

Total number of printed pages-4

3 (Sem-4/CBCS) GLG HC 2

2023

GEOLOGY

(Honours Core)

Paper : GLG-HC-4026

**(Stratigraphic Principles and
Indian Stratigraphy)**

Full Marks : 60

Time : Three hours

**The figures in the margin indicate
full marks for the questions.**

1. Answer the following : 1×7=7
- (a) What is stratigraphy ?
 - (b) Which isotope chemostratigraphy is useful in identifying 'oceanic anoxic event' ?
 - (c) What is the difference between 'stratotype section' and 'type locality' ?
 - (d) What is lesser Himalaya ?

Contd.

- (e) Name a prominent fauna which got extinct during Permian, and a prominent fauna that evolved during early Triassic and are used to delineate the Permian-Triassic boundary in India.
- (f) In which part of India Muth Quartzite of Devonian Age is found ?
- (g) What is the geological age of Khari Formation ?

2. Answer briefly the following : 2×4=8

- (a) What is International Commission on Stratigraphy and what is its primary objective ?
- (b) Name *any four* Subcommissions of International Commission on Stratigraphy.
- (c) Name the Cretaceous stratigraphic formations of the Cauvery Basin.
- (d) What is the (i) age, and (ii) lithological composition of Dihing Group ?

3. Answer the following : *(any three)* 5×3=15

- (a) What are the criteria considered in delineating/establishing a lithostratigraphic unit ? Also explain when a chronostratigraphic boundary passes through a lithostratigraphic unit.

- (b) Explain how lateral facies variations indicate which part of a sedimentary basin is marginal and which part is interior/deeper.
- (c) Which part of India is represented when we use the term 'Indian shield' ? Justify your answer from geological point of view.
- (d) Name and describe the intrusive rocks that are found in Shillong Basin and intruded to the Shillong Group of rocks.
- (e) Write on the mode of origin, composition and age of the Rajmahal volcanics.

4. Answer the following : **(any three)**

10×3=30

- (a) Explain, giving suitable examples, the importance of stratigraphy in earth science.
- (b) What is facies ? Explain how facies variations are related to transgression and regression within a sedimentary basin and from your explanations. Justify that vertical occurrences of different sedimentary beds/strata are related to lateral variations of facies.

- (c) Discuss the physiography and tectonics of the Vindhyan basin. Also give a brief account of the Semri Group in terms of lithology, depositional environment and age.
- (d) Give a stratigraphic account of the Siwalik Supergroup in terms of its stratigraphic succession, depositional environment and important fossils.
- (e) (i) Write on the geological disposition of the Deccan Traps in terms of composition, age and stratigraphic thickness variations.
- (ii) Discuss the significant changes that took place during Cretaceous-Tertiary boundary transition in Indian subcontinent.
- (f) Write in detail on the Triassic stratigraphic succession of Spiti in terms of palaeontology, depositional environment and geological significance.
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