

**SIXTH SEMESTER (CUCBCSS—UG) DEGREE EXAMINATION  
MARCH 2021**

**Botany**

**BOT 6B 10—PLANT PHYSIOLOGY AND METABOLISM**

Time : Three Hours

Maximum : 80 Marks

**Section A**

*Answer all questions.*

*Each question carries 1 mark.*

1. The first stable product of Calvin Cycle is \_\_\_\_\_.
2. The movement of water molecule from one cell to another in a plant is by \_\_\_\_\_.
3. The water potential of a fully turgid plant cell placed in pure water is equal to \_\_\_\_\_.
4. The effect of \_\_\_\_\_ in seed germination is called vernalization.
5. The symbiotic relationship that help the plant in mineral up take is \_\_\_\_\_.
6. The assimilatory power of photosynthesis are \_\_\_\_\_ and \_\_\_\_\_.
7. Photosystem involved in cyclic photophosphorylation is \_\_\_\_\_.
8. The metal ion required for photolysis of water is \_\_\_\_\_.
9. \_\_\_\_\_ is a process loss of water droplets through the hydathodes.
10. Glycolysis occurs in \_\_\_\_\_.

(10 × 1 = 10 marks)

**Section B (Short Answer Questions)**

*Answer at least five questions.*

*Each question carries 4 marks.*

*All questions can be attended.*

*Overall Ceiling 20.*

11. What do you understand by photophosphorylation ?
12. What is photoperiodism ?
13. Discuss the role of phytochrome in seed germination.
14. What is scarification ?

**Turn over**

15. Give an account of photosynthetic pigments in plants.
16. Explain the practical application of ethylene.
17. What is guttation ?
18. Give an account on vernalization.
19. Explain the function of electron carriers as multi-enzyme complexes.
20. Why is citric acid is said to be an amphibolic pathway.

(5 × 4 = 20 marks)

### Section C (Short Essay)

*Answer at least five questions.  
Each question carries 7 marks.  
All questions can be attended.  
Overall Ceiling 35.*

21. Explain phloem loading and unloading.
22. What is photorespiration? Explain its significance ?
23. Explain  $\beta$ -oxidation.
24. Explain the practical application of cytokinins.
25. Compare and contrast the difference between structure and composition PSII and PSI.
26. Explain the biochemistry of biological nitrogen fixation.
27. Write briefly on various types of senescence.
28. Explain glycolysis. What is its relevance ?

(5 × 7 = 35 marks)

### Section D (Essay)

*Answer at least one question.  
Each question carries 15 marks.*

29. Discuss the absorption of water by transpiration pull theory.
30. Explain the light reaction of photosynthesis.
31. Describe the fate of pyruvic acid under aerobic conditions.

(1 × 15 = 15 marks)