

2006  
GEOLOGY - II (Optional)

000065

Standard : Degree

Total Marks : 200

Nature : Conventional

Duration : 3 Hours

Note :

- (i) Answers must be written in **English**.
- (ii) Question No. 1 is **Compulsory**. Of the remaining questions, attempt **any four** selecting one question from **each section**.
- (iii) Figures to the **RIGHT** indicate marks of the respective question.
- (iv) Number of optional questions upto the prescribed number in the order in which they have been solved will only be assessed. Excess answers will not be assessed.
- (v) Credit will be given for orderly, concise and effective writing.
- (vi) Candidate should not write roll number, any name (including their own), signature, address or any indication of their identity anywhere inside the answer book otherwise he will be penalised.
- (vii) For each slab of 10 and 15 marks, the examinee is expected to write answers in 125 and 200 words respectively.

1. Answer any four of the following :

- (a) Describe the structures in metamorphic rocks with emphasis on their origin. 10
- (b) What are petroleum traps ? Describe various types of petroleum traps. 10
- (c) Describe the different modes of occurrence of ore body. 10
- (d) What do you mean by sustainable development ? What measures you will take to protect the environment at the time of industrial development ? 10
- (e) Describe the processes involved in formation of sedimentary rocks. 10

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## SECTION - A

Marks

2. *Answer the following sub-questions :*

- (a) What is a crystal ? Describe the elements of symmetry, crystallographic axes and classification of crystals on their basis. 15
- (b) Describe the optical properties of rock forming minerals. 10
- (c) Define Igneous Rocks. Give their Tabular Classification. 15

3. *Answer the following sub-questions :*

- (a) Describe the phenomenon of Isomorphism, Polymorphism and Pseudomorphism. 15
- (b) Enumerate the minerals commonly occurring in Igneous, Sedimentary and Metamorphic rocks separately, and describe their distinguishing characters. 10
- (c) Describe the crystallisation of binary magma consisting of two independent constituents. 15

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## SECTION - B

4. *Answer the following sub-questions :*

- (a) What are magmatic concentration deposits ? Describe the magmatic concentration process of mineral formation citing examples. 15
- (b) Discuss the basic objectives and salient features of 'National Mineral Policy' of India. 15
- (c) Write an essay on Gondwana coal deposits of India. 10

5. *Answer the following sub-questions :*

- (a) Describe the oxidation and supergene enrichment process of mineral formation. Give examples. 15
- (b) Discuss the role of strategic, critical and essential minerals in the economic development of a nation. 15
- (c) Describe the atomic mineral deposits of India with reference to their mode of occurrence, origin and geographical distribution. 10

## SECTION - C

6. *Answer the following sub-questions :*

- (a) Write in short the applications of Remote Sensing in prospecting of mineral deposits. 15
- (b) Describe the different types of drilling and add a short note on run, core loss and core recovery. 10
- (c) Explain in brief various types of mining techniques for the development and production of ore. 15

7. *Answer the following sub-questions :*

- (a) "Geological prospecting play an important role in mineral exploration" - Discuss. 15
- (b) Explain in brief various types of sampling methods in mineral prospecting and add a note on different methods of assessment of ore bodies. 10
- (c) Describe the methods of underground mining and also suggest some safety measures. 15

## SECTION - D

8. *Answer the following sub-questions :*

- (a) How the ionic substitution takes place in minerals ? Discuss with examples. 15
- (b) Impacts of anthropogenic activities on water resources. 10
- (c) What are natural hazards ? What mitigation measures can be taken for flood hazards ? 15

9. *Answer the following sub-questions :*

- (a) Discuss in detail the distribution of elements in earth. 15
- (b) Describe ecological pyramids. 10
- (c) Discuss the energy scenario in India and alternative sources of energy available in India. 15

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