



# THE CATHOLIC UNIVERSITY OF EASTERN AFRICA

**A. M. E. C. E. A**

P.O. Box 62157  
00200 Nairobi - KENYA  
Telephone: 891601-6  
Fax: 254-20-891084  
E-mail: academics@cuea.edu

**MAIN EXAMINATION**

**AUGUST – DECEMBER 2017 TRIMESTER**

**FACULTY OF SCIENCE**

**DEPARTMENT OF BIOLOGY**

**REGULAR PROGRAMME**

**BIO 102: INTRODUCTION TO ECOLOGY AND BIOANALYSIS**

**Date: DECEMBER 2017**

**Duration: 2 Hours**

**INSTRUCTIONS: Answer Question ONE and any other TWO Questions**

- Q1. a) Briefly describe the functional components of an ecosystem. **(4 marks)**
- b) Differentiate between
- i) Community and Ecosystem. **(2 marks)**
  - ii) Primary productivity and Secondary productivity **(2 marks)**
  - iii) Autotrophs and heterotrophs **(2 marks)**
  - iv) Mutualism and commensalism **(2 marks)**
- c) i) Illustrate the types of age structures **(3 marks)**  
ii) Outline the categories of heterotrophs. **(2 Marks)**  
iii) Name the major processes that occur in a ecosystem? **(2 Marks)**  
vi) Briefly describe three levels of organization studied in ecology. **(3 Marks)**
- d) Illustrate energy flow in a named ecosystem. **(2 marks)**
- e) Briefly explain the following ecological terms.
- i) Biotic community
  - ii) Trophic efficiency
  - iii) Primary succession
  - iv) Allelopathy **(4 marks)**
- Q2. Explain the methods used to determine primary production in ecosystems. **(20marks)**
- Q3. Describe the role of organisms in nutrient cycling. **(20 marks)**

- Q4. Briefly explain the importance of ecosystems to the human welfare. **(20 marks)**
- Q5. Using relevant examples explain the symbiotic and antagonistic relationships among organisms. **(20 marks)**

**\*END\***