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( CBCS )

GEOLOGY

FIRST PAPER

( General and Structural Geology and Mineralogy )

Full Marks : 75

Time : 3 hours

( PART : B—DESCRIPTIVE )

( Marks : 50 )

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

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

UNIT—I

1. Write notes on the following : 5×2=10

- (a) Internal structure of the earth
- (b) Causes and effects of earthquake

2. Describe the following : 5×2=10

- (a) Types of plate boundaries
- (b) Planetesimal hypothesis

UNIT—II

3. (a) Explain the steepness of slopes in  
topographic maps. 5

(b) Explain and illustrate different parts of  
fold. 5

4. Write short notes on the following : 2½×4=10

- (a) Thrust fault
- (b) Angular unconformity
- (c) Shear joint
- (d) Importance of dip

UNIT—III

5. Write notes on any *two* of the following :  
5×2=10

- (a) Dana's classification of minerals
- (b) Inosilicates
- (c) Fracture and cleavage

6. Describe the following : 5×2=10  
(a) Pyroxene group  
(b) Physical properties of biotite and hornblende

UNIT—IV

7. (a) Describe the optical properties of orthoclase and garnet. 5  
(b) Explain the construction and working principle of Nicol prism. 5
8. Write a note on the different optical properties of minerals under plane polarized light and crossed polarized light. 10

UNIT—V

9. Explicate the symmetry elements of isometric system. Draw the axes. Name two crystals of isometric system. 6+2+2=10
10. Write notes on any *four* of the following : 2½×4=10  
(a) Plane of symmetry  
(b) Interfacial angle  
(c) Law of constancy of interfacial angle  
(d) Dome  
(e) Compound forms

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**Subject Code :**  
**GEOL/I/EC/01 (CBCS)**

**Booklet No. A**

Date Stamp .....

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**To be filled in by the Candidate**

CBCS

DEGREE 1st Semester

(Arts / Science / Commerce /  
..... ) Exam., **2016**

Subject .....

Paper .....

**To be filled in by the  
Candidate**

CBCS

DEGREE 1st Semester  
(Arts / Science / Commerce /  
..... ) Exam., **2016**

Roll No. ....

Regn. No. ....

Subject .....

Paper .....

Descriptive Type

Booklet No. B .....

**INSTRUCTIONS TO CANDIDATES**

- 1. The Booklet No. of this script should be quoted in the answer script meant for descriptive type questions and vice versa.**
- 2. This paper should be ANSWERED FIRST and submitted within 1 (one) Hour of the commencement of the Examination.**
- 3. While answering the questions of this booklet, any cutting, erasing, over-writing or furnishing more than one answer is prohibited. Any rough work, if required, should be done only on the main Answer Book. Instructions given in each question should be followed for answering that question only.**

*Signature of  
Scrutiniser(s)*

*Signature of  
Examiner(s)*

*Signature of  
Invigilator(s)*

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**GEOL/I/EC/01(CBCS)**

**2 0 1 6**

( CBCS )

**GEOLOGY**

FIRST PAPER

**( General and Structural Geology and Mineralogy )**

( PART : A—OBJECTIVE )

( Marks : 25 )

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

SECTION—A

( Marks : 10 )

- 1.** Choose the correct answer and put its number within the brackets provided : 1×10=10

(a) The average 'geothermal gradient' of mantle is

(i) ~15 °C

(ii) ~25 °C

(iii) ~35 °C

(iv) ~45 °C

[            ]

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(b) Transformed plate boundary is formed where

- (i) two plates collide with each other
- (ii) two plates move in opposite directions
- (iii) two plates slide pass one another
- (iv) None of the above [                      ]

(c) A compass which has two spirit levels is

- (i) Clinometer compass
- (ii) Freiberg compass
- (iii) Brunton compass
- (iv) Silva compass [                      ]

(d) Rock that lies beneath a fault surface is

- (i) footwall
- (ii) hanging wall
- (iii) slip
- (iv) throw [                      ]

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(e) Which among the following minerals belongs to neosilicates?

(i) Quartz

(ii) Pyroxene

(iii) Biotite

(iv) Olivine [ ]

(f) Which of the following minerals possess conchoidal fracture?

(i) Biotite

(ii) Quartz

(iii) Hornblende

(iv) Tourmaline [ ]

(g) In hornblende, the cleavage directions are angle of

(i)  $56^\circ$  and  $124^\circ$

(ii)  $54^\circ$  and  $124^\circ$

(iii)  $87^\circ$  and  $103^\circ$

(iv)  $70^\circ$  and  $120^\circ$  [ ]

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(h) An isotropic substance has

(i) one optic axis

(ii) two optic axes

(iii) no optic axis

(iv) infinite optic axes [ ]

(i) A cube has

(i) 4 faces

(ii) 6 faces

(iii) 8 faces

(iv) 12 faces [ ]

(j) The junction of three or more faces is known as

(i) edge

(ii) zone

(iii) solid angle

(iv) interfacial angle [ ]

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SECTION—B

( Marks : 15 )

2. Write on/Answer *one* from each Unit : 3×5=15

UNIT—I

(a) Scope of geology

(b) Big Bang theory



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UNIT—II

(c) “Outcrop is considered as fundamental element of geology”. Explain.

(d) Significance of unconformity

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UNIT—III

(e) Phyllosilicates

(f) Tenacity

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UNIT—IV

(g) Polarized light

(h) Extinction angle

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UNIT—V

(i) Law of constancy of axial ratio

(j) Axis of symmetry

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