

B. Sc. DEGREE EXAMINATION, APRIL 2024  
BRANCH V (a) – PLANT BIOLOGY AND PLANT BIOTECHNOLOGY  
SIXTH SEMESTER

COURSE : MAJOR – CORE  
PAPER : PLANT PHYSIOLOGY  
SUBJECT CODE : 19BT/MC/PP64  
TIME : 3 HOURS  
MAX. MARKS: 100

SECTION A

Answer all the questions. (18 MARKS)

I. Choose the correct answer: (5 x 1 = 5)

- Plasmolysis of a cell is due to  
a. Endosmosis      b. Exosmosis      c. Isotonic      d. Diffusion
- Fixed ions (indiffusible) is discussed in  
a. Cytochrome pump theory      b. Protein Lecithin theory  
b. c. Ion Exchange theory      d. Donnan's equilibrium
- The first product of C4 photosynthesis is  
a. Phosphoglyceric acid      b. Oxalo acetic acid  
c. Phospho enol pyruvic acid      d. Citric acid
- Entner - Doudroff Pathway normally takes place in  
a. Rhizobium      b. Paddy      c. Sugar cane      d. Chlorella
- Which are the phytohormones that induce amylase activity?  
a. Gibbrellin – Ethylene      b. Ethylene – Auxin  
c. Ethylene- cytokinin      d. Gibbrellin-cytokinin

II. Fill in the blanks: (5 x 1 = 5)

- Adsorption of water during seed germination is due to the phenomenon \_\_\_\_\_
- Zinc is important in the biosynthesis of plant hormone \_\_\_\_\_
- RUBISCO is oxygen sensitive, leads to the unwanted metabolism \_\_\_\_\_
- The site of Kreb's cycle is at \_\_\_\_\_
- The phytohormone involved in signalling of plants under stress is \_\_\_\_\_

III. State Whether True or False: (3 x 1 = 3)

- During stomata opening, guard cells are turgid due to its higher osmotic potential
- Bundle sheath chloroplast is involved in the pathway C<sub>4</sub>
- Cytokinin is important in chlorophyll preservation that prevents senescence

IV. Match the following : (5 x 1 = 5)

- |               |   |                        |
|---------------|---|------------------------|
| 14. J.C. Bose | - | Auxin                  |
| 15. Lundegarh | - | Respiration            |
| 16. Hill      | - | Cytochrome pump theory |
| 17. Warburg   | - | Light reaction         |
| 18. Zimmerman | - | Pulsatory activity     |

V. Answer any **SIX** of the following. Each answer should not exceed 50 words:

(6 x 3 = 18)

19. DPD
20. Apoplast and symplast
21. Antiport and symport
22. Absorption spectrum
23. Red drop
24. Cyanide respiration
25. RQ value
26. Apical dominance
27. Vernalization

**SECTION – B**

Answer any **FOUR** of the following. Each answer not exceeding 200 words.

(4 x 6 = 24)

28. Tabulate the roles and deficiency symptoms of macro elements
29. Illustrate the cyclic and non-cyclic photophosphorylation
30. Chart out the reactions takes place in the glyoxylate cycle
31. Explain the types flowering responses to light. Give examples
32. Enumerate the practical applications of gibberellins
33. Discuss on the factors affecting photosynthesis

**SECTION – C**

Answer any **TWO** of the following. Each answer not exceeding 1000 words.

(2x 20 = 40)

34. Elaborate on the theories explaining the mechanism of stomatal opening and closing
35. Describe the theories of absorption of minerals by active mechanism
36. Write the biochemical reactions takes place in the C<sub>3</sub> photosynthesis.
37. High light the physiological effects and practical applications of auxin and cytokinin

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