

Roll No. :

Total No. of Questions : 11]

[Total No. of Printed Pages : 3

BPG–1099

M.Sc. (Previous) Examination, 2021

GEOLOGY

Paper – II

(Geochemistry, Crystallography & Mineralogy)

Time : 1½ Hours]

[Maximum Marks : 75

Section–A

(Marks : 2 × 10 = 20)

Note :– Answer all *ten* questions (Answer limit **50** words). Each question carries **2** marks.

Section–B

(Marks : 5 × 5 = 25)

Note :– Answer all *five* questions. Each question has internal choice (Answer limit **200** words). Each question carries **5** marks.

Section–C

(Marks : 10 × 3 = 30)

Note :– Answer any *three* questions out of five (Answer limit **500** words). Each question carries **10** marks.

Section–A

2 each

1. (i) Define Isotope Geochemistry.
- (ii) Describe Geochemical Anomaly.

BI–707

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BPG–1099 P.T.O.

- (iii) Explain the Fundamental Laws of Crystallography.
- (iv) Describe Bragg's Equation.
- (v) Draw a labelled diagram of biaxial indicatrix.
- (vi) Define 2V. What is the difference between 2V and 2E ?
- (vii) Explain the optical properties of olivine.
- (viii) Compare the optical properties of hypersthene and Augite ?
- (ix) Explain Twinning in feldspars.
- (x) Describe the Gem properties of minerals.

Section-B

5 each

2. Describe Geochemical Cycle.

Or

Describe Geochemical Tracers and Indicators.

3. Define stereographic projection. Give its merits and demerits.

Or

Define Twinning. Explain the various laws of Twinning.

4. Discuss the uses of Berek Compensator.

Or

Discuss the optical properties determined under conoscopic illumination.

5. Discuss the chemical composition, physical and optical properties of minerals of Garnet family.

Or

Discuss the classification of silicate structures.

BI-707

(2)

BPG-1099

6. Discuss the physical and optical properties of Zeolite group of minerals.

Or

Describe the forms of Silica.

Section–C

7. Discuss the Geochemical Classification of Elements. 10
8. Describe symmetry operations ? Derive the symmetry classes of cubic system. 3+7
9. What is Universal Stage ? Describe the construction and uses of five axes universal stage. 3+7
10. Discuss the chemical composition, physical and optical properties and mode of occurrence of minerals of Amphibole group. 3+3+3+1
11. Discuss the structure, chemical composition, physical and optical properties of Mica family. 2+2+3+3