

PAPER–III: CRYSTALLOGRAPHY AND MINERALOGY

Time: 3 hrs

MM 50

UNIT–I

Fundamental Laws of Crystallography, Elements of crystal symmetry, Millers and Weiss systems of Notation. Crystal forms and their classification into crystal system.

UNIT-II

Study of holohedral classes of following crystal systems- Cubic system, Tetragonal system, Hexagonal system, Orthorhombic system, Monoclinic system and Triclinic system.

UNIT–III

Physical properties of minerals, Concept of isomorphism and polymorphism. Elementary ideas about structure and classification of silicate minerals. Study of physical and optical properties of quartz, feldspar, Pyroxene, Amphibole, Olivine, Nephelene and mica families.

UNIT–VI

Petrologic microscope and its construction; principles of optics as applied to orthoscopic study of minerals; color, form, birefringence, and pleochroism. Ideas about uniaxial and biaxial characters of minerals.

UNIT–V

Study of the physical and optical properties of following rock forming mineral families: Olivine, pyroxene, amphibole, and nepheline. Study of optical properties in particular of following minerals: Muscovite, biotite, quartz, orthoclase, microcline, albite, olivine, augite, diopside, hypersthene, hornblende and tremolite.