

MAHARASHTRA AGRICULTURAL UNIVERSITIES EXAMINATION BOARD, PUNE
SEMESTER END THEORY EXAMINATION

B.Sc.(Hons.) Horticulture

Semester	: I (New)	Term	: First	Academic Year	: 2023-24
Course No.	: H/BOT 111	Title	: Introductory Crop Physiology		
Credits	: 2 (1+1)				
Day & Date	: Monday, 15.01.2024	Time	: 10:00 to 12:00 hrs.	Total Marks	: 40

- Note :
1. Solve ANY EIGHT questions from SECTION 'A'.
 2. All questions from SECTION 'B' are compulsory.
 3. All questions carry equal marks.
 4. Draw neat diagram wherever necessary.

SECTION 'A'

- Q.1 Give the broad classification of biotic and abiotic stress with schematic diagram. State the physiological effects of drought stress on plant metabolism.
- Q.2 a) Describe the role of water in plant metabolism.
b) Write the equation of water potential and describe its components in brief manner.
- Q.3 a) Define Ascent of sap. Enlist theories of ascent of sap grouped under three different titles.
b) Explain in brief transpiration pull theory proposed by Dixon and Jolly (1984).
- Q.4 a) Classify the stomata on the basis of their movement.
b) Write about starch sugar hypothesis of opening and closing of stomata.
- Q.5 a) State the Arnon's criteria of essentiality of mineral nutrients.
b) Describe the external factors affecting transpiration.
- Q.6 Write down chemically balanced equation of photosynthesis. Discuss about chloroplast structure and state its functions.
- Q.7 a) Discuss the sequential biochemical events of light reaction of photosynthesis in comprehensive manner.
b) Describe the various external factors controlling photosynthesis.
- Q.8 a) Describe the mechanism of photorespiration.
b) State the importance of crop physiology in horticulture.
- Q.9 Write short notes on (Any Two):
a) Deficiency symptoms of phosphorous
b) Significance of osmosis
c) CAM plant mechanism
- Q.10 Distinguish between:
a) Active and Passive absorption
b) Transpiration and Guttation

(P.T.O.)

SECTION 'B'

Q.11 Fill in the blanks:

- 1) F.F. Blackman (1905) formulated the law of _____ factors.
- 2) Deficiency of mobile elements occurs first on older leaves; while deficiency of immobile elements occurs on _____ leaves.
- 3) The name of oxido-reductive enzyme in photosynthesis is _____.
- 4) The value of maximum water potential is _____.

Q.12 State True or False:

- 1) Transpiration is a necessary evil.
- 2) When one mineral element promotes the absorption of other mineral element, it is termed as synergism.
- 3) In dicot plants, guard cells are kidney shaped.
- 4) During drought condition, plant secretes amino acid Proline.

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