

CSM : 17

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) List the various hypotheses of the Earth's origin. Discuss the most acceptable hypothesis and explain how it is able to interpret the various facts of our solar system. (10)
(b) Explain how seismic waves help in understanding the internal structure of the earth. (10)
2. Write explanatory notes on **any four (4)** of the following: (4×5=20)
 - (a) Geomorphic cycles
 - (b) Components of Global Positioning System
 - (c) Weathering
 - (d) Indian Peninsular geomorphology
 - (e) Application of geomorphology in mineral prospecting
 - (f) Indian Remote Sensing satellites and their applications
3. Write short notes on **any four (4)**: (4×5=20)
 - (a) Water table
 - (b) Specific yield
 - (c) Confining beds
 - (d) Porosity
 - (e) Permeability
 - (f) Rain water harvesting
4. (a) While investigating a proposed gravity dam site, what should a geologist look for? Discuss the causes of failure and preventive measures to be taken for a gravity dam. (10)
(b) Tunnel design and tunneling methods are dependent upon the geology of the area. Explain with suitable sketches. (10)

PART - B

5. (a) Briefly describe the “strain ellipse concept” and its applicability in the development of various structures in a deformed region. **(10)**
(b) Define fault. How is fault genetically classified? **(10)**
6. Give an account on the evolutionary trends observed in *Equidae* with suitable sketches. Write briefly on the characteristic features observed in modern horse. **(12+8=20)**
7. (a) Discuss the fundamental law of stratigraphy. **(10)**
(b) Write the *geological time scale* in a tabular form. **(10)**
8. (a) Discuss the Cretaceous/Tertiary boundary problem in Indian stratigraphy. **(10)**
(b) Write notes on evolution of the Himalayas based on modern concepts. **(10)**

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