

Set A

B.Sc. (H) Geology (CBCS) (Semester-I)

Paper C2, Mineral Science

Unique Paper Code-32191102

Time 3 hrs.

Maximum marks 75

Answer ANY FOUR questions. All questions carry equal marks.

1. Illustrate through sketches and describe the various ways in which SiO_4 tetrahedra can be combined to produce different silicates. Relate this to Si-O ratios and mention common minerals associated with each silicate group.
2. What is twinning? With the help of suitable diagrams, describe elements of twinning observable in twins of orthorhombic system.
3. Draw a sketch of the optical system of a petrological microscope and label its different components. Discuss in brief the formation of an image in such a system.
4. What is co-ordination number? Discuss Pauling's rule in this context and derive the radius ratio limits for different stable co-ordinations.
5. Describe the crystal structure and classifications of mica. What do you understand by dioctahedral and trioctahedral micas?
6. Discuss Bravais lattice. Relate these to symmetry elements and describe the 32-point groups in relation to the crystal systems.