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( CBCS )

( 1st Semester )

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. Describe the following : 5×2=10

- (a) Plate tectonics
- (b) Sub-discipline of geology and its inter-relations with other branches of science

2. Write accounts on the following : 5×2=10

- (a) Nebular hypothesis
- (b) Interstellar hypothesis

UNIT—II

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

- (a) Apparent dip
- (b) Relief
- (c) Columnar joint
- (d) Hade
- (e) Throw and heave

4. (a) Describe the geometric classification of folds with neat sketches. 10

Or

- (b) Write the important parts of Brunton compass. Also explain how to use it in determination of strike. 5+5=10

UNIT—III

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

- (a) Cyclosilicates
- (b) Dana's classification of minerals
- (c) Hardness and lustre

( 3 )

6. Describe the following :  $5 \times 2 = 10$

(a) Silica group

(b) Physical properties of quartz and orthoclase

UNIT—IV

7. Describe the parts and functions of petrological microscope with neat sketches. 10

8. Define isotropic and anisotropic substances. Explain why a grain of an isotropic mineral remains extinct under cross polarized light in petrological microscope.  $5 + 5 = 10$

UNIT—V

9. Mention the different types of crystal systems. Explicate the symmetry elements of normal class of any one of the crystal systems.  $3 + 7 = 10$

10. Write notes on the following :  $5 + 5 = 10$

(a) Fundamental laws of crystallography

(b) Common crystal form

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**Subject Code : GEOL/I/EC/01**

**Booklet No. A**

Date Stamp .....

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**To be filled in by the Candidate**

CBCS

DEGREE 1st Semester

(Arts / Science / Commerce /  
..... ) Exam., **2017**

Subject .....

Paper .....

**To be filled in by the  
Candidate**

CBCS

DEGREE 1st Semester

(Arts / Science / Commerce /  
..... ) Exam., **2017**

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)

**/23**

**GEOL/I/EC/01**

**2 0 1 7**

( CBCS )

( 1st Semester )

**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 concept of seafloor spreading was developed by

(i) Alfred Wegener

(ii) Harry Hess

(iii) Tuzo Wilson

(iv) Matthew Fontaine Maury

[            ]

/23

( 2 )

(b) Which theory/hypothesis best defends the principle of conservation of angular momentum?

(i) Big bang theory

(ii) Planetesimal hypothesis

(iii) Interstellar hypothesis

(iv) Nebular hypothesis [            ]

(c) An instrument used for determining dip is

(i) Clinometer compass

(ii) Brunton compass

(iii) Silva compass

(iv) All of the above [            ]

(d) The lower and upper series of beds dip at the same amount and in the same direction is called

(i) angular unconformity

(ii) disconformity

(iii) non-conformity

(iv) blended unconformity [            ]

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( 3 )

(e) The Si : O ratio in single chain silicates is

(i) 1 : 2

(ii) 1 : 3

(iii) 4 : 10

(iv) 4 : 11

[            ]

(f) When a mineral absorbs virtually all light vibrations and reflects virtually none, it appears

(i) white

(ii) black

(iii) blue

(iv) red

[            ]

(g) Microcline grain can be readily identified by their

(i) relief

(ii) pleochroism

(iii) twinning

(iv) cleavage

[            ]

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( 4 )

(h) Uniaxial minerals are those minerals that crystallized in the

(i) isometric system

(ii) tetragonal system

(iii) hexagonal system

(iv) Both (ii) and (iii) [                      ]

(i) Intersection of any two faces gives rise to

(i) interfacial angle

(ii) edge

(iii) vertex

(iv) Both (ii) and (iii) [                      ]

(j) The relative distances a face cuts on the crystallographic axes are the

(i) Miller indices

(ii) parameters

(iii) plane of symmetry

(iv) None of the above [                      ]

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( 5 )

SECTION—B

( Marks : 15 )

2. Write on any *one* from each Unit :

3×5=15

UNIT—I

(a) Mantle of earth

(b) Distribution of earthquake belts



( 6 )

UNIT—II

(c) Contour

(d) Strike-slip fault

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( 7 )

UNIT—III

- (e) Transparency and translucency of minerals
- (f) Sorosilicates

( 8 )

UNIT—IV

- (g) Optical properties of garnet
- (h) Pleochroism

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( 9 )

UNIT—V

- (i) Miller indices
- (j) Plane of symmetry

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