



**LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034**

**B.Sc. DEGREE EXAMINATION – PLANT BIOLOGY AND PLANT BIOTECHNOLOGY**

**FIFTH SEMESTER – APRIL 2019**

**16UPB5MC01 / PB 5521 – PLANT PHYSIOLOGY**

Date: 15-04-2019  
Time: 09:00-12:00

Dept. No.

Max. : 100 Marks

**PART- A**

**Answer the following, each within 50 words.**

**(10 x 2=20marks)**

1. State the laws of thermodynamics.
2. Define diffusion.
3. Distinguish between macro and microelement.
4. Differentiate symplast from apoplast.
5. Explain Emmersons enhancement effect.
6. What is photorespiration?
7. What is Respiratory Quotient?
8. Define transamination.
9. Mention the physiological effect of auxin.
10. What is vernalization?

**PART- B**

**Answer the following, each within 500 words. Draw diagrams wherever necessary.**

**(5 x 7=35 marks)**

11. a. What is osmotic pressure? Explain the methods for determining osmotic pressure.  
(or)  
b. Explain the mechanism of ascent of sap in plants.
12. a. Enlist the specific role and deficiency symptoms of NPK.  
(or)  
b. Write short notes on hydroponics and its significance.

13. a. Give an account on non-cyclic phosphorylation.

(or)

b. Explain the sequential reactions of Calvin cycle.

14. a. Explain Krebs' cycle and its energy budget.

(or)

b. Describe the mechanism of biological nitrogen fixation in root nodules of leguminous plants.

15. a. What are gibberellins? Discuss their physiological roles in plants.

(or)

b. Write short notes on salinity tolerance and salinity resistance of plants.

### PART- C

**Answer any three of the following, each within 1200 words. Draw diagrams wherever necessary.**  
(3 x 15=45 marks)

16. What is transpiration? Discuss the involvement of  $K^+$  and  $H^+$  in stomatal opening and closing.

17. Give an account on the mechanism of ion uptake in plants.

18. Outline Hatch and Slack pathway and point out differences with Calvin cycle.

19. Describe the mechanism of oxidative phosphorylation. How does it differ from photophosphorylation?

20. What is phytochrome? How does it mediate the photomorphogenetic response? Describe its role in flowering.

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