

No. of Printed Pages : 2

Sl. No.

**21APG1C1L**

**M.Sc. I Semester Degree Examination, April/May - 2023**

**APPLIED GEOLOGY**

**Mineralogy**

**(CBCS)**

Time : 3 Hours

Maximum Marks : 70

**Note :** Answer **any five** of the following questions with Question No. **1 (Q1) Compulsory**, each question carries **equal** marks.

1. Answer the following : **14**
  - (a) What is a crystal form ? Explain the types of crystal forms.
  - (b) Discuss the main components of a crystal structure.
  
2. Give a detailed account on physical properties of minerals with examples. **14**
  
3. Answer the following : **14**
  - (a) How does the classification of silicates reflect their chemical and physical properties ? Provide examples to support your answer.
  - (b) Give an account on quartz group of minerals.
  
4. Answer the following : **14**
  - (a) Describe the optical properties of uniaxial and biaxial minerals and how they relate to their crystal structure.
  - (b) What is the principle of IR spectroscopy ?
  
5. Answer the following : **14**
  - (a) What is a thin section ? Describe the process of making a thin section.
  - (b) Describe the general features of a microscope with a neat sketch.

**P.T.O.**

- 6.** Answer the following : **14**
- (a) Explain the Bragg's law. Describe the principle behind X-ray diffraction.
  - (b) What are the advantages and limitations of EPMA analysis for elemental analysis of materials ?
- 7.** Answer the following : **14**
- (a) What is the significance of the 32-point crystal classes in crystallography ?
  - (b) Describe the different types of magnetic and electrical properties exhibited by minerals, and provide an example of each.
- 8.** Write a short note on : **14**
- (a) Mica group of minerals
  - (b) Pleochroism
  - (c) Halides and oxides

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