

**M.Sc. (Previous) Examination, 2001**

**GEOLOGY**

**Paper-II**

**(Mineralogy and Geochemistry)**

Time: Three Hours  
Maximum Marks: 100

Attempt **FIVE** questions in all,  
selecting at least **TWO** questions from each section.  
All questions carry equal marks.

**SECTION A**

1. Write a detailed account on either spinel or garnet group.
2. Give important physical, optical and chemical properties of important mica minerals.
3. Write notes on any **FOUR** of the following:
  - (a) Becka effect
  - (b) Polarization of light
  - (c) Anisotropism
  - (d) Magnification of a microscope
  - (e) Braggs Law
4. With the help of neat figures describe biaxial wave surface and biaxial indicatrix.
5. With the help of a neat diagram describe important components of a 5 axis universal stage.

**SECTION B**

6. Discuss the phenomenon of polymorphism by using examples from common minerals.
7. Write short notes on any **TWO** of the following:
  - (a) Meteorite
  - (b) Geochemical differentiation of the earth
  - (c) High Field Strength elements
  - (d) Large Lithophile elements.
8. Write notes on any **TWO** of the following:
  - (a) Exsolution
  - (b) Sulfur isotopes
  - (c) Framework Silicates
  - (d) Composition of Inner Core.

9. Discuss the concept of Gibbs free energy and its importance in deciphering the state of equilibrium.
10. What are the factors that control element partitioning during a progressive crystal-liquid fractionation of magma?