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3 (Sem-5/CBCS) BOT HC 2

2024

BOTANY

(Honours Core)

Paper : BOT-HC-5026

(Plant Physiology)

Full Marks : 60

Time : Three hours

The figures in the margin indicate full marks for the questions.

1. Answer the following questions : $1 \times 7 = 7$
- (a) _____ is a constituent element of chlorophyll.
 - (b) Aquaporins are _____.
 - (c) _____ is a necessary component of nitrogenase enzyme in plants.
 - (d) Chemically kinetin is known as _____.
 - (e) Phototropins are _____ protein.

Contd.

- (f) Many microbial species produce water solute pigments that serve as chelating agents, termed as _____ .
- (g) In proton pump _____ enzyme is involved.

2. Answer the following questions : $2 \times 4 = 8$

- (a) Differentiate between apoplast and symplast.
- (b) Differentiate between chlorosis and etiolation.
- (c) Write the differences between Pr and Pfr forms of phytochrome.
- (d) What are ABC transporters ? Mention their role in solute transport.

3. Write briefly on **any three** of the following : $5 \times 3 = 15$

- (a) Jasmonic acid
- (b) Phototropins
- (c) Pressure potential
- (d) Role of ABA in environmental stress
- (e) Donnan equilibrium

4. Answer the following questions : (**any three**) $10 \times 3 = 30$

- (a) What are gibberellins ? Describe the physiological effects of gibberellins. $2 + 8 = 10$
- (b) Describe the structure and function of cryptochrome.
- (c) Describe the active and passive absorption of water by roots in plants.
- (d) What is florigen concept ? Describe its role in stimulating flowering in different types of photoperiod sensitive plants. $4 + 6 = 10$
- (e) Describe the starch-sugar hypothesis and K^+ pump theory of stomatal movement. $5 + 5 = 10$
- (f) What is seed dormancy ? Mention different types of seed dormancy. Describe the causes and mechanisms of breaking of seed dormancy. $1 + 2 + 7 = 10$