

Reg. No .....

**M. Sc. DEGREE END SEMESTER EXAMINATION - APRIL 2026****SEMESTER 2 : BOTANY****COURSE : 24P2BOTT05 : BRYOLOGY, PTERIDOLOGY AND GYMNOSPERMS***(For Regular 2025 Admission and Improvement/Supplementary 2024 Admission)*

Time : Three Hours

Max. Weights: 30

**PART A****Answer any 8 questions****Weight: 1**

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| 1.  | Explain trabecula and its morphological nature in <i>Selaginella</i> .                    | (U, CO 1, CO<br>2, CO 4, CO 5)                 |
| 2.  | Explain acrostichoid soral condition and its speciality when compared to other ferns.     | (U, CO 1, CO<br>2, CO 4, CO 5)                 |
| 3.  | Why Rhynia is considered as a connecting link between bryophytes and pteridophytes?       | (U, CO 1, CO<br>3)                             |
| 4.  | Why bryophytes are called as amphibians of plant kingdom?                                 | (R, CO 1, CO<br>4, CO 5)                       |
| 5.  | Describe the features of an ideal DNA barcode.  | (U)  |
| 6.  | What are elaters? What is their function in Marchantiales?                                | (U)  |
| 7.  | What is mean by <i>organ sui-generis</i> ? Give an example and explain.                   | (U, CO 1, CO<br>2, CO 4, CO 5)                 |
| 8.  | Provide a comparative analysis of Protolpidodendron and the members of living Lycophytes. | (An, CO 1, CO<br>3)                            |
| 9.  | How do bryophytes act as pollution indicators?  | (U, CO 2)                                      |
| 10. | What are the different layers of integument in <i>Cycas</i> ?                             | (U, CO 3, CO<br>4, CO 5)<br><b>(1 x 8 = 8)</b> |

**PART B****Answer any 6 questions****Weights: 2**

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| 11. | Give an account on pteridophytes used as food source.                                    | (U, CO 6)                       |
| 12. | What are the important features of Monilophytes?   | (U, CO 1, CO<br>2, CO 4, CO 5)  |
| 13. | Explain the economic importance of Coniferales.  | (U, CO 6)                       |
| 14. | Describe the important features of Calamities.   | (U, CO 3)                       |
| 15. | Give an account on the male and female strobili in <i>Ephedra</i> .                      | (E, CO 3, CO<br>4)              |
| 16. | What do you mean by exohydric, endohydric and myxohydric bryophytes? Give examples each. | (U)                             |
| 17. | Explain the anatomical features in Sphenosida members?                                   | (An, CO 1, CO<br>2, CO 4, CO 5) |
| 18. | Explain the contributions of Indian Bryologists.   | (U, CO1)<br><b>(2 x 6 = 12)</b> |

**PART C**  
**Answer any 2 questions**

**Weights: 5**

19. Compare the morphology of members of Coniferales. (An, CO 3, CO 4, CO 5)
20. Explain in detail the soral and sporangial characters of Lycophytes and Ferns. (U, CO5)
21. Describe the sporophyte of *Anthoceros*. What are the features of the sporophyte which give evolutionary link to higher plants? (R, CO 1)
22. Explain the variation and advancement exhibited in sporophytic generation of pteridophytes. (An, CO 1, CO 3, CO 4, CO 5)  
**(5 x 2 = 10)**

OBE: Questions to Course Outcome Mapping

CO	Course Outcome Description	CL	Questions	Total Wt.
CO 1	Classify Bryophytes, Pteridophytes and Gymnosperms based on their morphological and anatomical features.	An	1, 2, 3, 4, 7, 8, 11, 16, 20, 21	20
CO 2	Identify Bryophytes, Pteridophytes and Gymnosperms in their habitats	A	1, 2, 7, 11, 16	7
CO 3	Explain the evolutionary trends primitive plant groups.	E	3, 8, 9, 13, 14, 18, 21	17
CO 4	Compare various lifecycle events in the Bryophytes, Pteridophytes and Gymnosperms	An	1, 2, 4, 7, 9, 11, 14, 16, 18, 21	21
CO 5	Explain the adaptations in the Bryophytes, Pteridophytes and Gymnosperms	An	1, 2, 4, 7, 9, 11, 16, 18, 21	19
CO 6	Explain the economic and ecological significance of Bryophytes, Pteridophytes and Gymnosperms	E	10, 12	4

Cognitive Level (CL): Cr - CREATE; E - EVALUATE; An - ANALYZE; A - APPLY; U - UNDERSTAND; R - REMEMBER;