MAHARASHTRA AGRICULTURAL UNIVERSITIES EXAMINATION BOARD, PUNE
SEMESTER END THEORY EXAMINATION

B.Sc.(Hons.) Horticulture

Semester	: **I (New)**	Term	: **First**	Academic Year	: **2022-23**
Course No.	: **H/BOT 111**	Title	: **Introductory Crop Physiology**		
Credits	: **2 (1+1)**				
Day & Date	: **Tuesday, 28.03.2023**	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 Define water potential. State its equation and comment in brief about osmotic potential.

Q.2 State the criteria of mineral essentiality put forth by Arnon and Stout. Classify the mineral elements based on their mobility.

Q.3 Define ascent of sap. Enlist the theories grouped under three different titles and explain in brief transpiration pull theory proposed by Dixon and Jolly (1984).

Q.4 Define drought. Describe ephemeral, succulent and non-succulent perennial plants.

Q.5 Define transpiration. Discuss the various factors affecting transpiration.

Q.6 Define secondary metabolites. State the three major categories of secondary metabolites. Discuss in brief the role of phenol in plant growth and development.

Q.7 Enlist the seven major types of chlorophyll pigments. Write in brief about pigments soluble in water and soluble in organic solvents.

Q.8 Define photorespiration. Name the three organelles where the C_2 cycle takes place. Give the significance of C_2 cycle in brief.

Q.9 Define crop physiology. State the importance of crop physiology in agriculture.

Q.10 Write short notes on (Any Two):

a) Kranz leaf anatomy of C_4 plants

b) Mode of action of herbicides

c) Mechanism of biological nitrogen fixation

SECTION 'B'

Q.11 State True or False:

1) Gravitational potential, the component of water potential will come into the force below the height of 5 m.

2) Chlorophyll is soluble in water.

3) C_3 plants are photosynthetically superior than C_4 plants.

4) In monocot plants, guard cells are kidney-shaped.

Q.12 Define the following terms:

1) Antagonism 2) Osmosis 3) Photooxidation 4) Stress

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