

LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

B.Sc. DEGREE EXAMINATION – PLANT BIOLOGY & PLANT BIO-TECH.

FIFTH SEMESTER – NOVEMBER 2007

PB 5500 - PLANT PHYSIOLOGY

AE 11

Date : 24/10/2007

Dept. No.

Max. : 100 Marks

Time : 9:00 - 12:00

PART – A

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

1. Stomatal movements depend on the number of:
a. Mitochondria b. Ribosome c. Endoplasmic reticulum d. Chloroplast
2. Trace elements are detected by
a. Autoradiography b. Infra Red Gas Analyzer
c. Atomic absorption spectrophotometer d. HPLC
3. The organic acid that accumulates in the vacuole of CAM plants is:
a. Malic acid b. Maleic acid c. Oxaloacetic acid d. Phospho glyceric acid
4. RQ value for lipid is:
a. More than one b. Less than one c. One d. Zero
5. Phytohormone derived from the disintegration of nucleic acid is:
a. Auxin b. Cytokinin c. Gibberellic acid d. ABA

II State whether the following are true or false: (5 x 1 = 5)

6. Hypotonic solution will have increased osmotic pressure.
7. Salt uptake along with transpiration stream is an active process.
8. RUBISCO synthesized as a co-ordinate function of nuclear and plastome genes.
9. Nitrogenous compounds are translocated as amides and urides.
10. NAA is a natural auxin synthesized by plants.

III Complete the following. (5 x 1 = 5)

11. ----- helps in the movement of water through living component of cells.
12. Techniques used to detect sugars of dark reaction are ----- and -----.
13. Chelator used in Hoagland solution is -----.
14. Number of ATP required to synthesize 1 mole of ammonia is -----.
15. The wavelength of light absorbed by Pr and Pfr are ----- and -----nm.

IV Answer the following each within 50 words:. (5 x 1 = 5)

Write notes on:

16. Matrix potential
17. Donnan's equilibrium
18. Kranz anatomy
19. Sheathna protein
20. OSM genes

PART – B

Answer **any five** of the following, each within 350 words.

(5 x 8 = 40)

21. Define DPD. Explain how DPD is determined?
22. Describe an experiment to prove SPAC concept.
23. Write notes on the process of sugar translocation.
24. Explain acidification and deacidification in CAM plants.
25. Briefly explain the pigments of photosynthesis.
26. Describe the process of amino acid biosynthesis.
27. Give an account on the physiology of biological nitrogen fixation.
28. What are the factors that influence dormancy? List the methods to break it.

PART – C

Answer the following, each within 1500 word.

(2 x 20 = 40)

29. (a) Explain how inorganic ions are actively absorbed by plants?
OR
(b) Illustrate and differentiate the types of C₄ cycles.
30. (a) Write the reactions for the complete combustion of pyruvic acid during respiration.
OR
(b) Give the bio-assay and physiological roles of auxins and gibbrellins.
