

CSM : 18

GEOLOGY
PAPER - II

Time Allowed : 3 hours

Full Marks : 100

Marks for each question is indicated against it.

Attempt any 5 (five) questions taking not more than 3 (three) questions from each Part.

PART - A

1. (a) Established the connection between unit cells, lattice and crystal system. **(10)**
(b) Write explanatory notes on any two of the following: **(2×5=10)**
 - (i) Clay minerals
 - (ii) Physical properties of plagioclase feldspar.
 - (iii) Chemical composition of mica group of minerals.
2. (a) Mention the classification of structural frame work of silicates. Write briefly on any two of them. **(10)**
(b) Discuss briefly on the account of Bowen reaction series. **(10)**
3. (a) What are politic rocks? How regional metamorphism of politic rocks takes place? **(10)**
(b) Write explanatory notes on any two of the following: **(2×5=10)**
 - (i) Carbonates
 - (ii) Plagioclases
 - (iii) Kyanite-andalusite-sillimanite
4. Define Sedimentary facies. How is the provenance of sediments determined? What parameters control the environment of deposition of sedimentary rocks? **(4+12+4 =20)**

PART-B

5. Distinguished between endogenetic and exogenetic mineral deposits. Illustrate the processes of magmatic concentration deposits with neat sketch and examples. Add a note on metastomatic replacement deposits formed by hydrothermal processes. **(4+10+6=20)**
6. Write explanatory notes on **any four** of the following: **(4×5=20)**
- (a) Ore, Ore minerals and gangue
 - (b) Residual concentration process
 - (c) Mode of occurrence and Origin of Copper
 - (d) Coal deposits of Northeast India
 - (e) National Mineral Policy
 - (f) Marine mineral resources
7. (a) Discuss various rules governing distribution of trace elements in the Earth's crust. **(10)**
(b) State and explain the First Law of Thermodynamics from a geologist's perspective. **(10)**
8. What do you understand by Landslide? Describe the variables responsible in the determining the stability of a slope in landslide. Add a note on the common engineering techniques for landslide mitigation. **(4+10+6=20)**

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