



*(Knowledge for Development)*

# **KIBABII UNIVERSITY**

## **UNIVERSITY EXAMINATIONS 2017/2018 ACADEMIC YEAR**

### **SECOND YEAR 2<sup>ND</sup> SEMESTER SPECIAL/SUPPLEMENTARY EXAMINATIONS**

**FOR THE DEGREE OF BACHELOR OF SCIENCE BIOLOGY AND  
BIORESOURCE MANAGEMENT**

**COURSE CODE: SZL 221**

**COURSE TITLE: FUNDAMENTALS OF AQUATIC ECOLOGY**

**DATE: 19/10/2018**

**TIME: 11:00 -1:00 P.M**

#### **INSTRUCTIONS TO CANDIDATES**

Answer Question one (1) and any other two (2) Questions. Question one is compulsory and carries 30 marks, the other Questions carry 20 marks each.

TIME: 2 Hours

This paper consists of 2 printed pages. Please Turn Over



KIBU observes ZERO tolerance to examination

## QUESTION ONE

1. .
  - a. Explain the unique properties of water (3mks)
  - b. Briefly explain the effects of photosynthesis on CO<sub>2</sub> of water (3mks)
  - c. What is the role of bacteria in aquatic ecosystems? (3mks)
  - d. Explain the fate of solar radiation as it penetrates through the water column (3mks)
  - e. Explain how a mass of water can significantly influence the surrounding microclimate (3mks)
  - f. Sketch the spatial distribution curves for temperature, DO, pH and free CO<sub>2</sub> in a directly stratified eutrophic lake (4mks)
  - g. Explain the meaning of the following;
    - i. Ectogenic meromixis, (1mk)
    - ii. Biogenic meromixis, (1mk)
    - iii. Crenogenic Meromixis (1mk)
  - h. Name three species from zooplankton community (3mks)
  - i. Write short notes on the importance of oxidized micro-zones (3mks)
  - j. Briefly outline the use of a Secchi disc in limnology (2mks)
2.
  - a. Discuss the horizontal and temporal distribution of dissolved oxygen in a lake ecosystem (10mks)
  - b. Discuss the nitrogen cycle (10mks)
3.
  - a. Discuss the factors that may influence primary productivity in a lacustrine environment (10mks)
  - b. Discuss how aquatic macro-invertebrates survive in fast moving waters (10mks)
4. Discuss the forms and fate of carbon dioxide in water (20mks)
5.
  - a. Explore the various mechanisms by which phytoplankton are able to cope with buoyancy problems (10mks)
  - b. Depict and explain the phosphorus cycle in a fresh water lake (10mks)