



UNIVERSITY OF EMBU

2016/2017 ACADEMIC YEAR

SECOND SEMESTER EXAMINATION

**SECOND YEAR EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE IN
HORTICULTURE**

ACH 202: GREENHOUSE PRODUCTION AND PROTECTED ENVIRONMENT

DATE: APRIL 4, 2017

TIME: 2:00-4:00PM

INSTRUCTIONS:

Answer Question ONE and ANY other TWO Questions

QUESTION ONE

- a) Define the term greenhouse. (1 Mark)
 - b) With illustrations, differentiate gable shape greenhouses from a Quonset shape greenhouses. (2 Marks)
 - c) State the reason why transmittance measured within the greenhouse will be significantly different than when measured in the laboratory for a particular glazing material. (1 Mark)
 - d) Give two reasons why you would recommend ridge and furrow greenhouses as compared to several single free-standing greenhouse structures. (2 Marks)
 - e) Define hydroponics in relation to their application in greenhouse production system. (1 Mark)
 - f) Describe two methods of root substrate pasteurization applied in greenhouses. (2 Marks)
 - g) Explain three reasons why whiteflies in large populations may be difficult to manage in the greenhouse. (3 Marks)
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- h) Explain four reasons why greenhouse rose production is preferred as compared to field production in Kenya. (4 Marks)
- i) Briefly explain to the small-scale greenhouse farmer in Kenya on some of good management practices used to optimise passive ventilation efficiency. (4 Marks)
- j) State three causes of inadequate lighting in the greenhouse. (3 Marks)
- k) Outline four important qualities of propagation media. (4 Marks)
- l) Explain the problems associated with greenhouse condensation. (1 mark)
- m) State two functions of root media in the greenhouse. (2 Marks)

QUESTION TWO

- a) Explain five challenges facing small-scale greenhouse farmers in Kenya. (8 Marks)
- b) Explain five factors to consider when selecting greenhouse cover materials. (12 Marks)

QUESTION THREE

- a) The global temperatures have recently risen due to the effect of climate change. In relation to this, write short notes advising a greenhouse farmer in Kitui on various ways of managing high greenhouse temperatures. (10 Marks)
- b) Using clear illustrations outline three kinds of bed layouts in a greenhouse. (6 Marks)
- c) Explain two modes of heat loss from a greenhouse structure. (4 Marks)

QUESTION FOUR

- a) A greenhouse tomato farmer is using water flowing downstream through his potato farm for irrigating his tomatoes. Recently, he noticed rapid wilting of his tomato plants that caused almost total crop failure. Advise him on best practices to avoid recurrence of the problem. (10 Marks)
- b) Explain five ways of managing leafminers in a chrysanthemum greenhouse. (10 Marks)

QUESTION FIVE

Develop a grower's manual on the production of sweet pepper in the greenhouse outlining the following aspects:

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| a) Ecological requirements | (1 Mark) |
| b) Choice of seeds and seedling management | (2 Marks) |
| c) Transplanting | (2 Marks) |
| d) Cultural practices | (9 Marks) |
| e) Pest and disease management | (5 Marks) |
| f) Harvesting | (1 Mark) |

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