi. Syllabus- Enclosed.

SYLLABUS FOR ADMISSION TO M.Sc. APPLIED GEOLOGY

Physical Geology and Geomorphology

Origin, age, structure of the Earth ----- Process of weathering, erosion, transportation and deposition----- Geological work of running water (river), lake, glaciers, sea wind and ground water----- Volcanoes and Earthquakes----- Isostasy----- Continental drift and Seafloor spreading----- Elementary ideas of Plate tectonics.

Crystallography and Mineralogy

Elements of crystal forms and symmetry----- Crystal systems and classes----- Twinning----- Physical and Chemical properties of minerals----- Pleochroism----- Birefringence----- Silicate mineral structure. Brief explanation about Amphibole, Mica, Pyroxene, Quartz, Zeolites and feldspaths.

Petrology

Crystallization, differentiation and assimilation of magma----- Bowen's reaction principle----- Classification, mode of occurrence, texture, structure, and mineralogical composition of Igneous, Sedimentary and Metamorphic rocks.

Structural geology

Stratification, joints, cleavage, schistosity and lineation----- Dip and strike----- Clinometer compass and its uses----- Fold, Fault and Unconformity and its classification.

Economic Geology

Forms, mode of occurrences and classification of mineral deposits----- Important process of formation of mineral deposits----- Common and important metallic and non-metallic mineral deposits of India with particular reference to their geology, geographical occurrences and utilization.

Stratigraphy and Paleontology

Standard stratigraphical scales and its subdivisions----- Principles of stratigraphy----- Physiographic divisions of India----- Major geological formations of India with special reference to Archean, Proterozoic, Paleozoic, Mesozoic and Tertiary stratigraphy----- Geological formations of Tamilnadu----- Fossil----- Definition, nature and mode of preservation----- General description of most common fossil groups of invertebrates and plants.

Environmental Geology and Hydrogeology

Different ecosystems----- Renewable and non-renewable resources----- Environmental problems due to surface geological processes----- Landslides, Floods & soil erosion; Causes, Hazards remedial Measures----- Earthquakes & Volcanism; Prediction, Control and Warning----- Environmental degradation due to Mining and Mineral processing----- Pollution----- Population explosion effects in Ground water. Origin of Ground Water and its types----- Vertical distribution. Aquitard, Aquiclude, Aquifer and its types----- Standard Ground Water Qualities----- Rainwater Harvesting and its effects in Rural and Urban areas----- Rainwater Harvesting Methods.

Remote Sensing and GIS

Definition of Remote Sensing----- Electromagnetic spectrum----- Atmospheric interactions ---Spectral Reflectance ---Platforms – Data acquisition --- LANDSAT and overview of Indian Remote Sensing satellites, Aerial Photographs – Geometry, Applications of remote sensing data in Mineral Exploration and Ground Water Exploration----- Geographical Information System (GIS) --- Concepts and Applications of Remote Sensing under various fields in Geology, Economy, Agricultural and Vegetations.