

2011

490031

GEOLOGY (Optional) (Paper – I)**Standard : Degree****Total Marks : 200****Nature : Conventional (Essay) type****Duration : Three Hours****N.B. :**

- 1) *Answers must be written in **English**.*
- 2) *Question No. 1 is **compulsory**. Of the remaining questions, attempt **any four** selecting one question from **each** section.*
- 3) *Figures to the **RIGHT** indicate marks of the respective question.*
- 4) *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.*
- 5) *Credit will be given for **orderly**, concise and **effective** writing.*
- 6) *Candidates 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/she will be penalised.*

Marks**1. Answer any four of the following questions :****40**

- (a) Define earthquake. Discuss the distribution of earthquakes in the world. Discuss causes of earthquakes.
- (b) Define remote sensing. Describe its applications in Geology.
- (c) Discuss principles of stratigraphy with suitable examples.
- (d) Describe engineering properties of rocks.
- (e) Describe internal structure of the earth with respect to information derived from various sources.

SECTION – A**2. Answer the following sub-questions :**

- (a) Describe at least three modern theories of origin of solar system. **15**
- (b) Describe continental drift with reference to its concept, evidences and objections. **15**
- (c) Describe geological work of glaciers. **10**

3. Answer the following sub-questions :

- (a) Discuss age of the earth with reference to its methods of determination, their importance and drawbacks. **15**
- (b) Describe mountain building processes. **15**
- (c) Describe geological action of wind. **10**

P.T.O.

180001**SECTION – B****4. Answer the following sub-questions :**

- (a) Describe fluvial geomorphic cycle. 15
- (b) What are Aerial photographs ? How they are acquired ? How they are studied ?
What information can they provide ? 10
- (c) Define the term "attitude of beds". How is it determined ? How is it useful ? 15

5. Answer the following sub-questions :

- (a) Discuss "Geologic structure is a dominant control factor in the evolution of landforms and is reflected in them". 15
- (b) Describe the electromagnetic spectrum with a well labeled diagram with a note on its role in remote sensing technique. 10
- (c) Describe genetic classification of faults. Give a note on criteria on recognition of fault in the field. 15

SECTION – C**6. Answer the following sub-questions :**

- (a) Describe distribution, geological age and petrological characteristics of Deccan Traps. 15
- (b) Describe Brachiopods with reference to their morphological characters and geological distribution. 15
- (c) Describe plant fossils found in Gondwana supergroup of rocks. 10

7. Answer the following sub-questions :

- (a) Describe the stratigraphy of Maharashtra. 15
- (b) What is fossil ? Discuss various modes of preservation of fossils. 15
- (c) Define microfossil. Discuss its importance in the petroleum exploration. 10

SECTION – D**8. Answer the following sub-questions :**

- (a) Describe vertical distribution of subsurface water with a well labeled diagram. 15
- (b) How will you define "artificial recharge of groundwater" ? Describe different methods of artificial recharge of groundwater. 15
- (c) Define landslides. Discuss engineering geological aspects involved in their mitigation. 10

9. Answer the following sub-questions :

- (a) Discuss the importance of following rocks as aquifers :
i) Basalt ii) Limestone iii) Sandstone. 15
- (b) Describe the methods used for groundwater exploration. 15
- (c) What are engineering geological aspects to be kept in mind for mitigation of earthquakes ? 10