

[This question paper contains 4 printed pages.]

**Your Roll No.....**

**Sr. No. of Question Paper : 1112**

**I**

**Unique Paper Code : 2162013503**

**Name of the Paper : Plant Physiology**

**Name of the Course : B. Sc. (Hons.) Botany**

**Semester : V**

**Duration : 2 Hours**

**Maximum Marks : 60**

**Instructions for Candidates**

1. Write your Roll. No. on the top immediately on receipt of this question paper.
2. Only four questions are required to be attempted in all.
3. Question 1 is compulsory.
4. All questions carry equal marks.
5. Attempt all parts of every question together.
6. Illustrate your answers wherever possible.

**P.T.O.**

1. (a) Define the following briefly (any five):

(5 × 1 = 5)

- (i) Osmosis
- (ii) Aeroponics
- (iii) Etiolation
- (iv) Photomorphogenesis
- (v) Bolting effect
- (vi) Bioassay

(b) Fill in the blanks (any five):

(5 × 1 = 5)

- (i) The water potential of pure water is \_\_\_\_\_.
- (ii) \_\_\_\_\_ is also called as stress phytohormone.
- (iii) Membrane channels that facilitate transport of water are called \_\_\_\_\_.
- (iv) A cell becomes flaccid after being kept in \_\_\_\_\_ solution.
- (v) Gene expressed before FT (full name of FT mention her-----) during flowering is known as \_\_\_\_\_.

(vi) Ordinary companion cells with development of finger-like wall ingrowths are called \_\_\_\_\_.

(c) Name any five of the following: (5 × 1 = 5)

- (i) A synthetic antitranspirant
- (ii) An ethylene-releasing compound
- (iii) Donnan equilibrium
- (iv) Photoreceptor
- (v) Chelating agent
- (vi) One example of photoblastic seed

2. Differentiate between the following (any five):  
(5 × 3 = 15)

- (i) Passive and active transport
- (ii) Phloem loading and unloading
- (iii) Scarification and stratification
- (iv) Apoplast and symplast
- (v) Climacteric and non-climacteric fruits
- (vi) Guttation and transpiration



3. Write short notes on (any three): (3 × 5 = 15)
- (i) Hydroponics
  - (ii) Brassinosteroids
  - (iii) Cohesion-tension theory
  - (iv) Aphid stylet technique
4. (a) Write an explanatory note on structure and mode of action of phytochrome. (8)
- (b) Explain the mechanism of stomatal opening and closing with reference to proton transport theory. (7)
5. (a) What is photoperiodism? Discuss three general categories of photoperiodic responses with reference to day length. (5)
- (b) Describe the physiological role of auxins in plants with suitable diagram. (5)
- (c) Discuss the criteria of essentiality of elements and biological roles of phosphorus and calcium in plants. (5)