

Indian Forest Service Examinations: 2013

A-JGPT-M-HFP-A

GEOLOGY
Paper I
(CONVENTIONAL)

Time allowed : Three Hours

Maximum Marks : 200

Question Paper Specific Instructions

Please read each of the following instructions carefully before attempting questions :

There are **EIGHT** questions in all, out of which **FIVE** are to be attempted.

Questions no. 1 and 5 are compulsory. Out of the remaining **SIX** questions, **THREE** are to be attempted selecting at least **ONE** question from each of the two Sections A and B.

Attempts of questions shall be counted in chronological order. Unless struck off, attempt of a question shall be counted even if attempted partly. Any page or portion of the page left blank in the Answer Book must be clearly struck off.

All questions carry equal marks. The number of marks carried by a question / part is indicated against it.

Answers must be written in **ENGLISH** only.

Neat sketches may be drawn, wherever required.

SECTION A

- | | | |
|-------------|---|--------|
| Q.1. | Write critical notes on each of the following : | 8×5=40 |
| (a) | Significance of half-life in radioactive elements. | 8 |
| (b) | Isostatic compensation. | 8 |
| (c) | Visible radiation of electromagnetic spectrum. | 8 |
| (d) | Convergent plate boundaries. | 8 |
| (e) | Progressive deformation. | 8 |
| Q.2. | (a) Describe different types of seismic waves and their significance. | 15 |
| | (b) Draw a section of the interior of the Earth and show different layers with their physical properties. | 15 |
| | (c) Describe in brief the causes of tsunami. | 10 |
| Q.3. | (a) Discuss the significance of stream order and mean bifurcation ratio in the morphometric analysis of a drainage basin. | 15 |
| | (b) Give the progressive developments in the Indian Remote Sensing Satellites, from the geological point of view. | 15 |
| | (c) Explain the importance of GPS in geological mapping. | 10 |
| Q.4. | (a) Describe in brief the π -S diagram and its use in the structural analysis. | 20 |
| | (b) Define strain ellipsoid and describe different types of strain ellipsoids in deformed rocks. | 10 |
| | (c) Describe in brief the types of planar fabrics in the deformed rocks. | 10 |

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SECTION B

- Q.5.** Write critical notes on each of the following : 8×5=40
- (a) Brief morphology of Terebratula shell. 8
 - (b) Separation of microfossils from the rock. 8
 - (c) Cyclothem in Barakar Formation. 8
 - (d) Yield capacity of a well. 8
 - (e) Hydrologic cycle. 8
- Q.6.**
- (a) Describe with neat sketch the morphological features of Trilobites. 20
 - (b) Give in brief the distribution of Ammonoidea through the geological ages. 10
 - (c) Explain the significance of Graptolites. 10
- Q.7.**
- (a) Discuss the stratigraphic classification of Vindhyan rocks. 20
 - (b) Write notes on Zewan Series. 10
 - (c) Describe in brief Subathu Series. 10
- Q.8.**
- (a) Discuss the geological factors that are important for the construction of the tunnels. 20
 - (b) Discuss the role of groundwater in landslides. 10
 - (c) Give the importance of rain water harvesting. 10