

M. Sc. GEOLOGY THIRD SEMESTER

Paper – II
302

Igneous Petrology

Code: Geol

Unit – I

Igneous Rock: General Characteristics; Intrusive Forms and Extrusive Forms; Textures and Structures of Igneous rock; classification of igneous rocks (mineralogical, chemical, genetic, IUGS)

Unit – II

Magma: Composition and constitution of magma; Generation and Emplacement and its relation to plate tectonics; Magmatic crystallization, differentiation and assimilation; Bowen's Reaction Principle.

Unit – III

Crystallization process in silicate melts in light of experimental studies especially for following systems: binary magma; Diopside – Anorthite Eutectic system; Albite – Anorthite solid – solution system; Foresteite – Silica Incongruent melting system; Crystallization of Ternary system : Albite – Anorthite – Diopside; Nepheline-Kaliophyllite-Silica; Diopside-Forsterite-Silica.

Unit – IV

Petrographic Provinces: Definition and characteristics; major, trace, REE and Isotopic compositions of igneous rock and their role in petrogenesis; Origin of major igneous rock types viz Granites, Basalts and Alkaline rocks; Ophiolites and Carbonatites.

Unit – V

Petrography, mode of occurrence and origin of following rock groups: Granite – Granodiorite – Diorite; Rhyolite – Rhyodacite – Dacite; Gabbro – Dolerite – Basalt; Syenite – Nepheline syenite and related rock; Ultrabasic rock; Pegmatites.