

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. Write a critical note on each of the following in around 150 words:

15×4=60

 - (a) Difference between continental drift and plate tectonics
 - (b) Advantages and limitations of remote sensing analysis of the earth over conventional ground studies
 - (c) Geomorphic divisions of the Indian subcontinent
 - (d) Significance of unconformities
2. Answer the following:

30×2=60

 - (a) Explain the evidences and mechanism of sea-floor spreading.
 - (b) What is a volcanic belt? Discuss the causes of volcanism and products of volcanoes.
3. Discuss the following:

20×3=60

 - (a) Morphometric analysis of drainage basins
 - (b) Application of geomorphology in mineral prospecting
 - (c) Indian Remote Sensing Satellites
4. Give an account of each of the following:

20×3=60

 - (a) Behaviour of mineral and rocks under deformation conditions
 - (b) Shear and tension joints
 - (c) Significance of stereographic projection in structural analyses

SECTION 'B'

5. Write a critical note on each of the following in around 150 words:

15×4=60

 - (a) Great Boundary Fault and its significance
 - (b) Rock as construction material

(c) Interrelationship of biostratigraphic and magnetostratigraphic zonations (with Indian examples)

(d) The 'Piltdown' hoax

6. Answer the following in about 200 words each:

20×3=60

(a) Enumerate various kinds of microfossils. Add a note on the application of foraminifers in palaeoceanographic studies.

(b) What is cast? How is it produced and how can it be differentiated from a natural shell/test?

(c) Write on Gondwana reptiles in India and their significance.

7. Comment upon the following:

20×3=60

(a) Igneous activities in India during the Palaeozoic times

(b) Charnockite—their types and distribution in India, and their petrological and stratigraphical significance

(c) Bagh formation—their invertebrate fauna and economic importance

8. Write a note on each of the following in around 200 words:

20×3=60

(a) Precautions required in construction of a tall building in an earthquake-prone area

(b) Properties of a good aquifer rock

(c) Springs and oasis