

Reg. No. :

Name :

Fourth Semester B.Sc. Degree Examination, May 2021

First Degree Programme under CBCSS

Botany

Complementary Course

**BO 1431 : PLANT PHYSIOLOGY, PLANT ECOLOGY, HORTICULTURE
AND PLANT BIOTECHNOLOGY**

(2015-2018 Admission)

Time : 3 Hours

Max. Marks : 80

- I. Answer **all** questions (Each question carries 1 mark).
1. Name the initial acceptor of CO₂ in CAM pathway.
 2. Root pressure theory related to ascent of sap was proposed by _____.
 3. What is imbibition?
 4. The exudation of liquid water through the margin of leaves in herbaceous plants is called _____.
 5. What is Totipotency?
 6. Name the respiratory substrate with RQ value less than 1.
 7. Define callus.
 8. Name the cell organelles involved in photorespiration.

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9. What is meant by a food web?
10. The plant hormone responsible for bolting in rosette plants.

(10 × 1 = 10 Marks)

II. Answer **any eight** of the following questions (Each question carries 2 marks)

11. Distinguish between dedifferentiation and redifferentiation.
12. Explain the composition of tissue culture media.
13. Mention important types of manures used in Horticulture.
14. What are ecological Pyramids? Mention the types.
15. Explain the ecological adaptations found in epiphytes.
16. What is somatic embryogenesis? Mention the advantages of somatic embryos over sexual embryos?
17. Distinguish between active and passive absorption.
18. What are antitranspirants? Give any two examples.
19. Explain the concept of Donnan equilibrium.
20. State and explain the law of limiting factors.
21. Briefly explain the role of ethylene in plants.
22. What is fermentation? Mention the types.

(8 × 2 = 16 Marks)

III. Answer **any six** of the following questions. (Each question carries 4 marks)

23. Explain ecological succession? Distinguish between Primary and Secondary succession with examples.

24. Describe the mechanism of opening and closure of stomata.
25. Explain Morphological and anatomical adaptations found in Halophytes.
26. Distinguish between C_3 and C_4 pathway. Give any two examples for C_4 plants.
27. Explain the role of auxin in plants. Mention the important practical applications of synthetic auxins.
28. Explain various factors affecting the rate of respiration.
29. Explain meristem culture, Write a note on its applications in plant breeding.
30. List the role of any four micronutrients in plants. Add a note on common deficiency symptoms developed in the absence of Micronutrients.
31. Explain different methods of vegetative propagation in plants.

(6 × 4 = 24 Marks)

IV. Answer **any two** of the following questions (Each question carries **15** marks)

32. Explain Light-reaction of Photosynthesis with schematic diagrams.
33. Elucidate Kreb's Cycle. Calculate the energy gain during this process.
34. Explain various theories related to the ascent of sap in plants.
35. Describe the characteristic features of a Forest ecosystem. How it differs from a grassland ecosystem.

(2 × 15 = 30 Marks)