

2015
(5th Semester)

GEOLOGY

SEVENTH PAPER

(Petrology)

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, selecting **one**
from each Unit

UNIT—I

1. Answer/Write notes on any *two* of the following : 3½×2=7
- (a) Assimilation of acid igneous rocks by basic magma
 - (b) Mix crystals and their petrological significance
 - (c) Define system. Also add a note on phase rule.

G16/158a

(Turn Over)

2. Define magmatic differentiation. Write a note on fractional crystallization and gravitational settling. 7

UNIT—II

3. Write the phase relationship of forsterite-silica system. 7
4. Describe the petrography and petrogenesis of any *two* of the following : $3\frac{1}{2}\times 2=7$
- (a) Syenite-trachyte family
 - (b) Carbonatite
 - (c) Granite-rhyolite family

UNIT—III

5. Give a brief account of the classification of sandstones. 7
6. Give an account of the sedimentary structures. Support your answer with suitable figures. 7

UNIT—IV

7. What is sedimentary depositional environment? Describe various types of sedimentary depositional environment. $1+6=7$

8. Write the petrography of the following : $3\frac{1}{2}+3\frac{1}{2}=7$
(a) Conglomerate
(b) Limestone

UNIT—V

9. Discuss the types of metamorphism in detail. 7
10. Write the petrography and petrogenesis of any *two* the following : $3\frac{1}{2}\times 2=7$
(a) Migmatites
(b) Granulites
(c) Khondalites

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GEOLOGY

SEVENTH PAPER

(**Petrology**)

(PART : A—OBJECTIVE)

(Marks : 20)

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SECTION—A

(Marks : 5)

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

(a) How many phases will exist together along univariant curves?

(i) One

(ii) Two

(iii) Three

(iv) Four

[]

(b) The number of degree of freedom at invariant point is

(i) 0

(ii) 1

(iii) 2

(iv) 3

[]

(c) The cement in a sandstone is typically the result of the precipitation of minerals like quartz and calcite from

(i) the atmosphere

(ii) organisms

(iii) fauna

(iv) solutions

[]

(d) Which of the following sedimentary environments is dominated by waves and tidal currents?

(i) Glacial

(ii) Alluvial

(iii) Deltaic

(iv) Deep marine

[]

(e) A schistose rock has

- (i) alternating bands
- (ii) parallel orientation of minerals
- (iii) granular appearance
- (iv) spotted appearance

[]

(4)

SECTION—B

(Marks : 15)

2. Write on the following in 3 or 4 sentences each : 3×5=15

(a) Phase and components

(b) Congruent melting and incongruent melting (c)

- (i) alternating bands
- (ii) parallel orientation of minerals
- (iii) irregular appearance
- (iv) spotted appearance

(c) Heavy minerals

2. Write on the following in 3 or 4 sentences each :

3x5=15

(i) Draw and components

(d) Turbulent flow

Zones of metamorphism (e)

GEOLGY

SEVENTH PAPER

(Petrology)

(PART - A - OBJECTIVE)

(Marks : 30)

The figures in the margin indicate full marks for the questions

SECTION--A

(Marks : 5)

1. Choose the correct answer and put your answer within the brackets provided : 1-5=5

(a) How many phases will exist together along an isobar?

(i) One

(ii) Two

(iii) Three

(iv) Four

(e) Zones of metamorphism

- (i) 0
- (ii) 1
- (iii) 2
- (iv) 3

(f) The cement in a sandstone is typically the result of the precipitation of minerals like quartz and calcite from

- (i) the atmosphere
- (ii) organisms
- (iii) fauna
- (iv) solutions

(g) Which of the following sedimentary environments is dominated by waves and tidal currents?

- (i) Glacial
- (ii) Alluvial
- (iii) Deltaic
- (iv) Deep marine
