

2023

BOTANY — HONOURS

Paper : CC-5

(Palaeobotany and Palynology)

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 :

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| (a) Name two fossils which are widely used as source of energy by human society. | 1+1 |
| (b) What is 'Sparganium cortex'? Where does it occur? | 1+1 |
| (c) Define Authigenic preservation of fossil. Give one example. | 1+1 |
| (d) Name the stem and leaf organ genera of the reconstructed plant <i>Calamites</i> . | 1+1 |
| (e) What is 'coal ball'? | 2 |
| (f) What are stromatolites? Mention their geological age of occurrence. | 1+1 |
| (g) Define epidogenesis. | 2 |
| (h) Draw a tetracolporate pollen grain in polar view and write its NPC number. | 1+1 |

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LIBRARY2. Answer **any two** of the following :

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| (a) Write a brief note on the principles of reconstruction of fossil plants. | 5×2 |
| (b) Give an account of the conditions and factors controlling fossilization process. | |
| (c) Explain briefly the NPC classification as proposed by Erdtman with necessary illustrations. | |

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

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|---|-----------|
| (a) Name the different organ genera of the reconstructed plant <i>Williamsonia seawardiana</i> . Describe its pollen and ovule bearing organs with labelled diagrams. Mention its geological occurrence. | 2+3½+3½+1 |
| (b) Mention the different Eras, Periods and Epochs of standard geological time-scale in a tabular form. Briefly describe the characteristic flora of the Mesozoic Era. | 7+3 |
| (c) Describe the structure and significance of the persistent leaf cushions found on the stem of <i>Lepidodendron</i> with suitable sketches. Briefly describe the stem anatomy of <i>Lepidodendron</i> and identify the Lycopsid characters found therein. | 3+2+3+2 |

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- (d) Describe the major aperture types found in angiosperm pollen grains with necessary illustrations. Write a brief note on the role of palynology in Forensic Science. 6+4
- (e) Draw and describe the morphological and anatomical features of *Rhynia gwynne-vaughanii*. Comment on the evolutionary modifications found in this plant for land adaptation. 7+3
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