

CSM – 34/20
Geology
Paper – I

Time : 3 hours

Full Marks : 300

The figures in the right-hand margin indicate marks.

Candidates should attempt Q. No. 1 from Section – A and Q. No. 5 from Section – B which are compulsory and any three of the remaining questions, selecting at least one from each Section.

SECTION – A

1. Answer any **three** of the following in about **200** words each : **20×3 = 60**
 - (a) What is an Earthquake ? Discuss briefly the causes, mitigation and management of earthquakes. Add a note how earthquake intensity is being measured ?
 - (b) Write an essay on plate tectonism. Add a note on sea floor spreading and deep sea trenches.

- (c) Explain and differentiate shear joints and tension joints. Add a note on the foliation and orientation of foliation within strain ellipsoid.
 - (d) What is Remote Sensing ? Give a detailed account on the various applications of Remote Sensing in Geological studies.
2. (a) Write notes on the following : 15+15 = 30
- (i) Give an account of morphometric analysis of drainage basins and explain its significance.
 - (ii) Describe weathering and the mass wasting.
- (b) What is Volcanism ? Discuss briefly the main causes of volcanism and mitigation of volcanism. 30
3. (a) Give a brief introduction on folds and faults with a note on their classification. 30
- (b) Define an Unconformity. Explain the different types of unconformities and the techniques of recognizing them in the field. 30

4. (a) Describe plate boundaries and their types. 30
- (b) Give a detailed account on the interior of the earth. 30

SECTION – B

5. Answer any three of the following in about 200 words each : $20 \times 3 = 60$
- (a) Describe the morphology, geological history and the evolution of Trilobites with neat sketches.
- (b) Write an essay on groundwater provinces in India.
- (c) Discuss, in detail, on the geological conditions required for the design and construction of Dams and Tunnels.
- (d) Discuss the Cambrian – Pre-Cambrian and Cretaceous – Tertiary boundary problems.
6. (a) Write an essay on the Geology and mineral resources of Odisha. 30
- (b) Give a detailed account on the Proboscidean Evolution. 30

7. (a) Write an essay on rainwater harvesting and water resource managements. 30
- (b) Explain the various applications of microfossils. 30
8. (a) Write an essay on classifications of aquifers with a note on groundwater recharge structure. 30
- (b) Enumerate the various types of Landslides, their causes and mitigation measures. 30

