U.G. 5th Semester Examination - 2021

BOTANY

[HONOURS]

Course Code : BOT-H-CC-T-11

(Plant Physiology)

Full Marks : 40 Time : $2\frac{1}{2}$ Hours

The figures in the right-hand margin indicate marks.

Candidates are required to give their answers in their own words as far as practicable.

1. Answer any **five** of the following questions: 2×5=10
   a) What is water potential? Why is the internal water potential of a plant cell more negative than pure water?
   b) Name one natural antitranspirant. What are the different modes of water loss in plants?
   c) Give the structure of the most abundant natural cytokinin.
   d) What causes the alkalinization of guard cell cytosol during ABA signaling?
   e) Why leaves lose their ability to synthesize gibberellin from IPP once their chloroplasts mature?

   f) Name the plant hormone which act against pests. It is synthesized in which plant organ?
   g) How does innate dormancy differ from induced dormancy?
   h) Mention the role of chlorine as essential mineral element.

2. Answer any **two** of the following questions: 5×2=10
   a) Explain the importance of dark period on flowering. Why it is often said that the flowering pattern of a plant depends on the wavelength last received? 3+2
   b) What are the different types of membrane transporters?
   c) Differentiate between climacteric and non-climacteric fruits. Write the experiment for bioassay of ethylene. 3+2
   d) Differentiate between phytochrome and cryptochrome. Briefly write about the structural domain of cryptochrome. What is photoperiodic induction? 2+2+1

3. Answer any **two** of the following questions: 10×2=20
   a) Explain the developmental pathways involved in the transition to flowering.

b) What is epinasty? With proper illustrations explain the molecular mechanism of ethylene induced fruit ripening. 2+8

c) What do you mean by phloem loading and phloem unloading in plants? What are the components of phloem sap? Describe the role of sucrose-H^+ transporter in phloem loading. 4+1+5

d) Name the site where brassinosteroid bind to the receptor. Describe the structure of this receptor. Discuss the role of BKI1 and BIN2 in brassinosteroid signaling. 2+3+5

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