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Reg. No. : .....

Name : .....

Fifth Semester B.Sc. Degree Examination, December 2021

Career Related First Degree Programme Under CBCSS

Group 2(a) – Botany and Biotechnology

BB 1541 : PLANT PHYSIOLOGY

(2016 and 2017 Admission)

Time : 3 Hours Max. Marks : 80

SECTION – A

Answer **all** questions in a word or **one**/**two** sentences. **Each** question carries **1** mark.

1. Name any two anti-transpirant substances.

2. What are nif genes?

3. Define Chemosynthesis.

4. What is leghaemoglobin?

5. What are isoenzymes?

6. Define seed dormancy.

7. What is mean by solarisation?

8. What Is ubiquinone?

P.T.O.

9. Define Blackman's law of limiting factors.

10. What is respiratory quotient?

(10 × 1 = 10 Marks)

SECTION – B

Answer any **eight** questions. **Each** question carries **2** marks. Answer not to exceed **one** paragraph.

11. How apoplastic pathway of water absorption is different from symplastic pathway?

12. Explain the role of raw materials of photosynthesis.

13. Describe the structure and function of hydathode?

14. Summarize the merits and demerits of photorespiration?

15. Explain CAM.

16. Comment on the statement "plant cell is an osmotic system".

17. What is vernalization? Explain the mechanism behind vernalization.

18. How glycolysis is regulated?

19. Give a brief note on phloem loading?

20. What are the metabolic fates of pyruvic acid?

21. What is a holoenzyme? Mention its components.

22. Explain the mechanism behind the sudden collapse of the leaves of *Mimosa pudica* against touching.

(8 × 2 = 16 Marks)

SECTION – C

Answer any **six** questions. **Each** question carries **4** marks. Short essay type.

23. What is water potential? Explain the major factors which contribute to cell water potential.

24. Explain Munch's mass flow hypothesis of solute transport. Comment on its major objections.

25. Draw the structural formula of chlorophyll a. How it is different from chlorophyll b?

26. Summarize the important points of cohesion-tension theory of upward movement of water In plants.

27. Compare photosynthesis in green plants with that of bacteria.

28. Examine the major acclimatization strategies shown by plants against drought stress.

29. Differentiate competitive and non-competitive mode of enzyme Inhibition.

30. Explain the biosynthetic pathway in plants through which ammonium ions are assimilated as amino acids.

31. How osmosis is different from imbibition? Mention their significance in plants.

(6 × 4 = 24 Marks)

SECTION – D

Answer any **two** questions. **Each** question carries **15** marks. Essay type.

32. Explain how glucose is synthesized in plant by C4 cycle. Compare C4 cycle with C3 and CAM pathway.

33. What are secondary metabolites? Give a general account of the various classes of secondary metabolites with their functions.

34. What is oxidative phosphorlylation? With the help of schematic diagram, discuss terminal oxidation and oxidative phosphorylation.

35. What is mineral absorption? Explain the different mechanisms involved in the mineral absorption of plants.

($2 \times 15 = 30$ Marks)

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