

THE OPEN UNIVERSITY OF SRI LANKA

B.Sc. DEGREE PROGRAMME

BOTANY –LEVEL 05

FINAL EXAMINATION – 2007/2008

BTU 3103/BTE 5103 – PLANT GROWTH AND DEVELOPMENT



DURATION : TWO AND A HALF (2 ½) HOURS

DATE : 29th December 2007

TIME: 1.00 p.m. – 3.30 p.m.

ANSWER ANY FOUR (04) OF THE FOLLOWING QUESTIONS.

01. a) What are the two forms of phytochrome?
b) Give four differences between these two forms
c) Briefly describe the structure of phytochrome
d) Explain the involvement of phytochrome in the development of monocot seedlings.
e) List the processes in plants (other than those mentioned in (d)) that are controlled by phytochrome.
02. a) What are the two types of germination exhibited by flowering plants?
b) Briefly explain the seed germination process.
c) Discuss the effects of plant hormones on seed germination.
d) In temperate countries, potatoes are usually stored under cover in a frost-free place. Suggest an explanation for this.
03. a) What are “somatic embryos”?
b) Compare the zygotic embryogenesis of dicotyledons with that of monocotyledons.
c) Give the differences between zygotic and somatic embryogenesis in monocotyledons.

04. Discuss the following:
- a) The ratio of auxin to cytokinin plays an important role in plant growth and development.
 - b) Abscisic acid is also named as the stress hormone.
 - c) Germination of cereal grains may not occur in the absence of Gibberellic acid.
05. Write short notes on the following:
- a) Commercial uses of ethylene.
 - b) Auxins as weed killers.
 - c) Mode of action of cytokinin.
06. a) Long day plants should be more correctly called short night plants. Explain.
- b) A plant species which is a short day plant with a critical night length of 14 hours is cultivated for its flowers. Giving reasons, state whether this plant would flower or not when exposed to the following conditions.
- (i) 15 hours of darkness.
 - (ii) 20 hours of darkness but given a flash of red light after 17 hours.
 - (iii) 20 hours of darkness but given a flash of red light followed by a flash of far-red light after 17 hours.
 - (iv) 9 hours of darkness and given a flash of red light after 2 hours.

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