

THE OPEN UNIVERSITY OF SRI LANKA

B.Sc./B.Ed DEGREE PROGRAMME 2013/2014

BOTANY – LEVEL 05

ASSESSMENT TEST – (OPEN BOOK TEST)

BOU3102/BOE5102 – PLANT GROWTH AND DEVELOPMENT



DURATION : ONE (01) HOUR

Reg. No.....

Date : 27th February 2014

Time : 12.45 p.m. – 1.45 p.m.

No. of Questions – 03

No. of Pages – 04

ANSWER ALL QUESTIONS ON THE SPACE PROVIDED.

01. Fill in the blanks with the most appropriate word/words.

- (a) The amino acid tryptophan is the precursor in the biosynthesis of _____.
- (b) In polar auxin transport, auxin enters plant cells by passive diffusion as _____ IAA molecule.
- (c) The concentration of auxin required to promote the same amount of growth of the root is _____ than that of the stem.
- (d) Plant cell walls consist of long microfibrils joined to each other by cross links known as _____.
- (e) The role of auxin in cell wall elongation is to cause pumping of _____ ions into _____ region.
- (f) Promotion of flowering in bromeliads by auxin is due to auxin-induced _____ production.
- (g) Non-growing lateral bud dominated by the shoot apex can be promoted to grow by an external application of _____.

- (h) The two main auxin type compounds used in chemical thinning are _____ and _____.
- (i) ABA is a 15-carbon _____ that resembles the terminal portion of some _____ molecules.
- (j) Closing of stomata is driven by a reduction in the guard cell turgor pressure caused by massive efflux of _____ and _____ from the guard cells.
- (k) According to the ethylene action model, ethylene binds to a membrane-bound receptor protein via a _____.
- (l) The plumular hook in dark-grown dicot seedlings is formed in response to endogenous _____ and the plumular hook is important in protecting the _____ during seedling emergence.
- (m) In the shedding induction phase of leaf abscission, the amount of auxin coming from the leaf _____ and ethylene level _____.
- (n) It has been found that in tomato and other dicots, water logging or anaerobic conditions around roots enhance the synthesis of _____ in the shoot leading to epinasty.

02. (a) Why is ABA known as the “stress hormone” in plants?

(b) What is meant by precocious germination?

(c) What is the role of ABA in precocious germination?

(d) Briefly state how abscisic acid closes stomata in response to water stress.

(e) Define the following terms.

i. Orthodox seeds

ii. Antitranspirants

iii. Enantiomer

iv. After-ripening

03. (a) Give a general description of a plant hormone.

(b) How are free auxin levels regulated by conjugation and oxidation in plants.

- (c) What are the main features of chemiosmotic model for polar auxin transport?

- (d) What structures act as gravity receptors in plant cells? Where are these structures located in shoots and roots?

- (e) How does auxin cause cell wall elongation?

- (f) Name two (02) widely used auxin herbicides.

- (g) Monocots such as maize and grasses are less sensitive to artificial auxins. Why?

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