

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 critical notes, within 200 words each, on any three of the following:

20×3=60

 - (a) Formation of mid-oceanic ridges and trenches
 - (b) Types of strain ellipsoid
 - (c) Tonal variation in aerial photographs, and interpretation of lithology and structure
 - (d) Role of regional scale structures in the evolution of landforms
2. With the help of neat sketches, describe the following:

30×2=60

 - (a) Classification of folds based on the orientation of axis and axial plane
 - (b) Different types of lineation with special reference to their origin
3. (a) What are the different types of plate margins? What types of geologic structures and lithology are associated with each type of margin? **30**
(b) With the help of neat sketches, explain the effects of strike faults on the inclined strata. **30**
4. With the help of neat sketches, discuss the following:

30×2=60

 - (a) Application of foliation in establishing major structures
 - (b) Geometric analysis of fracture systems in 3-dimension

SECTION 'B'

5. Write critical notes, within 200 words each, on any three of the following:

20×3=60

 - (a) Quaternary climatic changes and evolution of man
 - (b) Cretaceous-Tertiary boundary and the mass extinction
 - (c) Morphometric parameters and their interrelationships
 - (d) Chronostratigraphic sequences
6. Discuss the following:

30×2=60

(a) Application of palaeontologic and palaeobotanic methods in the study of Gondwana tectonics

(b) Analysis of palaeo-sea levels using Foraminifera

7. Discuss the following with neat sketches, wherever required:

30×2=60

(a) Tectonothermal evolution of the South Indian shield

(b) Tertiary formations of India and the fossil fuel deposits

8. Elaborate on the following:

30×2=60

(a) Computation of aquifer parameters

(b) Geological investigations for constructing tunnels in a highly sheared area