

GEOLOGY

(Paper I)

Time Allowed : Three Hours

Maximum Marks : 300

QUESTION PAPER SPECIFIC INSTRUCTIONS

(Please read each of the following instructions carefully before attempting questions)

There are EIGHT questions divided in two Sections.

Candidate has to attempt FIVE questions in all.

Question Nos. 1 and 5 are compulsory and out of the remaining, any THREE are to be attempted choosing at least ONE question from each Section.

The number of marks carried by a question/part is indicated against it.

Wherever any assumptions are made for answering a question, they must be clearly indicated.

Word limit in questions, wherever specified, should be adhered to.

SECTION 'A'

1. Answer any three of the following, each within 200 words: **20×3=60**
- (a) What is geochronology? How is it used for the benefit of the earth-science studies?
 - (b) Show how structure and lithology are architects of morphology of landforms.
 - (c) What is Geographic Information Systems and how is it applied for societal benefits?
 - (d) Plunge of folds and direction of movement in fault-planes can be traced by some lineations. There are other lineations as well produced during folding/faulting episodes. Describe these lineations.
2. Why are volcanoes associated with 'Ring of fire' Discuss the genesis of a volcano and write a note on their products. **60**
3. Describe: **30×2=60**
- (a) Geomorphological studies can be applied to Prospecting of minerals, civil constructional studies.
 - (b) Aerial photographs and satellite imageries considerably assist the economies of a country.
4. Answer the following questions **20×3=60**
- (a) How are faults identified in the field?
 - (b) Classify faults based on their geometry and movement.
 - (c) Which landform types are produced by faulting?

SECTION 'B'

5. Write on any three of the following, each within 200 words **20×3=60**
- (a) Evolution of suture-lines of Cephalopods
 - (b) What are Outlier, Window, Tatrot beds and Gangamopteris?
 - (c) Upper Cretaceous-Lower Eocene igneous activity in India
 - (d) Ground-water recharge
6. Write critical notes on the following

- (a) Geological history of Graptoloids
- (b) Fossil-study and Palaeoclimate inference
- (c) Lower Gondwana flora
- (d) Progressive changes in the evolution of horse

7. Answer the following questions

- (a) Litho-, bio-, chrono- and magneto-stratigraphic studies suggest different aspects of stratigraphy. Comment. 30
- (b) Describe the Precambrian stratigraphy of Peninsular India. 30

8. Answer the following questions

- (a) While certain rocks are excellently water-bearing, others do exist without containing a drop of water. Discuss if this is possible. 30
- (b) Answer the questions
- (b)(i) What aspects a geologist should investigate for selecting a tunnel site on a hill-slope? 22
- (b)(ii) Which rocks are chosen for heavy construction purpose? 8