LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

Sc. DEGREE EXAMINATION – PLANT BIOLOGY AND PLANT BIOTECHNOLOGY

FIFTH SEMESTER – NOVEMBER 2023

UPB 5501 – PLANT PHYSIOLOGY

Date: 30-10-2023 Time: 09:00 AM - 12:00 NOON

PART A $(10 \times 2 = 20 \text{ Marks})$ Answer the following, each within 50 words. 01. What is imbibition? 02. Distinguish between diffusion and osmosis. 03. What is ascent of sap? 04. Enlist the importance of NPK in plants. 05. Mention the CO₂ acceptor in C₃ and C₄ plants. 06. Comment on Kranz Anatomy. 07. What is RQ? Mention the RQ value for sugar. 08. What is transamination? 09. Define Photoperiodism. 10. What is cytochrome? $(5 \times 7 = 35 \text{ marks})$ PART B Answer the following, each within 500 words. Draw diagrams and flowcharts wherever necessary. Write notes on diffusion, DPD and types of osmosis. 11a. Explain the theories on opening and closing of stomata. b. 12a. Explain the theories on active absorption of solutes from the soil. or Mention the importance of any five micronutrients in plants. Add a note on their b. deficiency symptoms. 13a. Explain in detail about the process of cyclic and non-cyclic photophosphorylation. Give a brief account on Red Drop and Emersion Enhancement Effect. b. Write notes on Electron Transport System in respiration. 14a. b.

Enlist the physiological effect of auxin and gibberellin. 15a.

b. Write notes on vernalization. Max.: 100 Marks

Dept. No.

Explain the physiology of nitrogen fixation in plants.

PART C

Answer <u>any three</u> of the following, each within 1200 words. Draw diagrams and flowcharts wherever necessary.

- 16. Explain in detail about the absorption of water from soil by roots.
- 17. Explain the types of hydroponics. Add a note on its merits and demerits.
- 18. Distinguish between C_3 and C_4 cycle.
- 19. Explain the steps involved in Kreb's cycle. Add a note on its energy budget.
- 20. Explain the factors responsible for seed dormancy. Add a note on methods to break seed dormancy.

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