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Name.....

Reg. No.....

**FOURTH SEMESTER (CUCBCSS—UG) DEGREE EXAMINATION  
APRIL 2023**

Botany

BOT 4C 04—PLANT PHYSIOLOGY, ECOLOGY AND GENETICS

(2017 and 2018 Admissions)

Time : Three Hours

Maximum : 64 Marks

**Part A (Answer in a single word)**

*Answer all questions.  
Each question carries 1 mark.*

1. The cell organelle known as power houses of the cell.
2. The process by which dry seeds absorb water and swells up.
3. The enzyme for carboxylation of PEP in  $C_4$  plants.
4. The site of glycolysis.
5. A natural auxin.
6. The flowering hormone.
7. Phenotypic dihybrid ratio.
8. The law proposed by Mendel based on dihybrid cross.
9. The roots that absorb water from atmosphere.
10. A total parasite.

(10 × 1 = 10 marks)

**PartB (Short Answer Questions)**

*Answer any seven questions.  
Each question carries 2 marks.*

11. Write a short note on root pressure theory.
12. Citing two examples, mention the role of antitranspirants.
13. Comment on 'red drop'.
14. What is terminal oxidation?

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15. List out the major events taking place during light phase of photosynthesis.
16. Write an account on natural plant hormones.
17. List out any four physiological adaptations found in halophytes.
18. What are the morphological adaptations seen in *Opuntia*?
19. Distinguish back cross and test cross.
20. Explain law of segregation.

(7 × 2 = 14 marks)

### Part C (Short Essay Questions)

Answer any **six** questions.

Each question carries 4 marks.

21. Write an account on the significance of transpiration.
22. Explain the process of water absorption.
23. Write an account on the factors affecting photosynthesis.
24. Why some plants are called C<sub>3</sub> and some others C<sub>4</sub>? Which one is more efficient in fixing CO<sub>2</sub>, why?
25. Write notes on senescence and abscission.
26. Comment on the anatomical adaptations in hydrophytes.
27. Explain interaction of genes with flower colour in *Lathyrus* as an example.
28. Write an account on Mendel's monohybrid experiments.

(6 × 4 = 24 marks)

### Part D (Essay Questions)

Answer any **two** questions.

Each question carries 8 marks.

29. Write an essay on succession in fresh water environment.
30. Outline the various steps of Krebs's cycle.
31. Write an essay on ascent of sap and the various theories to explain the mechanism.

(2 × 8 = 16 marks)

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