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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 : 1×7=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)**

10×3=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