

2021

GEOLOGY

PAPER-I

Time Allowed — 3 Hours

Full Marks — 200

If the questions attempted are in excess of the prescribed number, only the questions attempted first up to the prescribed number shall be valued and the remaining ones ignored.

*Answers may be given either in **English** or in **Bengali** but all answers must be in one and same language.*

Group-A

Answer any three questions.

1. (a) Illustrate with neat sketches different types of volcanoes and their distribution in relation to plate boundaries.
(b) What is an Unconformity? How it is recognized? Describe briefly the different types of Unconformities.
(c) What is Palaeomagnetic Reversal? 15+15+10=40
2. (a) Explain the following with diagrams:
(i) Anticline and Syncline
(ii) Fold axis
(iii) Axial plane of a fold
(iv) Plunge of an antiform.
(b) Define a fault. Illustrate with neat sketches different types of faults. How do you identify faults in the field? (5×4)+20=40
3. (a) What is a dam and what is its utility? Give an account on the classification of dams based on the types of materials used in their construction.
(b) Explain the following:
(i) Geosynchronous and Sun synchronous satellites.
(ii) Different types of sensors used by Indian Remote Sensing Satellites.
(iii) Scanning systems of Remote Sensing Satellites.
(c) Discuss the causes of landslides. 15+(5×3)+10=40
4. (a) What are the different types of meteorites? Discuss the significance of meteorite study in Geology.
(b) How is gravitation different from gravity? What is Free-air correction? What is gravity anomaly?
(c) Describe the different types of seismic waves generated in an earthquake. 15+15+10=40

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5. (a) What are aquifers? Explain the different types of aquifers and their characteristics with suitable diagrams.
- (b) Define porosity and permeability of a rock. Distinguish between 'Specific Yield' and 'Specific Retention'. How are they related to porosity of an aquifer?
- (c) Comment briefly on rainwater harvesting. 15+15+10=40

Group-B

Answer any two questions.

6. (a) Describe with neat sketches the hard part morphology of gastropoda.
- (b) Why is stratigraphic correlation comparatively easier in the Phanerozoic than in the Precambrian successions? 20+20=40
7. (a) Briefly discuss the main elements of Siwalik vertebrate fauna and give their stratigraphic distribution.
- (b) Write notes on any two of the following:
- (i) Cretaceous succession of Trichinopoly
 - (ii) Iron ore Group
 - (iii) Chronostratigraphic correlation 20+(10×2)=40
8. (a) Discuss the stratigraphic importance of
- (i) Ptilophyllum flora
 - (ii) Syringothyris cuspidata
 - (iii) Globotruncana
 - (iv) Gondwana flora
- (b) Give an account of the stratigraphic development of the Vindhyan Supergroup. (5×4)+20=40

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