

**2 0 1 2**

( 3rd Semester )

**GEOLOGY**

THIRD PAPER

**( Petrology and Economic Geology )**

( PART : A—OBJECTIVE )

( Marks : 20 )

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

Answer **all** questions

SECTION—A

( Marks : 5 )

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

(a) Parental magmas are generally considered to be

(i) granitic

(ii) basaltic

(iii) andesitic

(iv) peridotitic

[            ]

(b) Sands range in size from

(i) 1 - 2 mm

(ii) 2 - 4 mm

(iii)  $2 - \frac{1}{16}$  mm

(iv)  $1 - \frac{1}{16}$  mm

[            ]

(c) A metamorphic rock with a high degree of metamorphism is likely to be characterized by

(i) sillimanite and gneiss

(ii) chlorite and phyllite

(iii) muscovite and slate

(iv) biotite and schist

[            ]

(d) The ore of aluminium is

(i) bauxite

(ii) limonite

(iii) monazite

(iv) gondite

[       ]

(e) Groundwater can be obtained from

(i) dams

(ii) lakes and rivers

(iii) aquifers

(iv) hot springs

[       ]

( 4 )

SECTION—B

( Marks : 15 )

2. Answer the following questions in 3 or 4 sentences each : 3×5=15

(a) Distinguish liquidus from solidus in a binary system.

( 5 )

(b) How would you distinguish a clastic sedimentary rock from a non-clastic sedimentary rock?

( 6 )

- (c) How is the degree of metamorphism in an area ascertained?

(d) Distinguish among ore minerals, gangue and tenor.

(e) What is geothermal energy?

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# III / GEO (iii)

2 0 1 2

( 3rd Semester )

GEOLOGY

THIRD PAPER

( **Petrology and Economic Geology** )

*Full Marks* : 55

*Time* : 3 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. Reproduce the complete IUGS classification for phaneritic plutonic rocks in diagrammatical form. 7
2. Write a brief note on the common types of textures observed in plutonic and hypabyssal igneous rocks with neat sketches. 7

( 2 )

UNIT—II

3. Write a brief explanatory note on the textural parameters of sediments and sedimentary rocks. 7
4. Write a note on the mineralogical composition of sandstones. Outline Dott's classification of sandstones. 2+5=7

UNIT—III

5. Highlight the progressive mineralogical changes of basic igneous rocks due to regional metamorphism. 7
6. Define metamorphism. Explain the types of metamorphism in detail. 1+6=7

UNIT—IV

7. Write a brief note on the origin and distribution of iron ores in India. 7
8. Illustrate the structural controls on ore localization. 7

( 3 )

UNIT—V

9. Describe the origin of petroleum. 7
10. Outline the various facets of water as a non-conventional energy resource. 7

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