

2019

GEOLOGY

( Major )

Paper : 5.1

( Principles of Stratigraphy and  
Historical Geology )

Full Marks : 60

Time : 3 hours

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

1. Choose the correct answer from the following : 1×7=7

(a) Who wrote the book, *Illustrations of the Huttonian Theory of the Earth*?

(i) John Playfair

(ii) James Hutton

(iii) Nicolas Steno

(iv) Charles Lyell

(b) Who gave the name 'Gondwana'?

(i) Eduard Suess

(ii) Johann Gottlob Lehman

(iii) James Dana

(iv) Abraham Ortelius



- (c) Who introduced the concept of 'principle of original horizontality'?
- (i) Charles Lyell
  - (ii) James Hutton
  - (iii) Nicolas Steno
  - (iv) John Playfair
- (d) Who said on discussion of the age of the Earth, "We find no vestige of a beginning, no prospect of an end"?
- (i) Giovanni Arduino
  - (ii) Bertram Boltwood
  - (iii) James Hutton
  - (iv) Sir Charles Lyell
- (e) Abraham Gottlob Werner developed a theory which says that all rocks were formed through sedimentation in the originally water consisted earth. What is the name of the theory?
- (i) Volcanism
  - (ii) Plutonism
  - (iii) Neptunism
  - (iv) Sedimentation
- (f) Which of the following is a chronostratigraphic unit?
- (i) Formation
  - (ii) Range zone
  - (iii) Bed
  - (iv) Series

- (g) What is the age (in million years) of the Archaean-Proterozoic boundary?
- (i) 2000
  - (ii) 2500
  - (iii) 1600
  - (iv) 3000

2. Give answers to the following : 2×4=8

- (a) Give four salient features of Cambrian period.
- (b) Name four Proterozoic sedimentary basins of India.
- (c) What is 'homotaxial'?
- (d) What is 'magnetostratigraphic polarity unit'?

3. Answer/Write briefly about the following (any three) : 5×3=15

- (a) Measurement of geological time on the basis of salinity
- (b) What is lithostratigraphy and what is its importance?
- (c) Siwalik Basin
- (d) Neritic environment
- (e) Marine sedimentation during Cretaceous time



4. Give elaborate answers to the following :

10×3=30

- (a) Write on the geological time scale mentioning how the boundaries of the subdivisions in the scale have been made.

Or

Write on the stratigraphic classification and nomenclature adopted in India.

- (b) Discuss the elements and factors that define the characteristics of sediments in a depositional basin.

Or

Discuss the sedimentation process of shelf facies environment.

- (c) Discuss the seismo-stratigraphic method and its scope of application.

Or

Write about the stratigraphic sequence formed due to transgression and regression of sea in an area. Explain the textural and structural characteristics of the sequences.

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