



**JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND TECHNOLOGY**  
**SCHOOL OF BIOLOGICAL AND PHYSICAL SCIENCES**  
**UNIVERSITY EXAMINATION FOR THE DEGREE OF BACHELOR OF EDUCATION**  
**(SCIENCE)**  
**2<sup>ND</sup> YEAR 1<sup>ST</sup> SEMESTER 2013/2014 ACADEMIC YEAR**  
**MAIN**

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**COURSE CODE: SBI 3217**

**COURSE TITLE: FUNDAMENTALS OF AQUATIC ECOLOGY**

**EXAM VENUE: LAB 3**

**STREAM: (Biological Sciences)**

**DATE: 16/04/14**

**EXAM SESSION: 11.30 – 1.30 PM**

**TIME: 2.00 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 the question paper.**
- 3. Candidates must hand in their answer booklets to the invigilator while in the examination room.**

**SECTION A (30 MARKS)**

1. Define the following terms: i) Aquatic ecology ii) Watershed iii) Limnology . (3 Marks)
2. Describe the functional roles of dissolved oxygen in aquatic ecosystems. (3 Marks)
3. List three sources of nutrient loading in a fresh water lake. (3 Marks)
4. The benthos is a transition zone between water column and mineral subsurface. Explain . . (3 marks)
5. List three ways wetlands are beneficial to water quality and biological diversity . (3 Marks).
6. State reasons why phytoplankton are more productive (on the basis of biomass) than land-based plants. (3 Marks)
7. Terrestrial matrix influence carbon and nutrient cycling in lakes and streams. Briefly explain . (3 Marks)
8. State three factors that affect primary production in marine ecosystems . (3 marks)
9. Briefly discuss the effects of human activities on aquatic biodiversity . (3 marks)
10. State the major processes in hydrological cycle. (3 Marks)

**SECTION B (ESSAY): (40 MARKS)**

11. Using a well illustrated diagram, discuss Nitrogen cycle in aquatic ecosystems. (20 Marks)
12. Conserving water benefits the environment in many ways, discuss. (20 marks)
13. Describe adaptation mechanisms in aquatic organisms . (20 Marks)
14. Using illustrations, discuss daily and seasonal thermal stratification in a lake . (20 marks)