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(2nd Semester)

GEOLOGY

SECOND PAPER

(Crystallography and Mineralogy)

Full Marks : 55

Time : 2½ 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) Oxidation and supergene enrichment
- (b) Mechanical concentration
- (c) Classification of hydrothermal deposits

2. Define mineral. Write notes on any *two* of the following :
 $1 + (3 \times 2) = 7$

- (a) Phosphorescence and Fluorescence
- (b) Tenacity
- (c) Fracture

UNIT—II

3. Write notes on any *two* of the following :
 $3\frac{1}{2} \times 2 = 7$

- (a) Atomic number
- (b) Silicate structure
- (c) Atomic bonding

4. Write the physical properties of any *two* of the following :
 $3\frac{1}{2} \times 2 = 7$

- (a) Biotite
- (b) Quartz
- (c) Orthoclase

UNIT—III

5. Write notes on the following :
 $3\frac{1}{2} + 3\frac{1}{2} = 7$

- (a) Isotropic and anisotropic substances
- (b) Optical properties of olivine

(3)

6. Explain different optical properties of minerals under plane polarized light. Support your answer with suitable sketches. 7

UNIT—IV

7. Write notes on the following : 3+2+2=7

(a) Axis of symmetry

(b) Solid angle

(c) Pyramid

8. Describe the symmetry elements of hexagonal system with the help of neat sketches. 7

UNIT—V

9. Write the principle, sample preparation and application of ICP-MS. 7

10. Write notes on the following : 3½+3½=7

(a) SEM

(b) PETROGRAPH

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Subject Code : GEOL/II/02

Booklet No. A

Date Stamp

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To be filled in by the Candidate

DEGREE 2nd Semester
(Arts / Science / Commerce /
.....) Exam., **2016**

Subject

Paper

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 45 minutes 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.**

To be filled in by the Candidate

DEGREE 2nd Semester
(Arts / Science / Commerce /
.....) Exam., **2016**

Roll No.

Regn. No.

Subject

Paper

Descriptive Type

Booklet No. B

*Signature of
Scrutiniser(s)*

*Signature of
Examiner(s)*

*Signature of
Invigilator(s)*

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GEOL/II/02

2 0 1 6

(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—I

(Multiple Choice)

(Marks : 5)

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

(a) Mineral deposits formed due to the various processes associated with magmatic activities are called

(i) primary mineral deposits

(ii) secondary mineral deposits

(iii) metamorphic mineral deposits

(iv) None of the above []

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(2)

(b) Which of the following minerals has basal cleavage?

(i) Garnet

(ii) Calcite

(iii) Biotite

(iv) Quartz []

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

(i) Garnet

(ii) Biotite

(iii) Hornblende

(iv) Quartz []

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(3)

(d) 1 of VI is unique axis for

(i) isometric

(ii) tetragonal

(iii) hexagonal

(iv) monoclinic []

(e) Which of the following is Bragg's equation?

(i) $2d \sin$

(ii) $n d \sin$

(iii) $n 2d \sin$

(iv) $n 2d \sin^2$ []

(4)

SECTION—II

(Very Short Answer)

(Marks : 15)

2. Define the following :

3×5=15

(a) Types of Lustre

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(5)

(b) Gossan

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(6)

(c) Nicol Prism

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(7)

(d) Miller Indices

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(8)

(e) IGPET

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