



# MACHAKOS UNIVERSITY

University Examinations 2018/2019

SCHOOL OF AGRICULTURAL SCIENCES

DEPARTMENT OF AGRICULTURAL EDUCATION AND EXTENSION

SECOND AND FIRST YEAR SECOND SEMESTER EXAMINATION FOR  
BACHELOR OF SCIENCE (AGRICULTURAL EDUCATION AND EXTENSION)

**HOR 211: PRINCIPLES OF HORTICULTURAL PRODUCTION**

DATE: 10/5/2019

TIME: 8:30 – 10:30 AM

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**INSTRUCTION:**

**Answer Question One and Any Other Two Questions**

**QUESTION ONE (COMPULSORY) (30 MARKS)**

- a) Define the following terms as used in horticultural production
- i) Pomology (1 mark)
  - ii) Olericulture (1 mark)
  - iii) Viticulture (1 mark)
- b) Explain FOUR advantages of organic farming (4 marks)
- c) Differentiate between short day plants and long day plants with regard to flowering (4 marks)
- d) Describe FOUR physiological disorders caused by irregular watering of horticultural crops. (4 marks)
- e) Describe FOUR sources of carbon (iv) oxide to the greenhouse crops (4 marks)
- f) As a consultant in crop irrigation and nutrition, Mrs. Omollo, a tomato farmer based in Siaya County visits your office seeking advice on how to improve production of her crop. Explain to her FOUR benefits of adopting fertigation. (4 marks)
- g) Describe how blanching can increase quality on any FOUR different vegetables (4 marks)
- h) Describe THREE mechanical methods of pest management. (3 marks)

- i) Describe two cultural methods of pest management. (2 marks)

**QUESTION TWO (20 MARKS)**

- a) Describe the properties of each of the following soil-less media as used in horticultural production
- i) Peat moss (5 marks)
  - ii) Coco peat (5 marks)
  - iii) Vermiculite (5 marks)
  - iv) Pumice (5 marks)

**QUESTION THREE (20 MARKS)**

- a) Discuss the role of the following plant growth regulators
- i) Auxin (2.5 marks)
  - ii) Cytokinnins (2.5 marks)
  - iii) Gibberellic acid (2.5 marks)
  - iv) Ethylene (2.5 marks)
- b) Discuss five strategies used in biological control of pests and diseases. (10 marks)

**QUESTION FOUR (20 MARKS)**

Discuss the following types of hydroponic systems and state their limitations

- i) Nutrient film technique (5 marks)
- ii) Aeroponics (5 marks)
- iii) Water culture (5 marks)
- iv) Ebb and flow (5 marks)

**QUESTION FIVE (20 MARKS)**

Describe ways in which the following factors affect the post-harvest quality of horticultural crops

- i) Irrigation (5 marks)
- ii) Fertilization (5 marks)
- iii) Planting density (5 marks)
- iv) Crop protection (5 marks)