

Reg. No

Name

23P327

M. Sc. DEGREE END SEMESTER EXAMINATION : NOVEMBER 2023

SEMESTER 3 : BOTANY

COURSE : 21P3BOTT10 : GYMNOSPERMS, EVOLUTION AND PALEOBOTANY

(For Regular - 2022 Admission and Supplementary - 2021 Admission)

Duration : Three Hours

Max. Weights: 30

PART A

Answer any 8 questions

Weight: 1

1. Tubercles in *Podocarpus* are modified lateral roots. Justify. (An, CO 1)
 2. What is Rosin? (U, CO 4)
 3. What are pseudofossils? (U)
 4. What is the importance of a tapetum? (U, CO 1)
 5. Define Mullerian mimicry with an example. (U, CO 3)
 6. Explain parallel evolution with an example. (U, CO 3)
 7. What is alternation of generation? (U, CO 1)
 8. Discuss about the agents for microevolution. (U, CO 3)
 9. What are ichno fossils? (U)
 10. Describe the reasons for sympatric speciation. (R, CO 3)
- (1 x 8 = 8)**

PART B

Answer any 6 questions

Weights: 2

11. Briefly explain the development of male gametophyte in *Cycas*. (An, CO 2)
 12. Describe molecular phylogeny and give its significance. (A, CO 3)
 13. Explain Hamilton's rule. Provide its significance. (U, CO 3)
 14. Write an account on the features of *Nilssonia*. (U, CO 1, CO 2)
 15. Give an illustrated account on the male and female strobili in *Gnetum*. (E, CO 1, CO 2)
 16. Explain the concept of Oparin and Haldane and provide its experimental support. (U, CO 3)
 17. Describe geological time scale. (An, CO 6)
 18. Explain the mode of pollination in gymnosperms. (An, CO 1, CO 2)
- (2 x 6 = 12)**

PART C

Answer any 2 questions

Weights: 5

19. Write an essay on species concept and the mechanism of speciation. (U, CO 3)
 20. Write an essay on the economic importance of gymnosperms. (R, CO 4)
 21. Discuss about the various levels of evolution. (A, CO 3)
 22. Explain the vegetative and reproductive structures of *Pentoxylon*. Discuss the affinities of the same with different plant groups. (E, CO 1, CO 6)
- (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 | 1, 4, 7, 14, 15, 18, 22 | 14 |
| CO 2 | Examine the reproductive behavior in gymnosperms | E | 11, 14, 15, 18 | 8 |
| CO 3 | Predict evolutionary trends in biological systems | A | 5, 6, 8, 10, 12, 13, 16, 19, 21 | 20 |
| CO 4 | Evaluate ecological and economic significance of gymnosperms | E | 2, 20 | 6 |
| CO 6 | Justify the diversity and distributions of prehistoric flora | A | 17, 22 | 7 |

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