JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE & TECHNOLOGY

SCHOOL OF BIOLOGICAL AND PHYSICAL SCIENCES

UNIVERSITY EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE (BIOLOGICAL SCIENCES)

2ND YEAR 1ST SEMESTER 2016/2017 ACADEMIC YEAR

MAIN CAMPUS - REGULAR

COURSE CODE: SBI 3217

COURSE TITLE: FUNDAMENTALS OF AQUATIC ECOLOGY

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

DATE: 28/04/16 **EXAM SESSION: 9.00 – 11.00 AM**

TIME: 2 HOURS

Instructions:

1. **Answer ALL questions in Section A and Any two 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: ANSWER ALL QUESTIONS (30 MARKS)

1. Define the following terms: i) *Euryhaline* organisms ii) Watershed iii) endorheic water bodies. (3 marks)
2. Briefly describe Eutrophication and explain one cause of eutrophication in an aquatic environment. (3 marks)
3. State three factors that contribute to a relatively low biodiversity of fresh water species when compared to marine water. (3 marks)
4. Describe three environmental problems that marine ecosystems are vulnerable to? (3marks)
5. Briefly discuss the three factors that limit primary production in aquatic ecosystems. (3 marks)
6. List three major zones in a Lake based on thermal stratification. (3 marks)
7. State and explain three factors that affect the levels of dissolved O_2 in aquatic systems. (3 marks)
8. List three type of fresh water systems, stating one characteristic of each system. (3 marks)
9. Biological nitrogen fixation is an energy consuming process. Explain how the micro-organisms involved acquire this energy. (3 marks)
10. Describe three adaptation mechanisms of animals in aquatic environments. (3 marks)

SECTION B: ANSWER ANY TWO QUESTIONS (40 MARKS).

11. Using a well labelled diagram, discuss hydrological cycle. (20 marks)
12. Describe the adaptations of hydrophytes to their aquatic environment. (20 marks)
13. Citing examples, discuss the effects of human activities on aquatic biodiversity. (20 marks)
14. Characterize five abiotic components that define aquatic systems. (20 marks)