



EMBU UNIVERSITY COLLEGE

(A Constituent College of the University of Nairobi)

2015/2016 ACADEMIC YEAR

SECOND SEMESTER EXAMINATION

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

ACS 204: ECOLOGY, AGROMETEOROLGY AND CLIMATE CHANGE

DATE: APRIL 14, 2016

TIME: 02:00-04:00

INSTRUCTIONS:

Answer Question ONE and ANY Other TWO Questions

QUESTION ONE

- a) Define the following terms as used in ecology. Giving relevant examples. (5 Marks)
- Ecosystem
 - Population
 - Ecological niche
 - Habitat
 - Species
- b) Outline the adaptations of desert plants (5 Marks)
- c) Describe the physical components of the environment (4 Marks)
- d) i) Explain the term bioconversion.
ii) Discuss the processes of bioconversion (5 Marks)
- e) Explain climate change mitigation. (2 Marks)
- f) Describe the techniques that could be used by a small scale farmer to modify the microclimate of their agroecosystem (5 Marks)
- g) Briefly discuss ecological efficiency in regard to energy fixation and energy balance. (4 Marks)

QUESTION TWO

- a) Biomes are distributed across the globe in the different climatic regions. Use a sketch map to outline the major biomes in the world. (10 Marks)
- b) Describe the stages ecological succession that leads a climax community. (10 Marks)

QUESTION THREE

- a) Discuss the impacts of climate change on agriculture with reference to crops, livestock and fishery. (12 Marks)
- b) You have been appointed as a member of a climate change response advisory team in your county. Discuss practical strategies that the county could adopt to mitigate effects of climate change. (8 Marks)

QUESTION FOUR

- a) Describe the processes of nitrogen cycle. (10 Marks)
- b) Discuss the ecological implications of human alterations of nitrogen cycle. (10 Marks)

QUESTION FIVE

- a) Using illustrations, describe the carbon cycle. (12 Marks)
- b) Discuss the significance of water balance in an irrigation system. (8 Marks)

--END--