'समानो मन्त्रः समितिः समानी'

UNIVERSITY OF NORTH BENGAL

B.Sc. Honours 5th Semester Examination, 2023

CC12-BOTANY

PLANT PHYSIOLOGY

Time Allotted: 2 Hours | Full Marks: 40

The figures in the margin indicate full marks

GROUP-A

1. Answer any ***five*** questions from the following: 1×5 = 5
   (a) Define water potential.
   (b) Name one naturally occurring cytokinin.
   (c) What is the triple response of ethylene?
   (d) What is symplast?
   (e) Give one example of chelating agent.
   (f) What is devernalization?
   (g) Define facilitated diffusion.
   (h) Distinguish between passive and active absorption.

GROUP-B

2. Answer any ***three*** questions from the following: 5×3 = 15
   (a) Mention the physiological roles of calcium and phosphorus in plants. $2\frac{1}{2}+2\frac{1}{2}$
   (b) Why is water potential of a cell is always negative? Water potential of a cell is 0.244 MPa and pressure potential is 0.402 MPa. Calculate the osmotic potential of that cell. What is the water potential of pure water at standard temperature? 1+3+1
   (c) Discuss the role of ABC transporters in ionic transport. What is solute potential? 4+1
   (d) Write short notes on: $2\frac{1}{2}+2\frac{1}{2}$
      (i) Critical day length
      (ii) Red and far-red light responses of plants.
   (e) Give a brief account of phloem loading and unloading. 5

GROUP-C

3. Answer any ***two*** questions from the following: 10×2 = 20
   (a) What do you mean by photoperiodic induction? What is the site of perception of the photoperiodic stimulus? Discuss in brief the role of GA in flowering. Write the scientific names of one short day plant and one long day plant. 2+2+4+2
   (b) What are cytokinins? Describe briefly the occurrence and movement of cytokinins. 2+3+5
   (c) What is phytochrome? Discuss its chemical nature and its role in photomorphogenesis. 2+4+4
   (d) Differentiate between transpiration and guttation. Discuss the vital theories in relation to ascent of sap. 3+7

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