

**II/GEOL (ii)**

**2014**

**( 2nd Semester )**

**GEOLOGY**

**SECOND PAPER**

**( Crystallography and Mineralogy )**

*Full Marks : 55*

*Time : 2 hours*

**( PART : B—DESCRIPTIVE )**

*( Marks : 35 )*

*The figures in the margin indicate full marks  
for the questions*

**Answer five questions, taking one  
from each Unit**

**UNIT—I**

**1. Write notes on any two of the following :**

$3\frac{1}{2} \times 2 = 7$

- (a) Mechanical concentration
- (b) Contact metasomatic deposits
- (c) Oxidation and supergene enrichment

14G—250/447a

*( Turn Over )*

2. Define mineral. Write notes on any *two* of the following : 1+3+3=7
- (a) Tenacity
  - (b) Hardness
  - (c) Transparency

UNIT—II

3. Write short notes on the following : 3½×2=7
- (a) Atomic weight
  - (b) Atomic number
4. Write the physical properties of any *two* of the following minerals : 3½×2=7
- (a) Quartz
  - (b) Biotite
  - (c) Graphite

UNIT—III

5. Describe in detail the parts and functioning of petrological microscope. 7

6. Write short notes on : 3½×2=7
- (a) Uniaxial and Biaxial minerals
  - (b) Isotropic and anisotropic substances

UNIT—IV

7. With the help of neat diagram, describe the symmetry elements of the normal class in orthorhombic system; write down the types of faces with symbols. Name two minerals crystallizing in orthorhombic system. 4+2+1=7
8. Write notes on the following : 2+1+4=7
- (a) Miller indices
  - (b) Clinodome
  - (c) Laws of crystallography

UNIT—V

9. Write the principle and application of ICP-MS. 3+4=7
10. Write short notes on the following : 3½×2=7
- (a) GEOPLOT
  - (b) SEM

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2 0 1 4

( 2nd Semester )

**GEOLOGY**

SECOND PAPER

( **Crystallography and Mineralogy** )

( PART : A—OBJECTIVE )

( Marks : 20 )

*The figures in the margin indicate full marks for the questions*

SECTION—A

( Multiple Choice )

( Marks : 5 )

1. Choose the correct answer and put its number within the brackets provided : 1×5=5

(a) Masses of country rocks are often enclosed within the fissure vein deposits and are known as

(i) druses

(ii) horses

(iii) skarn

(iv) massive

[       ]

(b) Which of the following minerals has perfect two sets of cleavage?

(i) Quartz

(ii) Garnet

(iii) Calcite

(iv) Graphite

[            ]

(c) Which one of the following is not the optical characteristics of garnet?

(i) High relief

(ii) Isotropic

(iii) Two sets of cleavage

(iv) Colourless, pale reddish, dark brown, etc.

[            ]

(d) 1<sup>III</sup> axis of symmetry is unique for the crystal

(i) beryl

(ii) axinite

(iii) zircon

(iv) calcite

[       ]

(e) The software that able to plot data on diagram for classification and petrotectonic is

(i) NEWPET

(ii) IGPET

(iii) PETROGRAPH

(iv) MINCALC

[       ]

SECTION—B

( Very Short Answer )

( Marks : 15 )

2. Define the following :

3×5=15

(a) Streak and Lustre

(b) Play of colours and change of colours

(i) beryl

(ii) garnet

(iii) quartz

(iv) calcite

(c) The software that able to plot data on diagram for classification and petrotectonic is

(i) NEWPET

(ii) JOPET

(iii) PETROGRAPH

(iv) MINCALC

(c) Polarized light

2. Define the following

(a) Streak and Lustre

(d) Plane of symmetry

(e) Application of XRD

(2nd Semester)

GEOLOGY

RECORD PAPER

( Crystallography and Mineralogy )

( PART : A—OBJECTIVE )

( Marks : 20 )

The figures in the margin indicate full marks for the questions

SECTION—A

( Multiple Choice )

( Marks : 5 )

1. Choose the correct answer and put its number within the brackets provided.

(a) Masses of country rocks are often enclosed within the fissure vein deposits and are known as

(i) dikes

(ii) horves

(iii) shales

(iv) masses

(e) Application of XRD

(i) Quartz

(ii) Garnet

(iii) Calcite

(iv) Graphite

(c) Which one of the following is not the mineral characteristics of garnet?

(i) High relief

(ii) Isotropic

(iii) Two sets of cleavage

(iv) Colorless, pale reddish, dark brown, etc.

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