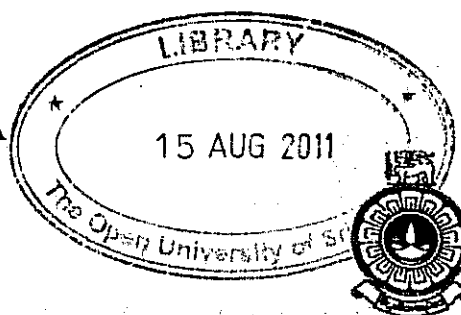


THE OPEN UNIVERSITY OF SRI LANKA
B.Sc. DEGREE PROGRAMME
BOTANY –LEVEL 05
FINAL EXAMINATION – 2010/2011
BTU 3103/BTE 5103 – PLANT GROWTH AND DEVELOPMENT



DURATION : TWO AND A HALF (2 ½) HOURS

DATE : 13th December 2010

TIME: 1.00 p.m. – 3.30 p.m.

ANSWER ANY FOUR (04) OF THE FOLLOWING QUESTIONS.

01. (a) Give a diagrammatic representation of the pathways of auxin biosynthesis in plants (Structural formulas are not required). What is the most predominant pathway?
- (b) Discuss the role of auxin in the following
 - i. Cell wall elongation
 - ii. Tropic responses
 - iii. Abscission of leaves and fruits.
02. (a) What are gibberellins?
- (b) Briefly describe the physiological role of gibberellins in plants.
- (c) "Gibberellin synthesis inhibitors are used in agricultural and horticulture to prevent elongation growth". Comment on this statement.
03. Discuss the following
 - (a) Significance of bound auxins to plants.
 - (b) Methods available to delay ripening during storage.
 - (c) Ways by which the seed coat influences seed dormancy.
04. (a) "Phytochrome plays a significant role in the development of dicot seedlings" Explain.
- (b) Briefly discuss the effect of temperature on seed germination.
- (c) Why might seed dormancy be particularly advantageous to desert plants?

05. (a) Name two (02) environmental factors that would affect flowering.
- (b) Differentiate between vernalization and devernialization.
- (c) A plant species which is a short day plant with a critical night length of 13 hours is cultivated for its flowers. Giving reasons, state whether this plant would flower or not when exposed to the following conditions.
- i. 14 hours of darkness
 - ii. 20 hours of darkness but given a flash of red light after 16 hours.
 - iii. 20 hours of darkness but given a flash of red light after 10 hours.
 - iv. 20 hours of darkness but given a flash of red light followed by a flash of far-red light after 10 hours.
 - v. 8 hours of darkness
06. Write short notes on the following.
- (a) Cytokinin bioassays
 - (b) Stomatal response to ABA in plant tolerance to water stress
 - (c) The role of hormones in flower and leaf senescence.

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