

2005

GEOLOGY

Paper 1

*Time : 3 Hours /**[Maximum Marks : 300***INSTRUCTIONS**

*Candidates should attempt **all** the questions in Parts A, B & C. However, they have to choose only **three** questions in Part D. The number of marks carried by each question is indicated at the end of the question.*

Answers must be written in English. Care should be taken not to exceed, as far as possible, the suggested limit of words.

This paper has four parts :

- | | |
|----------|-----------|
| A | 20 marks |
| B | 100 marks |
| C | 90 marks |
| D | 90 marks |

Marks allotted to each question are indicated in each part.

PART A

4x5=

Write short notes in about 50 words each. Each question carries 5 marks.

1. (a) Changes in the evolution of horses
- (b) Criteria for recognition of faults in the field
- (c) Mid-oceanic ridges
- (d) Secondary lineations

PART B*10×10=100*

Write short notes in about 100 words each. Each question carries 10 marks.

1. Radioactive dating of the Earth.
2. The Great Mass extinction.
3. Earthquakes : Their causes and distribution.
4. The Western Ghats.
5. Stratigraphic classification and correlation.
6. Differences between Nautiloids and Ammonites.
7. Fluvial cycle of erosion and deposition.
8. Tectonic Framework of India.
9. Palaeogeographic Reconstructions.
10. The Planetesimal hypothesis.

PART C

6×15

Answer each question in about 150 words. Each question carries 15 marks.

1. Describe the Dharwar Supergroup with respect to their classification/division and lithologic characters.
2. Write a comprehensive account of the Mantle of the Earth.
3. Write an essay on Geosynclines and their classification.
4. Describe the various types of drainage patterns and their origin.
5. What is a strain ellipsoid ? How is it useful in geological interpretation ?
6. Describe different categories of volcanic eruptions of the Central type.

PART D

3×30=90

Answer any **three** of the following questions, each in about 300 words.
Each question carries 30 marks.

What is meant by Isostasy ? Explain the two popular theories to explain isostasy.

Explain the theory of Sea floor spreading and plate tectonics and their implication in geology.

Give a concise account of Gondwana sedimentation.

Write an essay on the significance of micro fossils in petroleum exploration.

Draw a comprehensive account of evolution of elephants.

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GEOLOGY

Paper 2

*Time : 3 Hours]**[Maximum Marks : 300***INSTRUCTIONS**

*Candidates should attempt **all** the questions in Parts A, B & C. However, they have to choose only **three** questions in Part D. The number of marks carried by each question is indicated at the end of the question.*

Answers must be written in English. Care should be taken not to exceed, as far as possible, the suggested limit of words.

This paper has four parts :

- | | |
|----------|-----------|
| A | 20 marks |
| B | 100 marks |
| C | 90 marks |
| D | 90 marks |

Marks allotted to each question are indicated in each part.

PART A

4×5=20

Write short notes in about 50 words each. Each question carries 5 marks.

1. (a) Pleochroism
- (b) Nature and Physical properties of Magma
- (c) Sedimentary Facies
- (d) Tenor

PART B

Write short notes in about 100 words each. Each question carries 10 marks. *10 × 10 = 100*

1. Banded Iron Formations
2. Agents of metamorphism
3. Supergene Sulphide enrichment
4. Crystallization in a simple binary system with eutectic
5. Cumulate textures
6. Polymorphism
7. Contact metamorphism
8. Objective of National Mineral Policy
9. Heavy minerals and Provenance
10. Stylolites

PART C

Answer each question in about 150 words. Each question carries 15 marks.

1. Describe different types of diagenetic processes.
2. Outline the salient features of underground mining by open methods.
3. Give a comprehensive account of the textures of metamorphic rocks.
4. What are the different processes by which a magma differentiates?
5. Describe the structure, chemical composition, properties and occurrence of the pyroxene group of minerals.
6. Explain the behaviour of light in a uniaxial mineral with the help of the indicatrix.

PART D

Answer any **three** of the following questions, each in about 300 words.
Each question carries 30 marks.

3×30=90

1. Explain the geological requirements for a successful dam site and reservoir.
2. What are primary mineral deposits? Explain with suitable examples, where available.
3. Outline the methodology involved in evaluating ground water resources in a region.
4. Describe in detail the structures of intrusive igneous rocks with examples.
5. Give a comprehensive account of structure of silicate minerals with examples for each group.