



THE OPEN UNIVERSITY OF SRI LANKA
B.Sc. DEGREE PROGRAMME
BOTANY – LEVEL 05
FINAL EXAMINATION 2013/2014
BOU3102/BOE5102/BTU3103/BTE5103-PLANT GROWTH AND
DEVELOPMENT
DURATION :TWO (02) HOURS.

Date: 04th June 2014

Time: 9.30 a.m. – 11.30 a.m.

Answer any four (04) of the following questions.

01. (a) Briefly describe the general structure of cytokinins.
 - (b) Describe the transport of cytokinins.
 - (c) Describe the effect of cytokinins on
 - i. Synthesis of chlorophyll and development of chloroplasts.
 - ii. Regulation of grain yield in rice.
 - (d) Briefly describe two instances where cytokinins cause diseases in higher plants.
 - (e) “Cytokinins prevent or delay senescence”. Comment on this statement.
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02. (a) Give the structure and nature of ethylene.
 - (b) Based on your knowledge of ethylene biosynthesis and activity, briefly describe the methods available to delay ripening during storage.
 - (c) Discuss the interaction of auxin and ethylene during leaf abscission.
 - (d) Discuss the use of ethylene-releasing compounds in horticulture and agriculture.

03. Discuss the following:
- (a) Night length is more important in photoperiodism.
 - (b) Gibberellins are used in agriculture and horticulture for various purposes.
04. (a) What is meant by “programmed cell death”?
- (b) List the Functions/roles of programmed cell death in plants.
 - (c) Describe the instances where the programmed cell death is observed in response to stress in plants.
 - (d) Describe the various types of senescence seen in plants.
05. Write short notes on the following:
- (a) Specialized tissues/structures associated with physical dormancy that control water permeability of the seed coat.
 - (b) Applications of somatic embryogenesis
 - (c) Role of phytochrome in sensing shade by sun plants.
06. (a) Name and describe the five categories of photoperiodic plants.
- Give one example for each category.
- (b) State whether a short day plant with a critical night length of 11 hours would flower under the following conditions. Give reasons in each case.
 - i. 14 hours of day light followed by 10 hours of darkness.
 - ii. 12 hours of day light followed by 12 hours of darkness.
 - iii. 12 hours of day light followed by 12 hours of darkness, with a flash of far-red light at hour 17.
 - iv. 12 hours of day light followed by 12 hours of darkness with a flash of red light at hour 17 followed by a flash of far-red light.
 - v. 10 hours of day light followed by 14 hours of darkness with a flash of red light at hour 22.

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