

2019

GEOLOGY

(Major)

Paper : 5.3

(Palaeontology and Soil Geology)

Full Marks : 60

Time : 3 hours

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

Answer **all** questions

GROUP—A

(Palaeontology)

(Marks : 45)

1. Answer the following as directed :

1×6=6

- (a) The domain of palaeontology which deals with the decay and fossilization of death organism is known as _____.

(Fill up the blank)

(b) Trilobite fossils are found in

- (i) swamp environment
- (ii) marine environment
- (iii) lacustrine environment
- (iv) fluvial environment

(Choose the correct answer)

(c) Siliceous wood fossils are the products of ____ process of fossilization.

(Fill in the blank)

(d) The principle 'Law of faunal succession' was introduced by

- (i) Charles Lyell
- (ii) John Tuzo Wilson
- (iii) William Smith
- (iv) James Hutton

(Choose the correct answer)

(e) The biostratigraphic zone which represents maximum abundance of a definite fossil species is known as

- (i) Assemblage zone
- (ii) Taxon range zone
- (iii) Concurrent zone
- (iv) Acme zone

(Choose the correct answer)

(f) Which of the following groups of fossils is common to the both Lower Gondwana and Upper Gondwana rocks?

- (i) Ferns
- (ii) Conifers
- (iii) Cycads
- (iv) Equisetales

(Choose the correct answer)

2. Answer any two questions :

2×2=4

- (a) Mention the different physio-chemical factors which control the process of fossilization.
- (b) What are the prerequisites of a fossil to be considered it as an index fossil?
- (c) Name the different forms of man reported during Sapien stage of its evolution.
- (d) Enumerate two distinct morphological differences between pelecypoda and brachyopoda fossils.

3. Write short notes on (any three) :

5×3=15

- (a) Scope of palaeontology
- (b) Unaltered mode of preservation of fossil

(4)

(c) Anthozoa as indicator of depositional environment

(d) Morphology of Echinoidea

(e) Branches of palaeontology

4. Answer any *two* of the following : $10 \times 2 = 20$

(a) Discuss on evolutionary trends of Equidae. Mention why phylogeny of Equidae is important in biostratigraphy.
 $8 + 2 = 10$

(b) With net sketch, describe morphology of Foraminifera. Mention their geological distribution.
 $8 + 2 = 10$

(c) With net sketch, describe the morphological characteristics of Gastropoda. How are they morphologically different from Cephalopoda?
 $8 + 2 = 10$

(d) Enumerate the broad divisions of invertebrates. Mention prominent characteristics of each of the divisions.
 $6 + 4 = 10$

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(Continued)

(5)

GROUP—B

(Soil Geology)

(Marks : 15)

5. Answer the following as directed : $1 \times 2 = 2$

(a) Well aerated soils generally appear in brown, yellow and/or red colours due to presence of $\text{FeO}/\text{Fe}_2\text{O}_3/\text{Fe}_3\text{O}_4$.

(Choose the correct answer)

(b) The mass of soil per unit volume of it is known as ____.

(Fill up the blank)

6. Write a short note on any *one* of the following : 3

(a) Factors controlling soil formation

(b) Soil erosion

7. Answer any *one* of the following : 10

(a) What is soil? Write briefly on soil types of India. $2 + 8 = 10$

(b) What are the bases of classification of soil? Write on taxonomic classification of soil. $2 + 8 = 10$

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