

CHUKA



UNIVERSITY

UNIVERSITY EXAMINATIONS

**EXAMINATION FOR THE AWARD OF DEGREE OF
BACHELOR OF SCIENCE IN HORTICULTURE**

HORT 222: PLANT PROPAGATION

STREAMS: BSC (HORT) Y2S1

TIME: 2 HOURS

DAY/DATE: MONDAY 03/12/2018

2.30 PM – 4.30 PM

INSTRUCTIONS:

This examination has two sections A and B. The candidate should answer all questions in section A and any two (2) questions in Section B. This examination contributes 70 marks to the final grade.

SECTION A: short Answer Questions. Answer ALL Questions in this section (30 marks)

Question 1

- (a) Briefly explain the role played by auxins in plant propagation. Give examples in seed and vegetative propagation. [5 marks]
- (b) Propagation structures and planting media are important during the growing of plants from seed and cuttings. List 3 structures and 3 rooting media commonly used in the nurseries. [5 marks]

Question 2

- (a) What is tissue culture and how is this technology applied to improve crop production. Demonstrate this with reference to a crop of economic importance in Kenya. [10 marks]
- (b) Plant genetic engineering approach has successfully been used to improve crop seeds. Briefly explain how this has been achieved. [5 marks]

Question 3

Propagation environment and plant nutrition play a major role in the rooting cuttings. Briefly explain the effects of (i) temperature, (ii) oxygen, (iii) carbohydrates and (iv) boron. [10 marks]

Question 4

What is seed stratification and how is the process done? Give examples. [5 marks]

SECTION B: Answer any two (2) questions from this section (40 marks)

Question 5

Vegetative propagation is an important means of propagating many woody horticultural crops and successful rooting of cuttings is an important aspect in vegetative propagation. [10 marks]

- (a) Briefly describe the physiological and anatomical processes that occur during the rooting of cuttings. [10 marks]
- (b) Cuttings of some plant species are easy to root and others difficult to root. Why? [5 marks]
- (c) What methods are available to overcome the constraint in difficult to root cuttings? [5 marks]

Question 6

- (a) Seed quality is important during plant propagation. What are the qualities of a good seed? [5 marks]
- (b) Briefly describe the process of raising root stocks from seeds. [5 marks]
- (c) Leaf-bud cuttings is a very rapid means of multiplying valuable horticultural species. Briefly describe how this process is done. [5 marks]
- (d) List the five (5) factors that influence the generation of plants from shoot cuttings. [5 marks]

Question 7

- (a) Grafting of plants is commonly practiced in establishing plants in commercial nurseries. List the types of approach grafting and detached grafting. What is the difference between rind graft and cleft graft? [10 marks]

- (b) Briefly describe the method of grafting a fruit grower will employ to improve a citrus orchard. [10 marks]
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