

2021

GEOLOGY — HONOURS

Sixth Paper

(Unit - I)

Full Marks : 75

The figures in the margin indicate full marks.

*Candidates are required to give their answers in their own words
as far as practicable.*

Group - A

(Sedimentology)

(Marks : 20)

Answer *any four* questions.

1. Draw the bedform stability diagram and mark Hjulstrom curve thereon. 3+2
2. Furnish Dunham's limestone classification. 5
3. Give a brief account of the different types of matrices found in sandstone. 5
4. What is the basic difference between conglomerate and breccia? What is oligomict conglomerate? 3+2
5. State with reasons why BIF is not found in the Phanerozoic rock record. 5
6. Write short notes on *any two* of the following : 2½×2
 - (a) Syntaxial overgrowth
 - (b) Stylolite
 - (c) Evaporites
 - (d) Intraclast.
7. Distinguish between *any two* of the following pairs : 2½×2
 - (a) Lunate ripple and Linguoid ripple
 - (b) Reynolds Number and Froude Number
 - (c) Flute cast and Load cast
 - (d) Graded bedding and Graded stratification.

Please Turn Over

Group - B
(Principles of Stratigraphy)
(Marks : 15)

Answer *any three* questions.

8. State the Law of Superposition. 5
9. "A lithostratigraphic unit may be time transgressive." – Justify the statement with an appropriate example. 5
10. What is the stratigraphic significance of a Concurrent Range Zone? 5
11. How would you distinguish between paraconformity and disconformity? 5
12. Draw a neat labelled sketch to show the different discontinuities based on the patterns of reflection terminations in a seismic profile. 5
13. Write short notes on *any two* of the following : 2½×2
 - (a) Rb-Sr isochron
 - (b) Stratotype
 - (c) Index fossil
 - (d) Chemostratigraphy.

Group - C
(Economic Geology)
(Marks : 40)

14. Answer *any five* questions : 5×5
 - (a) What is the difference between gangue and ore? Discuss with examples.
 - (b) Draw a schematic diagram to show the different zones associated with supergene enrichment process. How are the primary, secondary and hypogene mineralization related to the process?
 - (c) What is a stratiform deposit? Illustrate your answer with sketch. Give one example of stratiform deposit.
 - (d) What are the mineral deposits associated with continental rift setting?
 - (e) Write briefly on the factors that control the precipitation of ore minerals from hydrothermal fluid.
 - (f) What is a 'Metallogenic Province'? Mention four Metallogenic Provinces from Peninsular India.
 - (g) What are the raw materials needed for Iron and Steel Industry? What are their specifications?
 - (h) What are the differences between 'Rank' and 'Grade' of coal?

15. Answer *any one* question :

- (a) Give a detailed account of the Zawar Pb-Zn deposit with emphasis on its geologic setting, mode of occurrence, mineralogy, age and genesis. 15
- (b) Write short notes on *any three* of the following : 5×3
- (i) Metamorphic and metamorphosed ore-deposits
 - (ii) East coast bauxite deposit
 - (iii) Deep sea ferromanganese nodules
 - (iv) Migration of petroleum
 - (v) Khetri Copper deposit.
-