



**JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND
TECHNOLOGY**
SCHOOL OF BIOLOGICAL AND PHYSICAL SCIENCES
**UNIVERSITY EXAMINATION FOR THE DEGREE OF BACHELOR OF
EDUCATION (SCIENCE)**
4TH YEAR 1ST SEMESTER 2013/2014 ACADEMIC YEAR
MAIN – SCHOOL BASED

COURSE CODE: SBI 3444

COURSE TITLE: ENVIRONMENTAL MICROBIOLOGY

EXAM VENUE: LAB 2

STREAM: (BSc. Science)

DATE: 28/8/14

EXAM SESSION: 2.00 -4.00AM/PM

TIME: 2 HOURS

Instructions:

- 1. Answer ALL questions in Section A and any other 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, ANSWER ALL QUESTIONS (50 MINUTES)

- 1) Briefly discuss why soil forms an ideal habitat for microorganisms. **(3 Marks)**
- 2) Outline the redox-cycle of nitrogen and explain the ammonification process. **(3 Marks)**
- 3) Distinguish between these two groups of decomposers. **(3 Marks)**
 - a) Zymogenous microflora
 - b) Autochthonous microflora
- 4) Extreme environment microbiology is now emerging as a bio-resource with high commercial value. Briefly explain. **(3 Marks)**
- 5) What is BOD? How can it be reduced in sewage treatment? **(3 Marks)**
- 6) Explain the role of carbon emissions on green house gases. **(3 Marks)**
- 7) List the properties of indicator organisms used for water safety testing. **(3 Marks)**
- 8) Explain how aquatic and marine environment get energy to drive the processes **(3 Marks)**
- 9) Briefly discuss what happens during tertiary treatment of sewage. **(3 Marks)**
- 10) Briefly discuss threats to ground water safety. **(3 Marks)**

SECTION B ESSAYS: ANSWER ANY TWO QUESTIONS (70 MINUTES)

- 11) Discuss the processes involved in the delivery of safe municipal water supplies. **(20 Marks)**
- 12) Write an essay on carbon cycling by microorganisms. **(20 Marks)**
- 13) Discuss the role of microorganisms in phosphorus cycling. **(20 Marks)**
- 14) Discuss pesticide degradation by microorganisms. **(20 Marks)**

