THE OPEN UNIVERSITY OF SRI LANKA

B.Sc. DEGREE PROGRAMME

BOTANY –LEVEL 05

FINAL EXAMINATION – 2011/2012

BTU 3103/BTE 5103/BTI 5103 – PLANT GROWTH AND DEVELOPMENT

DURATION : TWO (2) HOURS

DATE : 19th December 2011 **TIME: 9.30 a.m. – 11.30 a.m.**

ANSWER ANY FOUR (04) OF THE FOLLOWING QUESTIONS.

01. a) Describe the methods of regulating endogenous levels and commercial applications of auxins.

b) What are the main features of polar auxin transport?

c) Discuss how auxins regulate the following developmental phenomena.
(i) Apical dominance (ii) pathenocarpic fruit development

02. Discuss the following.
a) Gibberellic acid mobilises stored food reserves in cereal grains.

b) When sections of coleoptiles are placed in an acidic solution, they elongate as if auxins are present.

c) Certain structural features are required in substances to exhibit auxin activity.

03. a) What is abscission?
What hormones are involved in abscission?

b) Briefly describe the process of separation of a leaf from the stem.

c) List the practical applications of abscission in agriculture and horticulture.

04. a) Briefly describe the process of seed germination.

b) Briefly state how a germination test is performed.

c) Compare the hypogeous and epigeous emergence of seedlings.

d) Briefly explain the significance of prolonging bud dormancy in trees growing in temperate regions.

05. Write short notes on any <u>two</u> of the following.

a) Phototropic responses of plants.

b) Rhythmic behaviour seen in plants in association with daily cycles of light and darkness.

c) Role of plant hormones in seed germination.

06. a) Explain how flowering is controlled in long day and short day plants.

b) State whether a short day plant with a critical night length of 15 hours would flower under the following conditions.

i. 17 hours of darkness
ii. 15 hours of darkness but given a flash of red light during this period.
iii. 15 hours of darkness but given a flash of red light followed by a flash of far-red light during this period.
iv. 11 hours of light.