



**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.**

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Date: 27<sup>th</sup> April 2015

Time: 9.30 a.m. – 11.30 a.m.

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**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 circadian 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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