

Reg. No

Name

22P345

M. Sc. DEGREE END SEMESTER EXAMINATION : OCTOBER 2022

SEMESTER 3 : BOTANY

COURSE : 21P3BOTT10 : GYMNOSPERMS, EVOLUTION AND PALEOBOTANY

(For Regular - 2021 Admission)

Duration : Three Hours

Max. Weights: 30

PART A

Answer any 8 questions

Weight: 1

1. What are the different layers of integument in *Cycas*. (U, CO 2)
 2. What are Eon, Era, and Epoch? (U, CO 6)
 3. Describe Phyletic speciation with an example. (U, CO 3)
 4. Distinguish between angiospermic and gymnospermic ovule. (An, CO 1, CO 2)
 5. What is epimatium? (U, CO 1)
 6. Differentiate between haplocheilic and syndetocheilic types of stomata. (An)
 7. Define Batesian mimicry with an example. (U, CO 3)
 8. Define apophysis. (R, CO 1)
 9. Explain adaptive radiation with an example. (U, CO 3)
 10. Explain Microevolution with an example. (U)
- (1 x 8 = 8)**

PART B

Answer any 6 questions

Weights: 2

11. Distinguish between Pteridophytes and Gymnosperms. (E, CO 1, CO 2)
 12. Explain the biogenesis experiment of Miller (1953). (U, CO 3)
 13. Compare and contrast the ovule of *Gnetum* with that of *Cycas*. (An, CO 1, CO 2)
 14. Comment on the male and female strobili/flower of *Taxus*. (An, CO 1, CO 2)
 15. Discuss about the molecular phylogeny and enlist the tools for the phylogeny studies. (A, CO 3)
 16. Explain Kins selection. Give an example. (U, CO 3)
 17. Describe the features of Cordaites stem. (U, CO 6)
 18. Comment on the medicinal uses of Gymnosperms. (A, CO 4)
- (2 x 6 = 12)**

PART C
Answer any 2 questions

Weights: 5

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| 19. | Write an account on the reproductive structure of Coniferales with suitable illustrations. | (U, CO 1, CO 2) |
| 20. | Explain the development of microspore and megaspore in Gymnosperm. | (An, CO 2) |
| 21. | Evolution happens at various levels of an ecosystem, Justify with evidences. | (A, CO 3) |
| 22. | Explain the patterns of speciation with suitable examples. | (U, CO 3) |
| | | (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	4, 5, 8, 11, 13, 14, 19	14
CO 2	Examine the reproductive behavior in gymnosperms	E	1, 4, 11, 13, 14, 19, 20	18
CO 3	Predict evolutionary trends in biological systems	A	3, 7, 9, 12, 15, 16, 21, 22	19
CO 4	Evaluate ecological and economic significance of gymnosperms	E	18	2
CO 6	Justify the diversity and distributions of prehistoric flora	A	2, 17	3

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