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**3 (Sem-5/CBCS) BOT HC 2**

**2021**

**(Held in 2022)**

**BOTANY**

**(Honours)**

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 : 1×7=7

(a) Which *one* of the following is having highest osmotic pressure ?

(i) Xerophytes

(ii) Halophytes

*Contd.*

(iii) Lithophytes

(iv) Mesophytes

*(Choose the correct option)*

(b) Swelling of wooden doors during rainy season is due to

(i) endosmosis

(ii) imbibition

(iii) capillarity

(iv) deplasmolysis

*(Choose the correct option)*

(c) The amount of soil water available to plant absorption is called \_\_\_\_\_.

*(Fill in the blank)*

(d) Which of the following statements is wrong ?

(i) Guttation takes place at night.

(ii) Guttation takes place through hydathodes.

(iii) Guttation is a regulated mechanism.

(iv) Guttation takes place in grasses.

*(Choose the correct option)*

(e) Due to deficiency of which element the grey speck disease of oats occur ?

(f) Auxin-B was first isolated by

(i) Yabuta and Sumiki

(ii) Miller and Skoog

(iii) Kogl and Thimann

(iv) Kogl, Erxleben and Haagen-Smit

*(Choose the correct option)*

(g) Flowering induced by cold treatment is known as

(i) vernalization

(ii) photoperiodism

(iii) scnescence

(iv) cryobiology

*(Choose the correct option)*

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

- (a) Osmotic theories of active absorption of water
- (b) Deficiency symptoms due to lack of molybdenum
- (c) Ethylene on fruit ripening
- (d) Apoplast.

3. Write briefly on the following : **(any three)**

$5 \times 3 = 15$

- (a) Method of breaking of seed dormancy
- (b) Role of phytochrome pigment in photomorphogenesis
- (c) Cohesion-tension theory of ascent of sap



(d). Criteria for essentiality of mineral elements

(e) Brassinosteroids.

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

(a) Describe the theory of proton-transport and hormonal regulation on opening and closing of stomata. Describe the role of antitranspirants.  $7+3=10$

**Or**

Who proposed the term 'photo-periodism'? What do you mean by long-day and short-day plants? Write a descriptive note on florigen concept.

$1+(2+2)+5=10$

- (b) How are mineral salts available for plant absorption ? Describe the cytochrome pump hypothesis (with diagram) for mineral salt absorption. What are the major demerits in the theory ? 3+5+2=10

**Or**

What are the experimental evidences you suggest in support of the fact that the translocation of sugar takes place through phloem tissue. Explain the Munch hypothesis with diagram.

3+7=10

- (c) Describe the physiological role of auxin and gibberellins. 5+5=10

**Or**

Name *two* naturally occurring cytokinins. Describe the role of cytokinin on cell division, morphogenesis, retention of chlorophyll pigments and nucleic acid metabolism.

2+8=10