2022

(November)

GEOLOGY

(Elective/Honours)

(GELH-101)

(General Geology, Crystallography and Mineralogy)

Marks : 56

Time : 3 hours

The figures in the margin indicate full marks for the questions

Answer **four** questions, selecting **one** from each Unit

UNIT—I

(General Geology)

1. Discuss the erosional action of wind and describe different depositional landforms formed by wind with neat sketches. 4+10=14

2. Write notes on any *four* of the following : 3½×4=14

   (a) Composition of the crust

   (b) Rock cycle

(c) Interior of the earth

(d) Weathering

(e) Seismic waves

(f) Pratt's hypothesis on isostasy

UNIT—II

(Crystallography)

3. Write the symmetry elements of the tetragonal system and describe the various possible forms under the normal class of this system. 2+12=14

4. Write notes on any *four* of the following : 3½×4=14

(a) Miller indices and law of Rational Indices

(b) Minerals as crystals

(c) Unit cell

(d) Crystal aggregates

(e) Type mineral, crystallographic axes and symmetry elements of orthorhombic and monoclinic system

(f) Substitution of elements

UNIT—III

(Mineral Optics)

5. Define minerals. Explain how minerals act as constituents of rocks. Describe the physical properties of rocks on the basis of mineral appearance. 1+1+12=14

6. Write notes on any *four* of the following : 3½×4=14

(a) Isomorphism and polymorphism

(b) Silicate structures with SiO_4 and Si_3O_9 groups

(c) Nicol prism

(d) Isotropic and anisotropic minerals

(e) Pleochroism

(f) Extinction and its types

UNIT—IV

(Descriptive Mineralogy)

7. Discuss briefly on feldspar group minerals. Write the chemical composition and describe the physical and optical properties of the alkali-feldspar series. 2+12=14

8. Describe the physical and optical properties of the following (any *four*) : 3½×4=14

   (a) Diopside

   (b) Forsterite

   (c) Muscovite

   (d) Nepheline

   (e) Glaucophane

   (f) Kyanite

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