



**WEST BENGAL STATE UNIVERSITY**  
B.Sc. Honours 5th Semester Examination, 2021-22

**BOTACOR12T-BOTANY (CC12)**

Time Allotted: 2 Hours

Full Marks: 40

*The figures in the margin indicate full marks.  
Candidates should answer in their own words and adhere to the word limit as practicable.  
All symbols are of usual significance.*

1. Answer **all** questions briefly from the following: 1×6 = 6
  - (a) What is total water potential in plant?
  - (b) Name one natural antitranspirant.
  - (c) What causes the alkalization of guard cell cytosol during ABA signalling?
  - (d) Write the function of companion cell in phloem transport in plants.
  - (e) Define critical day length.
  - (f) Name the plant hormone which act against pest. It is synthesized in which plant organ?
  
2. Answer any **eight** questions from the following: 3×8 = 24
  - (a) The cell sap of roots of halophytic plant has normally higher osmotic pressure than that of the cell sap of mesophyte plants — Explain with reasons.
  - (b) Differentiate between diffusion pressure deficit and water potential.
  - (c) Discuss the role of Fe as essential element and mention its deficiency.
  - (d) Explain the mechanism of ascent of sap in the light of modern concept.
  - (e) What are the different types of membrane transporters?
  - (f) Enumerate the physiological role of auxin.
  - (g) How can plants be classified based on their photoperiodic response?
  - (h) Explain how loading of sugar takes place from SE.CC complex in green plants.
  - (i) Distinguish between phytochrome and cryptochrome.
  - (j) Discuss the role of gibberellin on the production of  $\alpha$ -amylase by aleurone layer in the embryo.
  - (k) What are natural and synthetic plant growth regulators? Give examples.
  - (l) Write a short note on the causes of seed dormancy.

3. Answer any *two* questions from the following: 5×2 = 10
- (a) Give the chemical structure of kinetin. Discuss the role of cytokinin in cell division and senescence. 1+4
- (b) What is G-protein? Mention its role in signal transduction pathway. 2+3
- (c) Describe the role of sucrose-H<sup>+</sup> transporter in phloem loading. 5
- (d) Discuss briefly Ca<sup>+</sup> ATPase pump in absorption of ions by roots. State the importance of Donnan equilibrium concept in passive absorption of ions. 5

**N.B. :** *Students have to complete submission of their Answer Scripts through E-mail / Whatsapp to their own respective colleges on the same day / date of examination within 1 hour after end of exam. University / College authorities will not be held responsible for wrong submission (at in proper address). Students are strongly advised not to submit multiple copies of the same answer script.*

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