

**CSM – 35/17**

**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**

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1. Answer any **three** of the following in about **200** words each : 20×3 = 60
  - (a) What is X-ray Crystallography ? Describe spherical and stereographic projections. Add a note on twinning.
  - (b) Describe the structures and textures of igneous rocks.

- (c) What are Metamorphic grades and zones ?  
Explain the types and agents of Metamorphism.
- (d) Give an account on the classification of sedimentary rocks.
2. (a) What is double refraction ? Describe the various optical properties of minerals.  
10+20 = 30
- (b) Explain the physical and optical characters of the Feldspar group of minerals.  
15+15 = 30
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3. (a) Describe the Diopside-Albite-Anorthite system of crystallisation. 30
- (b) Explain the Petrography and Petrogenesis of Anorthosites. 15+15 = 30
4. (a) Describe the structures and textures of metamorphic rocks. 15+15 = 30
- (b) What is Sedimentary facies and provenance ? Explain the various sedimentary environments. 5+5+20 = 30

### SECTION – B

5. Answer any **three** of the following : 20×3 = 60
- (a) Give an account on the processes of formation of mineral deposits.

(b) Explain the various methods of prospecting.

(c) What is geochemical cycle ? Describe the geochemical classification of elements.

(d) Give an account on the various natural hazards. Add a note on their mitigation.

6. (a) Explain the petroliferous basins of India.

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(b) Describe the occurrence and origin of the copper deposits of India. 15+15 = 30

7. (a) What are the techniques of sampling ? Explain the estimation of reserves of ore.

10+20 = 30

(b) What is mineral beneficiation and ore dressing ? Describe the methods of exploration and mining of marine mineral resources. 5+5+10+10 = 30

8. (a) What is open cast mining ? Explain the industrial and radioactive waste disposal, use of fertilisers and dumping of mine waste and fly-ash. 10+20 = 30

- (b) What is marine pollution ? Explain ground and surface water pollution. Add a note on environmental protection legislative measures in India.  $5+15+10 = 30$

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