



**JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE & TECHNOLOGY**  
**SCHOOL OF BIOLOGICAL AND PHYSICAL SCIENCES**  
**UNIVERSITY EXAMINATION FOR THE DEGREE OF MASTER OF SCIENCE IN**  
**MICROBIOLOGY**  
**FIRST YEAR FIRST SEMESTER 2018 ACADEMIC YEAR**  
**MAIN CAMPUS - REGULAR**

---

**COURSE CODE:** SBT 804  
**COURSE TITLE:** APPLIED ECOLOGY  
**EXAM VENUE:** STREAM (MSC)  
**DATE:** EXAM SESSION:  
**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: SHORT ANSWER QUESTIONS (30 MARKS)**

1. Explain the term “Ecosystem function”? (3 marks).
2. Explain why natural ecosystems are not self-sustaining and always need an external energy source? (3 marks).
3. Explain the detritus food chain in natural ecosystems (3 marks)
4. Giving examples, distinguish between the open and closed material cycles in natural ecosystems (3 marks)
5. Explain how the hydrologic cycle regulates the net primary production in terrestrial ecosystems (3 marks)
6. Explain the term “detritivores” and their roles in natural ecosystems. (3 marks)
7. Using an example, explain the principle of competitive exclusion. (3 marks)
8. Explain how the autotrophically fixed Carbon reaches the soil for its mineralized. (3 marks)
9. Explain the term Net Biome Productivity. (3 marks)
10. With an example, explain how co-evolution has shaped community interactions.(3 marks)

**SECTION B: ESSAY QUESTIONS (30 MARKS)**

11. Nitrogen is an important element, which determining the structure and functions of natural ecosystems, explain its dynamics and controls within the biomes (15 marks)
12. Discuss the global energy budget. (15 marks)
13. Discuss how community diversity influences ecosystem functions. (15 marks).
14. Discuss how human population growth has influenced natural communities. (15 marks)