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3 (Sem-5/CBCS) BOT HC 2

2023

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 as directed : $1 \times 7 = 7$

(a) The phenomenon where an ion species may depress the uptake of another ion species is called

- (i) ion inhibition
- (ii) ion suppression
- (iii) ion antagonism
- (iv) None of the above

Contd.

- (b) The stomata close in water stressed plants due to accumulation of ABA in
- (i) mesophyll cells
 - (ii) subsidiary cells
 - (iii) guard cells
 - (iv) None of the above
- (c) Richmond and Lang effect is
- (i) apical dominance
 - (ii) foolish disease of rice
 - (iii) replacement of red light effect
 - (iv) retardation of leaf senescence
- (d) Cryptochromes are a class of
- (i) lipoproteins
 - (ii) flavoproteins
 - (iii) carbohydrates
 - (iv) amino acids
- (e) When two types of molecules or ions move in opposite direction through plasma membrane, it is called
- (i) uniport
 - (ii) symport
 - (iii) antiport
 - (iv) None of the above

- (f) Which of the following mineral elements is less soluble and comparatively immobile in soil?
- (i) P
 - (ii) K
 - (iii) N
 - (iv) None of the above
- (g) Which of the following categories of phytochrome mediated photoresponses in plants show reversible photoresponses?
- (i) LFRs
 - (ii) VLFRs
 - (iii) HIRs
 - (iv) All of the above

2. Write briefly on the following : $2 \times 4 = 8$

- (a) Water potential
- (b) Bolting
- (c) Source-sink relationship
- (d) Brassinosteroids

3. Write briefly on **any three** of the following : $5 \times 3 = 15$

- (a) Antitranspirants
- (b) Root Pressure theory
- (c) Apical dominance

- (d) Cytochrome Pump theory
- (e) High Irradiation Responses

4. Answer the following questions : $10 \times 3 = 30$

- (a) What is vernalization? Mention the sites of vernalization. How plants can be devernalized? Describe various theories of vernalization.

$1+1+2+6=10$

Or

Give a critical account of modern view of solute transport across membrane in plants.

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- (b) What is photomorphogenesis? Give an account of red light and far red light responses on photomorphogenesis.

$2+8=10$

Or

What is photoperiodism? What do you mean by LDP and SDP? Write a note on florigen concept.

$1+2+2+5=10$

- (c) What are cytokinins? Describe the discoveries, occurrence and transport (movement) of cytokinins.

$2+2+2+4=10$

Or

Describe the process of phloem loading and unloading.

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