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.

(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 : 2×4=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 : 5×3=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

_____