

**CSM—36/22**

**GEOLOGY**

**PAPER—I**

**Candidate  
must not  
write on  
this margin.**

**Time : 3 Hours**

**Full Marks : 250**

*The figures in the right-hand margin indicate marks.  
Candidates should attempt **any 10 (ten)** questions of  
**GROUP—A** with word limit of 250 words and should  
attempt **any 5 (five)** questions from **GROUP—B**  
with word limit of 300 words.*

**GROUP—A**

1. What are island arcs? Discuss the evolution of primary active arcs. 15
2. Write notes on the following :
  - (a) Plate tectonism and seafloor spreading 7½
  - (b) Deep-sea trenches and mid-oceanic ridges 7½
3. Write an essay on the origin of the earth. Discuss the interior of the earth and its discontinuities with a neat diagram. 15
4. Describe and differentiate shear joints and tension joints, with a note on the foliation and orientation of foliation within strain ellipsoid. 15
5. What is GIS? Write an essay on various applications of GIS. 15
6. Define weathering. Explain different types of weathering and their products. 15
7. Give an account on the applications of geomorphology in mineral prospecting, civil engineering and environmental studies. 15
8. Describe the causes and effects of earthquakes. Differentiate between seismograms and seismographs. 15
9. Write an essay on the classification and mechanism of folds and faults with neat diagrams. 15

- 10.** Define an unconformity. Describe different types of unconformities with neat diagrams. Add a note on the method of recognizing the unconformities in the field. 15
- 11.** Write notes on the following :
- (a) Basic concepts of geomorphology 5
  - (b) Geomorphological subdivisions of Indian subcontinent 5
  - (c) Morphometric analysis of drainage basins and its significance 5
- 12.** What is volcanism? Describe the causes and mitigative measures of volcanism with a note on the volcanic products. 15

**GROUP—B**

- 13.** Describe the following :
- (a) Stratigraphic significance and the evolution of Trilobites 10
  - (b) Geological history and the evolution of Cephalopod 10
- 14.** Write an essay on the quality of groundwater. Add a note on the salt water intrusion. 20
- 15.** Write notes on the following :
- (a) Cambrian/Pre-Cambrian and Cretaceous/Tertiary boundary problems 10
  - (b) Cuddapah and Vindhyan supergroup of rocks and their mineral wealths 10
- 16.** Discuss in detail on the geological investigations required for the design and construction of tunnels and bridges. 20
- 17.** What are the engineering properties of rocks? Describe various types of landslide, their causes, preventive measures to be taken. 20
- 18.** Give a detailed account on the Geology and mineral wealth of Odisha. 20

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