

No. of Printed Pages : 2

CS-106/06

GEOLOGY

Paper-I

Time : 3 Hours]

[Full Marks : 300

- Note :** (1) Candidates should attempt Question No. 1 from Section-A and Question No. 5 from Section-B which are compulsory, and any **three** of the remaining questions, selecting at least one from each Section.
- (2) **All** questions carry equal marks.

SECTION – A

1. Answer any **three** of the following in about **200** words each : **20 × 3 = 60**
- (a) Review the present state of knowledge about the interior of the Earth.
 - (b) Illustrate, with a few suitable examples, how structure and lithology control the geomorphology of an area
 - (c) Comment on the scope and limitations, if any, of applying aerial photographic and satellite image interpretation techniques in geological mapping
 - (d) Explain, with suitable examples, the stress-strain relationships of elastic and viscous earth materials.
2. (a) Mention the causes and products of volcanoes, citing Indian examples. **10 + 10 + 10**
- (b) What are mid-oceanic ridges ? Where are they located ? What is their relationship to plate movements ? **6 + 6 + 6**
Mention their lithology and structures. **12**
3. (a) Write a note on the applications of geomorphology in mineral prospecting, hydrology and environment studies. **10 + 10 + 10**
- (b) Give classifications of folds based on morphology and orientation. **20 + 10**
4. (a) Mention a few important sedimentary structures and their application in determining the tops and bottoms of beds in the field. **15 + 15**
- (b) What is Geographic Information System ? Mention its applications in geological investigations. **10 + 20**

SECTION – B

5. Answer any **three** of the following, each in about 200 words : **20 × 3 = 60**
- (a) Role of microfossils in hydrocarbon exploration.
 - (b) Tectonic evolution of the Himalayan mountain chain.
 - (c) Ground water provinces of India.
 - (d) Describe the morphology and geological history of trilobites.
6. Discuss the following : **30 × 2 = 60**
- (a) Discuss evolution of horse.
 - (b) Describe modes of fossil preservation and morphology of Brachiopods.
7. Write notes on the following :
- (a) Discuss the role of geologist in dam site and tunnel site selection. **15 + 15**
 - (b) Causes for cretaceous – Tertiary boundary mass extinctions. **30**
8. Write notes on the following :
- (a) Different geophysical methods employed in the exploration of ground water. **30**
 - (b) Describe the tectonic sub-divisions of India and add a note on the geology of Orissa. **15 + 15**
-