TDC (CBCS) Even Semester Exam., 2023

BOTANY

(4th Semester)

Course No. : BOTDSC/GE–401T

(Plant Physiology and Metabolism)

Full Marks : 50
Pass Marks : 20

Time : 3 hours

The figures in the margin indicate full marks for the questions

SECTION—A

Answer any *fifteen* questions of the following : 1×15=15

1. Who proposed root pressure theory?
2. Define water potential.
3. What is transpirational pull?
4. What is the pressure potential of placid cell?
5. What are trace elements?

6. What is necrosis?

7. What is chlorosis?

8. What is ion channel?

9. What is photosystem?

10. Where does photorespiration take place?

11. Give two examples of C_4 plant.

12. What is the CO_2 acceptor of C_4 plants?

13. Name one nitrifying bacteria.

14. Who discovered gibberellins?

15. Which hormone helps in fruit ripening?

16. Give examples of two leguminous plants.

17. What do you mean by red drop?

18. What is the unit of water potential?

19. Who discovered phytochrome?

20. What is florigen?

SECTION—B

Answer any *five* questions of the following : 2×5=10

21. Write the role of water in plant metabolism.

22. How transpiration pull helps in water uptake in plants?

23. What do you mean by source and sink in plants?

24. Write the functions of magnesium and nitrogen in plants.

25. Write the role of chlorophyll a and chlorophyll b in photosynthesis.

26. Write two importances of oxidative phosphorylation.

27. What do you mean by symbiotic nitrogen fixation?

28. Write the role of gibberellins in seed germination.

29. What are short-day plants? Give example.

30. Give two examples of photomorphogenetic event in plants.

SECTION—C

Answer any *five* questions of the following : 5×5=25

31. *(a)* "Transpiration is a necessary evil." Explain the statement. 3

(b) Write the significance of transpiration in plants. 2

32. With suitable diagram, describe root pressure theory for water uptake. What is guttation? 4+1=5

33. Differentiate between active and passive transports. With the help of suitable diagram, explain active transport in plants. 1+4=5

34. Write the role of the following elements in plant growth : 2½×2=5

(a) Iron

(b) Zinc

35. Write the mechanism of carbon fixation in C_3 plants. 5

36. Write notes on the following : 2½×2=5

(a) CAM plants

(b) Photolysis of water

37. Discuss the mechanism of symbiotic nitrogen fixation in plants. 5

38. Write the physiological role of gibberellin and cytokinin. 2½×2=5

39. Write notes on the following : 2½×2=5

(a) Vernalization

(b) Photoperiodism

40. What is phytochrome? Write the different forms of phytochrome. Discuss the functions of phytochrome in plants. 1+1+3=5

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