

CSM : 18

GEOLOGY
PAPER - I

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) Outline the Earth's history from the time of formation of the planetesimals through planetary differentiation to the formation of the atmosphere. (10)
(b) Explain different types of plate boundaries. (10)
2. Write explanatory notes on **any four** of the following: (4×5=20)
 - (a) Island arcs
 - (b) Concept of seafloor spreading
 - (c) Weathering
 - (d) Dendritic versus trellis drainage pattern
 - (e) Application of GPS
 - (f) Limitation of aerial photographs.
3. (a) Explain how geological studies indicate the prospects of groundwater in a region. (10)
(b) Write briefly on the suitability of sedimentary rocks as aquifer. (10)
4. (a) Write briefly the geological investigation required for construction of a gravity dam. (10)
(b) Describe in detail the geological factors considered for the construction of Highways with suitable diagram. (10)

PART-B

5. (a) Briefly discuss on strain and stress relationship in plastic and elastic rock materials. **(10)**
(b) Write the explanatory notes on Lineation and Foliation. **(10)**
6. (a) What are the characteristics of index fossils? What is the significance of index fossils in the stratigraphic studies? **(10)**
(b) Application of fossils in palaeoclimatic reconstruction of an area. **(10)**
7. (a) Discuss the fundamental law of stratigraphy. **(10)**
(b) Define Biostratigraphy. How does it differ from lithostratigraphy. **(10)**
8. Write explanatory notes on any four of the following: **(4×5=20)**
(a) Iron Ore Group
(b) Papaghani Group
(c) Semri Group
(d) Cretaceous-Tertiary boundary problem in Northeast India
(e) Jaintia Group
(f) Surma Group.

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