MASENO UNIVERSITY

UNIVERSITY EXAMINATIONS 2016/2017

THIRD YEAR FIRST SEMESTER EXAMINATIONS FOR THE DEGREE OF BACHELOR OF SCIENCE IN HORTICULTURE AND BACHELOR OF SCIENCE IN AGRONOMY WITH INFORMATION TECHNOLOGY

MAIN CAMPUS

AHC 304: PLANT PROPAGATION AND GROWTH PROCESSES

Date: 3rd December, 2016 Time: 12.00 - 3.00 pm

INSTRUCTIONS:

- Answer ALL questions in SECTION A and any TWO questions in SECTION B.

2016/2017

AHC 304: PLANT PROPAGATION AND GROWTH PROCESSES

INSTRUCTIONS: Answer **ALL** questions in section **A** and any other **two** questions from section **B**.

SECTION A (30 MARKS)

Q1. The development of a zygotic seedling goes through phases with distinct characteristic features. Describe these developmental phases to the completion of its life cycle

(12 marks)

Q2. (a) Phytopathological challenges in agricultural media can be a serious drawback to agricultural production while good agricultural practices (GAPs) also discourage the use of chemicals in media treatment. Discuss the alternative procedure(s) for handling this challenge highlighting the possible drawbacks

(6 marks)

(b) A vegetable seed company is interested in bulk production of seeds of *Crotolaria ochroleuca*. What procedures should it undertake to ensure that the correct seed is delivered to its clients

(3 marks)

Q3. (a) Outline the types of propagation cuttings giving at least an example of plants for which each is used

(4 marks)

(b) Differentiate the following terminologies with respect to plant growth and development:

(i)	Interstock and rootstock	(1 mark)
(ii)	Ramet and ortet	(1 mark)
(iii)	Apomixis and totipotency	(1 mark)
(iv)	Polyembryony and parthenocarpy	(1 mark)
(v)	Chimera and clone	(1 mark)

SECTION B (40 MARKS)

Q4. (a) Plant growth and development is sometimes marked by suspension of active physiological processes. Describe the physiological process of the resumption of growth of an embryo into a seedling (10 marks)

(b) Describe scarification as a seed management aspect (5 marks)

(c) Justify the use of asexually produced propagation materials over zygotic seeds (5 marks)

Q5. (a) Describe the developmental stages through which micro-propagation undergoes to produce disease-free materials for transplanting (10 marks)

(b) Asexual propagation may involve the union of roots and shoots into a single plant. Describe the process involved in the formation of a graft union (5 marks)

(c) Explain the occurrence of genetic variations in clonal cultivars and its relevance in the ornamental plant industry (5 marks)

Q6. (a) Any propagation substrate is expected to provide some basic functions. Describe the ideal properties of a substrate that enables it to meet these basic functions (10 marks)

(b) Describe the full developmental process of a zygotic embryo (10 marks)