



UNIVERSITY OF EMBU

2016/2017 ACADEMIC YEAR

SECOND SEMESTER EXAMINATION

SECOND YEAR EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE IN
AGRICULTURAL EDUCATION AND EXTENSION

AEX 204: ECOLOGY

DATE: APRIL 4, 2017

TIME: 2:00-4:00PM

INSTRUCTIONS:

Answer Question ONE and ANY other TWO Questions

QUESTION ONE:

- a) Describe the leaching process of decomposition [3 Marks]
- b) Differentiate secondary succession from primary succession process [3 Marks]
- c) The second year ecology students from the University of Embu visited the Great Laikipia rangeland. The students noted a number of ecological roles played by this ecosystem. Briefly highlights three of these roles. [3 Marks]
- d) By use of a chemical equation, illustrate the impact of chlorofluorocarbons on ozone layer in the atmosphere [3 Marks]
- e) Highlights any three ecological importance's of wetland ecosystems [3 Marks]
- f) The human population in a given village in Embu County was 10,000 at the end of the year.

There were 400 new births that year. Calculate;

- i. Absolute natality [1 Mark]
- ii. Specific natality [2 Marks]

- g) Differentiate between apparent competition and interference competition [3 Marks]
- h) Distinguish between the convex and concave survivorship curve. [3 Marks]
- i) Explain why the ecological pyramid of energy is always upright? [3 Marks]
- j) The second year ecology lecturer informed his students that anthropogenic activities are the major degraders of the hydrological cycle. State any three of these anthropogenic activities. [3 Marks]

QUESTION TWO

With the use of a well labeled diagram. Discuss the flow and recycling of carbon in nature.

[20 Marks]

QUESTION THREE

- a) Discuss the procedure in capture recapture method when determining the population size of small mobile organisms. [8 Marks]
- b) Fundamentals of ecology students from Embu University College carried out an experiment to determine the size of beetles' population within the university farm using capture-recapture technique. First count marked sample were 16, the second count sample marked beetles were 5, while the total count for the second sample were 20. By use of the Lincoln index/Peterson method, calculate the population size of beetles highlighting various assumptions made [12 Marks]

QUESTION FOUR:

The dean school of agriculture in the University of Embu invited the second year ecology class to do a presentation on the function aspect of an ecosystem, during the Ecosystem services partnership (ESP) conference in Nairobi. Discuss the content of their presentation. [20 Marks]

QUESTION FIVE

- a) Discuss the various characteristics of Tundra biome [10 Marks]
- b) Discuss any five ecological roles of Boreal forest [10 Marks]

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