



**JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND  
TECHNOLOGY**

**SCHOOL OF AGRICULTURAL AND FOOD SCIENCES**

**FIRST YEAR SECOND SEMESTER UNIVERSITY EXAMINATION  
FOR THE DEGREE OF BACHELOR OF SCIENCE IN FOOD  
SECURITY  
2017/2018 ACADEMIC YEAR**

**REGULAR**

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**COURSE COD: AFB 3123**

**COURSE TITLE: ECOLOGY AND CLIMATE CHANGE**

**EXAM VENUE: STREAMS: BSc. FOOD SECURITY**

**DATE:**

**EXAM SESSION:**

**TIME: 2 HOURS**

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**Instructions:**

- 1. Answer ALL questions in section A and ANY other 2 Questions in section B.**
- 2. Candidates are advised not to write on question paper.**
- 3. Candidates must hand in their answer booklets to the invigilator while in the examination room.**

**Section A: 30 marks**

**Instructions: Answer all questions**

**Question 1**

Explain the relevance of allelopathy in ecosystem

- a) Explain the significance of denitrification in agriculture and sewage treatments **2 marks**
- b) Describe population density and distribution giving one advantage of each one of them. **2 marks**
- c) Briefly explain the influence of relative humidity on distribution of organisms **3 marks**
- d) Explain the term biomagnification and give relevant examples **2 marks**
- e) Differentiate the following terms; biome, ecosystem and community **3 marks**
- f) Explain the ecological significance of eutrophication **2marks**
- g) Explain any one major disadvantage of asexual reproduction an adaptation of a given species **2 marks**
- h) Describe the role of carbon cycle and nitrogen cycle on greenhouse effect **5 marks**
- i) Comment on the effect of light on plant species adaptation and distribution in terrestrial ecosystems **3 marks**
- j) Explain the a biotic and biological nitrogen fixation in ecosystems **3 marks**

**Section B: 40 Marks**

**Instructions: Answer any two Questions**

**Question 2**

- (a) Discuss ex-situ conservation highlighting its major shortcomings **10 marks**
- (b) Describe the term “community” discussing any five of its major characteristics **10 marks**

**Question 3**

- (a) Citing any three relevant examples explain the concept of mutualism **5 marks**
- (b) As an ecology student discuss the criteria you can use to determine what to include in your conservation program **10 marks**
- (c) Using a well labeled diagram explain the term “biosystems” **5 marks**