



বিদ্যাসাগর বিশ্ববিদ্যালয়
VIDYASAGAR UNIVERSITY

Question Paper

B.Sc. Honours Examinations 2021

(Under CBCS Pattern)

Semester - V

Subject: BOTANY

Paper : C 12-T & P

Plant Physiology

Full Marks : 60 (Theory-40 + Practical-20)

Time : 3 Hours

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

The figures in the margin indicate full marks.

[Theory]

Group - A

- A. Answer any **three** questions from the followings : 12×3=36
1. Mention any three phytohormones along with their chemical structures. How does application of growth hormones affect agricultural practices? Elucidate the bioassay of Gibberellins. 3+6+3
 2. Enumerate the criteria for essentiality of mineral elements. State the roles of magnesium, calcium and iron in plant metabolism. What is the role of chelating agent in plant nutrition. 3+(2+2+2)+3
 3. Define symport and antiport with example. Distinguish between passive and active absorption. State the mechanism of ion uptake against concentration gradient. 4+4+4

4. Explain the mechanism of phloem loading and unloading. Briefly describe the source-sink relationship. 8+4
5. Explain the role of CO₂, K⁺ and ABA on stomatal movement. What are antitranspirants? 9+3
6. What is photoperiodism and photoperiodic response? Write a short note on the chemical nature and role of phytochrome in photomorphogenesis. What is florigen? 3+7+2

Group - B

- B. Answer any **two** questions from the followings : 2×2=4
1. What is hydroponics? 2
 2. Write two roles of cryptochromes. 2
 3. What do you mean by facilitated diffusion? 2
 4. What do you mean by triple response of ethylene? 2

[Practical]

Group - A

- A. Answer any **one** question from the following : 15×1=15
1. Mention the requirements to set up an experiment for 'determination of osmotic potential of plant cell sap by plasmolytic method'. Write the procedure and lay out of observation table for the above mentioned experiment. 5+10
 2. Mention the requirements to set up an experiment for 'observing the effect of light on the rate of transpiration in excised twig'. How would you perform the said experiment and collect data? 5+10
 3. How are stomatal index and stomatal frequency calculated? How does stomatal frequency vary in mesophyte and xerophyte? (5+5)+5

Group - B

- B. Answer any **one** question from the following : 5×1=5
1. Write the materials and equipments required to demonstrate the development of suction pressure due to transpiration. 5

2. Prepare a chart for the preparation of different concentrations of IAA required in *Avena* coleoptile elongation test.

3. Write the procedure to study the effect of light on the phenomenon of seed germination. 5

Or,

(a) Laboratory note book 2

(b) Viva-voce 3

Vidyasagar University