THE OPEN UNIVERSITY OF SRI LANKA

B.Sc. DEGREE PROGRAMME

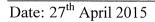
BOTANY - LEVEL 05

FINAL EXAMINATION 2014/2015

BOU3102/BOE5102/BTU3103/BTE5103 - PLANT GROWTH AND

DEVELOPMENT

DURATION: TWO (02) HOURS.



Time: 9.30 a.m. – 11.30 a.m.

Answer any four (04) of the following questions.

- 01. (a) What is the principal natural auxin in plants? Draw its structure.
 - (b) Briefly explain how auxin contributes to cell wall elongation.
 - (c) Name the carrier-mediated, cell to cell directional transport involved in auxin movement in plants.Draw a diagram to explain the type of auxin transport you mentioned.
 - (d) Discuss the interaction of auxin and ethylene during leaf abscission.
- 02. (a) What are "phytohormones"?
 - (b) What is meant by "bolting"?
 - (c) "Germination of cereal grains may not occur in the absence of gibberellic acid". Discuss this statement.
 - (d) Briefly discuss the use of gibberellin synthesis inhibitors in agriculture and horticulture.



- 03. (a) Briefly explain very-low-fluence responses (VLFRs), low-fluence responses (LFRs) and high irradiance responses (HIRs)of phytochrome. How do these differ with respect to photoreversibility, reciprocity and photoreceptors?
 - (b) Describe the structure of the phytochrome molecule, indicating the important functional domains.
 - (c) How do 'sun plants' differ from shade plants? Briefly explain the "shade avoidance response" and how it is regulated by phytochrome.

04. Discuss the following:

- (a) Stomatal closure in response to ABA (abscisic acid) is driven by a reduction in the guard cell turgor pressure.
- (b) Sleep movements of leaves of certain legume plants are due to circardian ion fluxes into and out of motor cells.

05. Write short notes on the following:

- (a) Significance of abscission to plants.
- (b) Pathway of ethylene biosynthesis.
- (c) Role of brassinosteroids in plants.
- 06. (a) What is meant by 'vernalization'?
 - (b) Describe the categories of plants based on the vernalization responses. Give one example for each category.
 - (c) List the important features of vernalization.
 - (d) Briefly explain how the age of a plant, temperature and duration of cold treatment affect the vernalization process.
 - (e) Discuss the significance of vernalization in plant.
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