



**MAR IVANIOS COLLEGE (AUTONOMOUS)**  
**THIRUVANANTHAPURAM**

Reg. No. :.....

Name :.....

**Fourth Semester Career Related Degree Examination, August 2016**

**First Degree Programme under CBCSS**

**Core Course – VI: (for Botany and Biotechnology)**

**AUBB442: Cell Biology, Plant Breeding and Evolutionary Biology**

Time: 3 Hours

Max. Marks: 80

**SECTION – A**

*Answer ALL the following each in a word or as short notes.*

1. What is tonoplast ?
2. Define genetic drift.
3. What is nucleoid ?
4. Name any two agencies of plant introduction in India.
5. What is retrogressive evolution ?
6. Name the 'suicidal bag of the cell'. Why is it called so ?
7. What is acclimatization ?
8. Distinguish between heterochromatin and euchromatin.
9. What is a pureline ?
10. What are quantosomes ?

**(10 × 1 = 10 Marks)**

**SECTION – B**

*Answer any EIGHT questions, not exceeding one paragraph.*

11. Distinguish between parallel and convergent evolution.
12. What is emasculation ? Mention any two methods of emasculation.
13. What are the merits of clonal selection ?
14. What are peroxisomes ? Give its role.

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15. How is isolation significant in the process of evolution ?
16. Write the functions of Golgi apparatus.
17. Comment on Neo – Darwinism.
18. Differentiate euploidy and aneuploidy.
19. Mention the achievements of mutation breeding.
20. List out the major objectives of plant breeding.
21. Distinguish between composite and synthetic varieties.
22. Write a note on the composition of cell wall.

(8 × 2 = 16 Marks)

### SECTION – C

*Short essay type : Answer any **SIX** questions.*

23. Explain the special types of chromosomes.
24. Explain the procedure involved in mutation breeding.
25. What are histones ? How is it significant in DNA organization ?
26. Mention the role of polyploidy in evolution.
27. Explain the procedure of hybridization.
28. Briefly describe the major events during mitotic cell cycle.
29. Explain speciation and add a note on its different types.
30. What is heterosis ? How is it useful in plant breeding ?
31. Explain the structure and functions of endoplasmic reticulum.

(6 × 4 = 24 Marks)

### SECTION – D

*Long essay type : Answer any **TWO** questions.*

32. Explain meiosis with suitable diagrams. Also, write the significance of meiosis.
33. Explain the different selection methods employed in plant breeding.
34. Briefly explain the numerical and structural aberrations of chromosomes. Add a note on its significance.
35. Explain the various elemental forces of evolution.

(2 × 15 = 30 Marks)

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