

B. Sc. DEGREE EXAMINATION, APRIL 2017
BRANCH V (a) – PLANT BIOLOGY AND PLANT BIOTECHNOLOGY
SIXTH SEMESTER

COURSE : MAJOR – CORE
PAPER : PLANT PHYSIOLOGY
TIME : 3 HOURS

MAX. MARKS: 100

SECTION A

Answer all the questions.

(18 MARKS)

I. Choose the correct answer:

(5 x 1 = 5)

1. When a cell is placed in a hypertonic medium it becomes
(a) Flaccid (b) Turgid (c) Swollen
2. The mineral involved in pollen germination is
(a) Molybdenum (b) Boron (c) Manganese
3. Cyclic photophosphorylation is involved in the production of
(a) ATP (b) ATP and NADPH₂ (c) Oxygen
4. The Richmond-Lang effect is caused by
(a) Gibberellin (b) Auxin (c) Cytokinin
5. The respiratory quotient of Anaerobic respiration is
(a) Unity (b) Greater than unity (c) Infinity

II. Fill in the blanks:

(5 x 1 = 5)

6. The hormone that helps in the ripening of fruits is-----.
7. Molybdenum is an important component of the enzyme -----.
8. The photosynthetic unit is also called -----.
9. Glycolysis takes place in the -----.
10. Apical Dominance is caused by -----.

III. State Whether True or False:

(4 x 1 = 4)

11. Expenditure of energy is not seen in active transport.
12. In C₄ plants, enzyme PEPcase is present in Bundle sheath cells.
13. Dark reaction takes place in the stroma.
14. The total ATP produced in the Kreb's cycle is 24.

IV. Match the following:

(4 x 1 = 4)

- | | | |
|----------------------|---|------------------------|
| 15. ABA | - | Free energy |
| 16. Glyoxalate cycle | - | Stomatal closure |
| 17. Bacteria | - | Lipids |
| 18. Water potential | - | J- shaped growth curve |

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

(6 x 3 = 18)

19. Solute Potential
20. Denitrification
21. Role of Zinc
22. Grana
23. Fermentation
24. Substrate level phosphorylation
25. Lag phase
26. Vernalisation
27. Ethylene

SECTION – B

Answer any FOUR of the following. Each answers not exceeding 200 words. (4 x 6 = 24)

28. Give an account of Non-cyclic photophosphorylation.
29. Write notes on Water potential and its components.
30. Explain the biochemistry of Nitrogen fixation.
31. List out the Reactions of the Krebs' cycle.
32. Describe the Cyanide resistant pathway.
33. Give an account of photoperiodism.

SECTION – C

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

(2 x 20 = 40)

34. Give an account of the mechanism of stomatal transpiration.
35. Describe the theories explaining mineral salt absorption.. Add a note on phloem loading and unloading.
36. a) Explain the C3 cycle in detail. b) Differentiate between C4 cycle and CAM.
37. Write an essay on the chemical nature, Bioassay, Physiological effects and practical applications of Gibberellic acid.
