

MSc DEGREE END SEMESTER EXAMINATION - OCTOBER 2024**SEMESTER 3 : BOTANY****COURSE : 21P3BOTT10 : GYMNOSPERMS, EVOLUTION AND PALEOBOTANY***(For Regular 2023 Admission and Supplementary 2022/2021Admissions)*

Duration : Three Hours

Max. Weights: 30

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

1. Explain the evolutionary time scale. (An)
2. Write the general character of Gnetum. (An, CO 1)
3. Write not on DNA barcoding of gymnosperms. (U, CO 1)
4. Explain Convergent evolution with an example. (U, CO 3)
5. Define Batesian mimicry with an example. (U, CO 3)
6. What is seed starch? (U, CO 4)
7. What is pollen chamber? (U, CO 1)
8. Differentiate between microevolution and macroevolution. (U, CO 3)
9. Describe the species concept. (R, CO 3)
10. Explain the features of the Devonian period. (A, CO 6)

(1 x 8 = 8)**PART B****Answer any 6 questions****Weights: 2**

11. Explain the concept of Oparin and Haldane and provide its experimental support. (U, CO 3)
12. Comment on the economic importance of Gymnosperms. (A, CO 4)
13. Describe the molecular tools in phylogeny . (A, CO 3)
14. Distinguish between Pteridophytes and Gymnosperms. (E, CO 1, CO 2)
15. Distinguish between the female cones of *Agathis* and *Araucaria*. (E, CO 1, CO 2)
16. Briefly explain the significance of genetic drift in natural selection. (U, CO 3)
17. Describe the general characters of Cupressus. (U, CO 1, CO 2)
18. Discuss the applied aspects of paleobotany. (U, CO 6)

(2 x 6 = 12)**PART C****Answer any 2 questions****Weights: 5**

19. Explain the vegetative and reproductive structures of *Pentoxylon*. Discuss the affinities of the same with different plant groups. (E, CO 1, CO 6)
20. Write an essay on the various levels of evolution. (U, CO 3)
21. Explain the patterns of speciation with suitable examples. (U, CO 3)
22. Explain the general account on the male and female gametophytes development in *Cycas*. (R, CO 4)

(5 x 2 = 10)

OBE: Questions to Course Outcome Mapping

CO	Course Outcome Description	CL	Questions	Total Wt.
CO 1	Analyze the morphological diversity of gymnosperms	An	2, 3, 7, 14, 15, 17, 19	14
CO 2	Examine the reproductive behavior in gymnosperms	E	14, 15, 17	6
CO 3	Predict evolutionary trends in biological systems	A	4, 5, 8, 9, 11, 13, 16, 20, 21	20
CO 4	Evaluate ecological and economic significance of gymnosperms	E	6, 12, 22	8
CO 6	Justify the diversity and distributions of prehistoric flora	A	10, 18, 19	8

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