



**JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE & TECHNOLOGY  
SCHOOL OF BIOLOGICAL AND PHYSICAL SCIENCES  
DEPARTMENT OF BIOLOGICAL SCIENCES  
UNIVERSITY EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE IN  
BIOLOGICAL SCIENCES  
2<sup>ND</sup> YEAR 1<sup>ST</sup> SEMESTER 2016/2017 ACADEMIC YEAR  
MAIN CAMPUS-REGULAR**

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**COURSE CODE: SBI 3217**

**COURSE TITLE: FUNDAMENTALS OF AQUATIC ECOLOGY**

**EXAM VENUE: STREAM: (BIO)**

**DATE: EXAM SESSION:**

**TIME: 2 HOURS**

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**INSTRUCTIONS:**

- 1. Answer ALL questions in Section A and any Two (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: SHORT ANSWER QUESTIONS (30 MARKS)**

1. Explain the meanings of the following terms used in studies of aquatic ecology: (3 marks)
  - a. Nektons
  - b. Benthos
  - c. Periphytons
2. List any three limitations of light and dark bottle method of determining productivity in pond ecosystems. (3 marks)
3. Coral reefs are some of the most productive ecosystems in the world. Briefly explain the factors responsible for high productivity in these ecosystems. (3 marks)
4. State any three objectives for the establishment of marine national parks worldwide. (3 marks)
5. In aquatic ecosystems, transfer of food energy from the source through series of organisms is never 100% efficient. Explain. (3 marks)
6. Outline three adaptive features of communities inhabiting lotic ecosystems. (3 marks)
7. Explain the impact of thermal pollution on population density of aquatic insects (3 marks).
8. Outline any three conservation measures that should be adopted by the county government of Kisumu to control pollution in Lake Victoria and its environs. (3 marks)
9. Explain three properties that make water a suitable medium for aquatic organisms. (3 marks)
10. Differentiate between polar lakes and volcanic lakes with reference to plankton populations. (3 marks)

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

11. Discuss the major abiotic factors impacting fresh water habitats. (20 marks)
12. Discuss oligotrophic-eutrophic lake series and show how human activities have influenced these phenomena. (20 marks)
13. Using suitable illustration, describe the major subdivisions and communities in a fresh water lake as demarcated by light intensity. (20 marks)
14. Discuss phosphorus cycle in aquatic ecosystems. (20 marks)