2020

BOTANY — HONOURS

Paper : CC-5

Full Marks : 50

The figures in the margin indicate full marks.

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

1. Answer ***any five*** of the following :

(a) Which rock type is most suitable for preservation of fossils? Why? 1+1

(b) What are chemical fossils? Give an example. 1+1

(c) Which geological period is called the 'Age of Ferns'? Why? 1+1

(d) State the chemical nature of sporopollenin. 2

(e) Mention the reasons behind Edward's renaming of *Rhynia major*. 2

(f) What is hydrasperman reproduction? 2

(g) Distinguish between spores and pollen grains. 2

(h) Name the form genera of the root and leaf of *Lepidodendron*. 2

2. Answer ***any two*** of the following :

(a) Write a short note on the principle of radiometric dating of rocks / fossils. 5

(b) Comment on the gametophyte of *Rhynia*. 5

(c) What is Aeropalynology? Write a brief note on the role of Aeropalynology on human health. 1+4

3. Answer ***any three*** of the following :

(a) Give an outline of the three-fold subdivisions of Indian Gondwana. Mention at least five characteristic megafossil genera from the respective subdivisions. 2½+7½

(b) Describe the modes of cellular permineralisation and authigenic preservation of fossils mentioning one example from each type. 4+4+2

(c) Characterise the stem anatomy and fructifications of the reconstructed plant *Calamites* with suitable illustrations. 4+6

(d) State the geological age of the reconstructed plant *Cordaites*. Describe its leaf anatomy and female fructifications with labelled sketches. 1+4+5

(e) Give an account of sporoderm stratification as proposed by Erdtman and Faegri with labelled sketches. Draw the different exine ornamentation patterns found in spores and pollen grains. 5+5

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