QP Code: U25C048

Reg. No : .....

Name : .....

ST MARY'S COLLEGE (AUTONOMOUS), THRISSUR-20

III SEMESTER (FYUGP) DEGREE EXAMINATIONS, OCTOBER 2025

B. Sc. Botany

BOT3CJ201 : PLANT EMBRYOLOGY,PALYNOLOGY & EVOLUTION

2024 Admission Onwards

(Credits: 4)

Time: 2 Hours **Maximum Marks: 70**

Section A

*Answer **all**. Each question carries **3** Marks.* ***(Ceiling: 24 Marks)***

1. Define Plant embryology. List the contributions of Prof. Panchanan Maheswari.
2. Explain the functions of tapetum.
3. Analyse the advantages of seed dispersal.
4. Differentiate between ruminate and mosaic endosperms.
5. Define the terms a) Polyembryony b) Apomixis c) Parthenocarpy.
6. Differentiate between exine and intine in pollen wall stratification.
7. Suggest a suitable storage method for short-term pollen conservation.
8. Explain the theory of Panspermia.
9. Who proposed the Endosymbiotic Theory for the origin of eukaryotic cells?
10. State any two sources of genetic variability.

Section B

*Answer **all**. Each question carries **6** Marks.* ***(Ceiling: 36 Marks)***

11. Describe the different types of ovules with suitable diagrams.
12. Compare autogamy, geitonogamy, and xenogamy with advantages and disadvantages.
13. Double fertilization is a unique feature of angiosperms. Analyze how this process improves reproductive efficiency.
14. Compare dicot and monocot embryos.
15. Describe the adaptations of pollen grains to different types of pollination.
16. How palynology is applied in plant taxonomy?

Turn Over

17. Evaluate the contribution of mutation, recombination, and genetic drift in modern evolutionary theory.

18. Write a short note on the economic uses of pollen grains.

Section C

*Answer **any one**. Each question carries **10** Marks* ***(1x10=10marks)***

19. In the context of embryo sac development, analyze how the diverse types ultimately converge to achieve the common goal of producing an 8-nucleate structure ready for double fertilization.

20. Explain the morphological features of spores and pollen grains in terms of units, polarity, symmetry, shape, size, and apertures. Add a note on the NPC system of classification.

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