

(6 pages)

**S.No. 6017**

**P 22 AGCC 1 A**

(For candidates admitted from 2022–2023 onwards)

M.Sc. DEGREE EXAMINATION, NOVEMBER 2023.

Applied Geology – Core Choice Course

**STRATIGRAPHY**

Time : Three hours

Maximum : 75 marks

**PART A — (20 Marks)**

Answer ALL questions.

- I. (A) Choose the correct answer (5 × 1 = 5)
1. Which of the following is not true about index fossils?
- (a) Index fossils are limited in geological time
  - (b) Index fossils should be distinctive and widespread
  - (c) Index fossils are limited only to the marine environment
  - (d) Index fossils are important to determine the age of the rock

- 2. The age of the sedimentary rocks of Purana Basins is
  - (a) Proterozoic
  - (b) Triassic
  - (c) Tertiary
  - (d) Archean
- 3. The northern and southern Indian blocks are sutured along
  - (a) Aravalli-Delhi fold belt
  - (b) Central India Tectonic Zone
  - (c) Pranhita-Godavari rift valley
  - (d) Deccan Traps
- 4. Syringothyris Limestone Formation is associated with
  - (a) Jurassic sequence of Kutch
  - (b) Cretaceous sequence of Trichinopoly
  - (c) Triassic sequence of Spiti
  - (d) Paleozoic sequence of Kashmir
- 5. Cretaceous-Tertiary boundary is also called as
  - (a) Aptian-Albian boundary
  - (b) Tonian-Cryogenian boundary
  - (c) Maastrichtian-Danian boundary
  - (d) Tithonian-Kimmeridgian boundary

(B) Fill in the blanks (5 × 1 = 5)

6. The large ocean known to be surrounding the supercontinent Pangea is known as
7. Enothem, Erathem, System, Series and State are the \_\_\_\_\_ units.
8. Stromatolitic dolomites of the Vempalle Formation belong to \_\_\_\_\_ Group of the Cuddapah Supergroup.
9. The sedimentary rocks of the Gondwana sequence represent a \_\_\_\_\_ depositional environment.
10. Extinction of trilobites is observed at \_\_\_\_\_ boundary.

II. Answer the following questions. (5 × 2 = 10)

11. Differentiate between craton and shield.
12. What are inter-trappean beds and how are they different from the infra-trappean beds?
13. List the different geochronologic units of the Geological Time Scale.

14. Name the "big five" mass extinction events.
15. What is the economic significance of the Gondwana Supergroup?

PART B — (5 × 5 = 25)

Answer ALL questions.

16. (a) Write a short note on the methods of stratigraphic correlation.

Or

- (b) What is GSSP? Discuss its significance in stratigraphy.

17. (a) What are the differences between chronostratigraphic and geochronologic units?

Or

- (b) What are the magnetostratigraphic units? Discuss their relationship with the normal and reverse polarity.

18. (a) Write a brief note on the stratigraphy of the Gondwana sequence of India.

Or

- (b) Write a brief note on the stratigraphy of the Siwalik sequence of India.

19. (a) List the geological differences between cratons and fold belts.

Or

- (b) What are greenstone belts? Discuss the generalized litho-stratigraphy of greenstone belts and their tectonic setting.

20. (a) Discuss the age problem pertaining to the stratigraphy of India in brief.

Or

- (b) Write a brief note on the causes of environmental changes observed at the Cretaceous Tertiary and Permian-Triassic boundary.

PART C — (3 × 10 = 30)

Answer any THREE questions.

21. Discuss the principles of stratigraphy with suitable examples and diagrams.
22. Discuss the tectonic divisions of India in detail.
23. Discuss the stratigraphic sequence of the Cuddapah Basin and its economic significance.

24. Describe the litho- and biostratigraphy of the Cretaceous sequence of Trichinopoly.

25. Write a descriptive note on the Phanerozoic volcanic provinces of India and their geodynamic significance.