Total No. of Printed Pages—4

1 SEM TDC GEOH (CBCS) C 2

2022

(Nov/Dec)

GEOLOGY

(Core)

Paper : C–2

(Crystallography and Mineralogy)

Full Marks : 53
Pass Marks : 21

Time : 3 hours

The figures in the margin indicate full marks for the questions

UNIT—I

(Crystallography)

(*Marks* : 23)

1. Fill in the blanks of the following : 1×5=5

(a) Interfacial angle is measured with the help of _____.

(protector/goniometer/scale)

(b) _____ is the smallest portion of crystal lattice.

(Unit cell/Space lattice)

(c) The type of mineral of isometric system is _____.

(galena/quartz)

(d) The mathematical expression of Bragg's law is _____.

($n\lambda = d\sin\theta$ / $n\lambda = 2d\sin\theta$)

(e) Hexagonal system comprises of _____ crystallographic axes.

(4/5/6)

2. Describe briefly about the symmetry elements. Write a note on elements of symmetry of hexagonal system and describe the forms developed. 2+2+2=6

3. Write short notes on any *four* of the following : 3×4=12

(a) Point group and space group

(b) Hermann-Mauguin notation

(c) Twinning in crystals

(d) Habit and forms of crystals

(e) Crystal growth

UNIT—II

(Mineralogy)

(*Marks* : 30)

4. Write on the following : 1×5=5

(a) Minerals and mineraloids

(b) Three examples of rock-forming minerals

(c) Determination of streak of a mineral

(d) Specific gravity of a mineral

(e) Example of two vitreous lustred minerals

5. How is the internal structure of a mineral related to its physical property? 5

6. Describe about the silicate structure of the minerals with examples. 6

7. Discuss the atomic structure, chemical character and physical properties of either pyroxene or amphibole group of mineral. 6

8. Write short notes on any *four* of the following : 2×4=8

(a) Cleavage and parting

(b) CCP and HCP structures

(c) Tectosilicates

(d) Native elements

(e) Genesis of minerals

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