



# UNIVERSITY OF EMBU

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2016/2017 ACADEMIC YEAR

SECOND SEMESTER EXAMINATION

SECOND YEAR EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE  
IN AGRICULTURE

ACS 204: ECOLOGY, AGROMETEOROLOGY AND CLIMATE CHANGE

**DATE: APRIL 12, 2017**

**TIME: 8:30-10:30AM**

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**INSTRUCTIONS:**

**Answer Question ONE and ANY other TWO Questions**

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**QUESTION ONE:**

- a) Some agricultural students prepared demonstration plots for their final year project. They experienced unexpectedly heavy rainfall which caused flooding on their plots. Outline five impacts of heavy rainfall and flooding on food production. (5 Marks)
- b) Briefly explain how ozone reduces agricultural yield. (5 Marks)
- c) Giving examples, distinguish between reactive and anticipatory adaptations to climate change. (5 Marks)
- d) A researcher in KARLO carried out an experiment to evaluate the effects of agricultural nets on microclimate modification, yield and quality of tomato. As an agricultural student what results would you expect from the experiment? (5 Marks)
- e) Briefly describe energy flow in an ecosystem. (5 Marks)
- f) Outline the biological problems affecting organisms living in the inter-tidal zone. (5 Marks)

**QUESTION TWO:**

- a) Use a diagram to illustrate and explain population growth of organisms in an ecosystem. (15 Marks)
- b) Explain the importance of bacteria in the nitrogen cycle. (5 Marks)

**QUESTION THREE:**

- a) A farmer noticed that the chemicals he used to control insects in his farm did not eliminate all the pests. He was advised by the agricultural extension officer in his area to use biological insecticides instead. Give advantages of using the second approach to control the pests. (4 Marks)
- b) Describe the adaptations of parasites to their mode of life. (16 Marks)

**QUESTION FOUR:**

- a) Define ecological succession. (2 Marks)
- b) Explain the stages involved during primary succession. (10 Marks)
- c) Outline the changes that occur in plant communities during succession. (8 Marks)

**QUESTION FIVE:**

- a) What is water balance and how does it influence irrigation of farmlands. (10 Marks)
- b) Outline the potential cropping system adaptations to climate change. (10 Marks)

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