(Pages : 4) L – 1623

Reg. No. : .....

Name : .....

Sixth Semester B.Sc. Degree Examination, March 2021

First Degree Programme under CBCSS

Botany

Core Course – IX

BO 1641 : PLANT PHYSIOLOGY AND BIOCHEMISTRY

(2018 Admission Regular)

Time : 3 Hours Max. Marks : 80

Instruction : Draw diagrams where necessary.

PART – A

Write a short note on the following. **All** questions are compulsory.

1. Explain role of PEP carboxylase enzyme.
2. Day neutral plants.
3. Feedback inhibition.
4. Poly unsaturated fatty acids.
5. Differentiate semi permeable membrane and selectively permeable membrane.
6. What is Necrosis?
7. Isomerases enzymes.

P.T.O.

8. R.Q. = Zero.

9. Nif gene.

10. Capillary water.

(10 × 1 = 10 Marks)

PART – B

Answer **any eight** of the following.

11. Explain Emerson effect.

12. What do you mean terminal oxidation?

13. Define wax. Write their significance with respect to transpiration.

14. What you understand by law of limiting factors?

15. Define DPD. Give equation for calculation of DPD.

16. What do you mean by aeroponics? How it is different from hydroponics?

17. Describe sigmoid growth curve.

18. Explain structure of Pyranose and Furanose.

19. Describe lactic acid fermentation.

20. Apoplast and symplast pathway.

21. Munch hypothesis.

22. How oxidative phosphorylation is different from photo phosphorylation? Explain.

23. Explain Koshiland's theory on enzyme action.

24. What is Phytochrome? Write their significance.

25. Explain peptide bond formation.

26. Define plant growth inhibitors. Give role of dormin in seed dormancy.

(8 × 2 = 16 Marks)

PART – C

Answer **any six** of the following.

27. Make a list of macronutrients and mention their major functions.

28. Define ascent of sap. Write major theories on ascent of sap.

29. Give an account on internal and external factors affecting photosynthesis.

30. Illustrate Tri-Carboxylic Acid cycle with enzymes involved in each step.

31. Define conjugate enzymes. Explain different types of Cofactors.

32. Give detailed account on tropic and nastic movements with suitable examples.

33. Schematically illustrate photorespiration What are the factors responsible for increasing photorespiration.

34. Define Osmosis. What are the different types of osmosis? Add notes on different types of osmotic solutions.

35. Describe oxidation of lipids.

36. What is respiratory substrate? Enumerate the steps involved in the breakdown of fructose upto pyruvic acid.

37. Illustrate starch hydrolysis theory and malate or K^+ ion Pump hypothesis in stomatal movement.

38. Describe symbiotic nitrogen fixation by *Rhizobium* bacteria.

(6 × 4 = 24 Marks)

PART – D

Answer **any two** of the following.

39. What are the different plant growth hormones? Give detailed account on structure, function and importance of plant growth hormones.

40. Give detailed account on mechanism of respiration in plants. Enumerate balance sheet of energy.

41. Write an essay on classification, general structure and functions of carbohydrates. Add notes on synthesis of glycosidic bonds and their role in plant Kingdom.

42. Explain biosynthetic phase of photosynthesis with the help of schematic diagram. Add notes on oxygenase activity of RuBisCo.

43. Give detailed account on classification of proteins and level of organisation and describe functions of proteins.

44. Write an essay on water absorption in Plants. Add notes on role of water in sugar translocation.

(2 × 15 = 30 Marks)