

CSM – 35/19

Geology

Paper – II

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) Write note on spherical and stereographic projections.
 - (b) Define extinction angle. Discuss the technique of determining the extinction angle of a mineral.

- (c) Discuss the garnet group of minerals with reference to chemistry, physical and optical characteristics.
- (d) Discuss the types and agents of metamorphism.
2. (a) Define pleochroism. Explain how it is determined in hornblende mineral. 5+25 = 30
- (b) Discuss the physical, chemical and optical characters of mica group of minerals. Add a note on their paragenesis and uses. 15+15 = 30
3. (a) Discuss the petrography and petrogenesis of carbonatites. 30
- (b) Discuss the textures and structures of metamorphic rocks with neat sketches. 15+15 = 30
4. (a) Give a comprehensive summary on the charnockites of Southern India. 30

- (b) With neat sketches, explain the different sedimentary structures. Add a note on their paleoenvironment conditions. $20+10 = 30$

SECTION – B

5. Answer any **three** of the following : $20 \times 3 = 60$
- (a) Explain the role of minerals in national economy.
 - (b) Discuss the occurrence of Petroleum deposits of India.
 - (c) Define and discuss Isomorphism and Polymorphism with suitable examples.
 - (d) Define landslide. Discuss the different types of landslides and the causes for it. Add a note on mitigation measures.
6. (a) Discuss the manganese deposits of India and their associated geology. Add a note on the major manganese producing states. 30
- (b) Explain, in detail, the various classifications of minerals deposits. 30
7. (a) Define sampling. Discuss, in detail, the various sampling techniques used in geology. $5+25 = 30$

- (b) Define the economic zone of a country and its extent. Discuss the marine mineral resources. Add a note with special reference to Indian context. $5+20+5 = 30$
8. (a) Discuss, in detail, the structure and composition of the earth. Add a note on the trace element distribution. $20+10 = 30$
- (b) Define what is environment. Discuss, in detail, the various environmental degradations due to urbanization. Add a note on remedial measures. $5+20+5 = 30$

