LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

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

FIFTH SEMESTER – APRIL 2010

PB 5509/PB 5500 - PLANT PHYSIOLOGY

Date & Time: 24/04/2010 / 1:00 - 4:00 Dept. No. Max. : 100 Marks

PART – A

Answer ALL the questions **(20 marks)**

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

1. Plasmolysis occurs when the cell is placed in _____ solution.

   a) Isotonic b) Hypotonic c) Hypertonic d) water

2. Absorption of mineral salts without the expenditure of energy is called

   a) Active b)Passive c) Translocation d) Cohesion

3. Peroxisome is associated with

   a)Photorespiration b)Dormancy c)Growth d)Nitrogen metabolism

4. Citric acid cycle takes place in the

   a)Cytoplasm b) Chloroplast c)Lysosome d)Mitochondria

5.Richmond Lang effect is associated with

   a)Auxins b)Cytokinins c)Gibberellins d)Ethylene

II. State whether the following statements are True or False *(5 x 1 = 5)*

6. Guttation is the exudation of water in the form of vapour.
7. Calcium pectate is the main constituent of the middle lamella.
8. Crassulacean members exhibit diurnal pattern of organic acid formation
9. Phytochrome is a pigment associated with flowering.
10. Pretreatment of seeds to low temperature to induce flowering is called Photoperiodism

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

11. The movement of water through the living cells of the plant is called_____.
12. The theory which accounts for fixed ions maintaining an electrochemical equilibrium is_____.
13. The enzyme which can act as carboxylase and oxygenase is known as _____.
14. The enzyme nitrogenase is highly sensitive to _____.
15. An example of a Short Day plant is_____ .

(P.T.O.)

IV. Answer the following each in about 50 words *(5 x 1 = 5)*

16. Define SPAC.
17. What are Micronutrients?
18. Define Quantosomes.
19. What is Transamination?
20. Define Dormancy.

PART - B

Answer the following each in about 500 words. Draw necessary diagrams. ***(5 x 7= 35 marks)***

21. a) Explain the components of Water potential.

or

b) Discuss the different types of transpiration and add a note on antitranspirants.

22. a) Discuss Active and Passive absorption of solutes.

or

b) Explain Donnan membrane equilibrium.

23. a) Explain the mechanism of Glycolysis.

or

b) Describe the synthesis of Amino acids .

24. a) Explain Non –cyclic photophosphorylation.

Or

b) Explain the metabolic pathway of NADP – ME type.

25. a) Discuss the Bioassay of Auxins.

or

b) Explain the effects of Drought on plants.

PART – C

Answer any three of the following questions in about 1200 words. Draw necessary Diagrams

(3 x 15= 45 marks)

26. Describe in detail the mechanism of absorption of water by plants.
27. Write the source, functions and deficiency symptoms of macro elements.
28. Explain the mechanism of symbiotic nitrogen fixation.
29. Trace the path of carbon in photosynthesis via the C_3 pathway.
30. Discuss the physiology of flowering.

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