

U.G. 5th Semester Examination - 2022**BOTANY****[HONOURS]****Course Code : BOTH-CC-T-11****(Plant Physiology)**

Full Marks : 40

Time : 2½ 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: $2 \times 5 = 10$
 - a) Distinguish between osmosis and diffusion.
 - b) What is beneficial element? Write an example.
 - c) What are the differences between trace and tracer element?
 - d) Is there any difference between the water passed through stomata and hydathodes?
 - e) Write the chemicals usually present in phloem sap.
 - f) Define critical day length.
 - g) What is phototropin?

[Turn over]

b) Write name and structure of a gaseous plant hormone.

2. Answer any two of the following questions: $5 \times 2 = 10$

a) Write briefly the Cohesion Tension theory of ascent of sap.

b) Write down the roles of potassium and phosphorus as essential element and mention the deficiency symptoms of them. $2\frac{1}{2} + 2\frac{1}{2} = 5$

c) What is short distance transport? Write a brief note on 'phloem loading'. $1 + 4 = 5$

d) Write down the chemical nature and physiological roles of Brassinosteroids. $2\frac{1}{2} + 2\frac{1}{2} = 5$

3. Answer any two of the following questions: $10 \times 2 = 20$

a) Name the source from which cytokinin was discovered. Write down the chemical nature of naturally occurring cytokinin. Mention the physiological roles of cytokinin. $1 + 4 + 5 = 10$

b) Define transpiration. Describe the mechanisms by which stomata open and remain open in light. What are the factors that affect transpiration?

$$1 + 5 + 4 = 10$$

c) Write the structure of red light absorbing form of phytochromobilin and discuss briefly the chemical nature of phytochrome. Write down the role of phytochrome in photomorphogenesis.

$$2\frac{1}{2} + 2\frac{1}{2} + 5 = 10$$

d) What are the differences between dormancy and quiescence? Discuss the causes of dormancy and methods of breaking dormancy.

$$2 + 4 + 4 = 10$$