

CSM – 35/21
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** questions of the following :

20×3 = 60

- (a) What is Hermann-Mauguin notation in crystals ? Discuss how 4mm and 422 are created using motifs.

- (b) Write the chemical classification of Magmatic rocks based on silica concentration and silica saturation.
 - (c) What are metamorphic zones ? What relations do they have with isograds ?
 - (d) Write the occurrence and implications of sedimentary structures of chemical origin.
2. (a) Discuss with diagrams the common twin laws in Monoclinic, Orthorhombic and Hexagonal systems. 10+10+10 = 30
- (b) Discuss, in detail, with diagrams, the various Uniaxial interference figures. 30
3. (a) Explain Pauling's Rule. Write the structural classification of minerals. Define Isostructuralism, Isotypism and Isomorphism. 15+6+9 = 30
- (b) Discuss the fabric, classification and alteration of basaltic rocks. 30
4. (a) Elaborate, in detail, about the contact metamorphic and metasomatic bodies. 30

- (b) Write a note about glacial and lacustrine sedimentary environments. Discuss the textures of Rudaceous sedimentary rocks.

20+10 = 30

SECTION – B

5. Answer any **three** questions of the following :

20×3 = 60

- (a) Write a note about mineral paragenesis.
 - (b) Discuss briefly the procedure of channel sampling.
 - (c) Write an account on the composition of meteorites.
 - (d) Discuss various causes of flooding.
6. (a) What are metallogenic provinces and epochs ? Support your answer for Tin mineralization around the world. State some other examples of metallogenic epochs and provinces outside of India. 10+10+10 = 30
- (b) Write the mineralogy, mode of occurrence, origin, distribution and resources of Gold deposits in India. 30

7. (a) Discuss, in detail, about magnetic and electrical methods of geophysical prospecting for mining. 15+15 = 30
- (b) Write a note about the composition of the Earth's crust. Discuss the geochemical classification of elements. 20+10 = 30
8. (a) Write a critical note about the Indian laws for environment. 30
- (b) Discuss, in detail, about the radioactive wastes and their disposals. What is International Waste Trade ? 20+10 = 30

