

1/EH-26 (i) (Syllabus-2015)

2019

(October)

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. (a) What is shadow zone? Explain P- and S-wave shadow zone with the help of a neat diagram. 2+5=7
- (b) Write the geological timescale in tabular form. 7

2. (a) What is the difference between erosion and mass-wasting? Discuss the geological work of glacier and the resulting erosional features. $2+3+5=10$

- (b) Explain different types of plate boundaries. 4

UNIT—II

(Crystallography)

3. (a) Discuss parameters and Miller indices. Mention the factors that control the size and perfection of a crystal. $5+2=7$

- (b) Describe different types of forms developed in the normal class of the tetragonal system. 7

4. Write notes on any four of the following : $3\frac{1}{2} \times 4 = 14$

- (a) Forms and basic names of different types of forms

- (b) Axes, symbols and symmetry elements of the normal class of hexagonal system

- (c) Parallel growth

- (d) Substitution of elements

- (e) Types of twins

UNIT—III

(Mineral Optics)

5. (a) Describe the physical properties of minerals. 9

- (b) Why and how is Nicol prism constructed from calcite? $1+4=5$

6. Write notes on (any two) : $7 \times 2 = 14$

- (a) Polymorphism and isomorphism

- (b) Structures with SiO_4^- and Si_3O_9^- groups

- (c) Birefringence and extinction

UNIT—IV

(Descriptive Mineralogy)

7. (a) Describe the various types of rock-forming minerals. 6

- (b) How do feldspar group minerals differ from feldspathoid group minerals? Write the physical and optical properties of the feldspathoid group of minerals. $2+6=8$

(4)

8. (a) Name the important members of the feldspar group of minerals. Describe the physical and optical properties of any two members of the group. 2+6=8

(b) Discuss the physical and optical properties of any two of the following minerals. 3×2=6

(i) Biotite

(ii) Diopside

(iii) Forsterite

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