00244

THE OPEN UNIVERSITY OF SRI LANKA

B.Sc. DEGREE PROGRAMME

BOTANY – LEVEL 05

FINAL EXAMINATION – 2017/2018

BYU5302/BYE5302 – PLANT GROWTH AND DEVELOPMENT
B043102/BOE5102
DURATION: TWO (02) HOURS

Date : 03rd October 2018 **Time: 9.30 a.m. – 11.30 a.m.**

ANSWER ANY FOUR (04) OF THE FOLLOWING QUESTIONS.

01. (a) What are gibberellins? Where are they produced?

(b) What are the similarities in responses brought about by auxins and gibberellins in plants?

(c) Briefly explain the role of gibberellic acid in vernalization.

(d) Briefly describe the uses of gibberellins in plants breeding.

(e) What is a coleoptile? Why does the removal of the tip of the coleoptile prevent plant growth?

02. Discuss the following:

(a) Brassinosteroids have been shown to carry out a variety of functions in plants.

(b) The flower stalks of water plants when submerged elongate rapidly.

03. (a) What is a seed?

(b) List the functions of seeds.

(c) How should a Gardner store his/her seeds from year to year?

(d) Explain how the tetrazolium test works in the determination of the viability of seeds.

(e) Briefly explain why seed dormancy exists in nature.

(f) Explain what is meant by "bud dormancy".

04. (a) Briefly describe the general structure of abscisic acid (structural formulae are not required).

(b) Some grain crops such as maize are viviparous when they mature in wet weather. Explain what this means.

(c) Describe the effect of abscisic acid on vivipary and precocious germination.

(d) Briefly explain the effect of abscisic acid on root and shoot growth.

05. Write short notes on the following:

(a) Biochemical and structural properties of phytochrome.

(b) Uses of auxins in agriculture and horticulture.

06. (a) How are plants be classified according to their photoperiodism-based flowering?

(b) 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 10 hours of darkness.

(iii) 20 hours of darkness but given a flash of red light followed by a flash of far-red light after 10 hours of darkness.

(iv) 20 hours of darkness but given a flash of red light after 14 hours.

(v) 11 hours of darkness.

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