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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 : $2 \times 4 = 8$

(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)*

$5 \times 3 = 15$

(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)*

$10 \times 3 = 30$

(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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