

Odd Semester, 2020

(Held in March, 2021)

GEOLOGY

(Elective/Honours)

(GELH-101)

**(General Geology and 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 do you understand by the term 'crust'? Describe the types and composition of the crust of the earth. 1+5=6
(b) Explain rock cycle with the help of a schematic diagram. 6+2=8
2. (a) What are seismic waves? Describe the internal structure of the earth on the basis of seismic evidence. 2+6=8

- (b) Write notes on any *two* of the following : 3×2=6
 - (i) Sand-dunes
 - (ii) Delta
 - (iii) Moraines

UNIT—II

(Crystallography)

3. (a) Define crystal form. Describe different types of forms and write the basic names of forms in tabular form. 1+3+5=9
(b) Discuss various symmetry elements of a crystal. 5
4. (a) Why in all the crystal systems, there is the normal class and how many total crystal classes are there in crystal systems? 2+1=3
(b) Name the type of mineral of the normal class of isometric system. Comment on the symmetry elements of the normal class of this system. 1+3=4
(c) Describe the various forms belonging to the normal class of isometric system. 7

(3)

UNIT—III

(Mineral Optics)

5. (a) Name the fundamental unit in the building of silicate minerals. Classify silicates on the basis of their structural framework. $\frac{1}{2} + 3\frac{1}{2} = 4$
- (b) Give an illustration on any four types of structural silicates. $2\frac{1}{2} \times 4 = 10$
6. Write notes on any *four* of the following : $3\frac{1}{2} \times 4 = 14$
- (a) Mohs hardness scale
- (b) Polarization of light
- (c) Isotropic and anisotropic minerals
- (d) Extinction
- (e) Double refraction
- (f) Interference colour

UNIT—IV

(Descriptive Mineralogy)

7. (a) Mention the group series of minerals belonging to framework silicates. 3
- (b) Pyroxene group minerals belong to which silicate class? Describe the structure of pyroxenes. $\frac{1}{2} + 1\frac{1}{2} = 2$
- (c) Write the physical and optical properties of any three minerals of pyroxene group. $3 \times 3 = 9$

(4)

8. Write notes on any *four* minerals of the following : $3\frac{1}{2} \times 4 = 14$
- (a) Quartz
- (b) Orthoclase
- (c) Muscovite
- (d) Hornblende
- (e) Almandine
- (f) Forsterite

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