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

(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) scenescence

(iv) cryobiology

(Choose the correct option)

2. Write briefly on the following : 2×4=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)*

5×3=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 : 10×3=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 occuring cytokinins. Describe the role of cytokinin on cell division, morphogenesis, retention of chlorophyll pigments and nucleic acid metabolism.

2+8=10

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4500