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1 SEM TDC GEOH (CBCS) C 2

2019

(December)

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—1

(Crystallography)

(*Marks* : 23)

1. Fill in the blanks : 1×5=5

(a) The main difference between crystal and amorphous is having or not having _____.

(b) _____ shows maximum symmetry elements within that system.

(c) To make a solid angle at least _____ are required.

(d) Domes are also called horizontal _____.

(e) There are altogether _____ types of lattices by which all the crystals are made.

2. Describe the orientation of the crystallographic axes, symmetry elements of the normal class and forms belong to the normal class of hexagonal system. 2+2+2=6

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

(a) Interfacial angle

(b) Steriographic projection

(c) Miller's indices

(d) Space lattice

(e) Different types of crystal twins

(f) Point group

UNIT—2

(Mineralogy)

(*Marks* : 30)

4. *(a)* *(i)* Which of the following is not the characteristic of a mineral? 1

(1) Natural

(2) Definite atomic structure

(3) Organic

(4) Homogenous

(ii) Which of the following is true? 1

(1) Atomic structure controls the physical properties.

(2) Physical properties control the atomic structures.

(3) Physical properties depend only on chemical composition.

(4) All of the above

(b) Write a brief note about mode of origin of minerals. 6

Or

Describe the various silicate structures and their chemical properties.

5. Discuss about the important physical properties of tectosilicates. 6

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

7. Write short notes on any *three* of the following : 3×3=9

   (a) Atomic substitution

   (b) Polymorphism

   (c) CCP and HCP structures

   (d) Determination of hardness of minerals

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