

STELLA MARIS COLLEGE (AUTONOMOUS) CHENNAI 600 086
(For candidates admitted during the academic year 2004-05 & thereafter)

SUBJECT CODE: BT/MC/PP64

B. Sc. DEGREE EXAMINATION, APRIL 2010
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 QUESTIONS

I CHOOSE THE CORRECT ANSWER: (6 marks)

1. Loss of water vapour from plant is called -----
a. evaporation b. guttation c. sublimation d. transpiration
2. Nitrogen is essential for -----
a. protein b. carbohydrates c. fat d. all of these
3. Photosynthetic system including algae use----- as electron donor.
a. CO₂ b. H₂O c. both of these d. none of these
4. TCA cycle operates in -----
a. Mitochondria b. Cytoplasm c. Chloroplast d. Ribosomes
5. Apical dominance is due to -----
a. Auxin b. Cytokinin c. Gibberellin d. ABA
6. Nitrogen fixing organism is present in -----
a. Angiosperm root b. Gymnosperms c. free state d. all of these

II FILL IN THE BLANKS: (6 marks)

7. Plant absorbs large amount of water from the soil through root hairs by _____
8. In Cytochrome the prosthetic group is _____
9. The respiration which requires oxygen is called _____
10. C₄ cycle is also known as _____.
11. _____ promotes the process of senescence.
12. _____ day plants the dark period is important for flowering.

III STATE TRUE OR FALSE: (6 marks)

13. Mg deficiency cause interveinal chlorosis.
14. Chl a is present in all green plants.
15. Through xylem upward transport of sugar take place.
16. Plasmolysis occurs due to endosmosis.
17. Vernalization is the application of cold treatment to plants.
18. 36 molecules of ATP are formed during complete oxidation of a Glucose molecule.

IV ANSWER ANY SIX OF THE FOLLOWING. EACH ANSWER NOT TO EXCEED 50 WORDS: (6 x 3 = 18)

19. Osmosis.
20. Antitranspirants.
21. Autoradiography.
22. Red drop.
23. Oxidative phosphorylation.
24. Parthenocarpic fruit.
25. Nitrification.
27. Florigen.
28. Biological clock

SECTION – B

ANSWER ANY FOUR OF THE FOLLOWING. EACH ANSWER NOT TO EXCEED 200 WORDS: (4 x 6 = 24)

29. Write notes on active absorption of water by plants.
30. Explain Donnan equilibrium concept.
31. Give an account on electro-osmosis.
32. Write short notes on photorespiration.
33. What do you understand by the term symbiotic fixation? Give a brief account of nodule formation in the roots of legume.
34. Give the components of water potential.

SECTION – C

ANSWER ANY TWO OF THE FOLLOWING. EACH ANSWER NOT TO EXCEED 1000 WORDS: (2 x 20 = 40)

35. Give an account of C₃ cycle and how it differs from C₄ cycle.
36. Describe the metabolic pathway of glycolysis and TCA.
37. Describe various types of physiological effects of auxin on higher plants and discuss the mechanism of action of auxin.
38. Write an essay on photoperiodism.
