**UNIVERSITY OF KABIANGA**

**UNIVERSITY EXAMINATIONS**

**2014/2015 ACADEMIC YEAR**

**SUPPLEMENTARY/SPECIAL EXAMINATION**

**THIRD YEAR FIRST SEMESTER EXAMINATION**

**FOR THE DEGREE OF BACHELOR OF SCIENCE IN MICROBIOLOGY**

**COURSE CODE: MIC 310**

**COURSE TITLE: SOIL MICROBIOLOGY**

**DATE: 24/8/2015**

**TIME: 9.00 A.M-12.00 NOON**

**INSTRUCTIONS TO CANDIDATES:**

Answer **ALL** questions in **section A** and any other **FOUR** questions in **section B**.

**SECTION A; (30 MARKS)**

Q1. Define the following terms as used in soil microbiology;

a. Autochthonous microorganisms. (1 mark)

b. Zymogenous microorganisms. (1 mark)

c. Mesobiota. (1 mark)

d. Colloids. (1 mark)

Q2. Explain the importance of bacteria and fungi in soil formation. (4 mark)

Q3. a. List the **three** classifications of environmental microorganisms in relation to temperature. (1.5 marks)

b. Explain the importance of temperature as an factor in the environment. (2.5 marks)

Q4. Express the decomposition of lignin listing the microorganisms involved in the process. (4 marks)

Q5. Describe antagonism as a microbial association in soil giving **two** examples of antagonistic relations in soil. (4 marks)

Q6. State the difference between in situ and ex situ methods in soil bioremediation. (4 marks)

Q7. a. What is a rhizosphere? (2 marks)

b. What are difference between rhizosphere and mycorrhizia? (2 marks)

Q8. How do microbes influence soil fertility? (2 marks)

**SECTION B; (40 MARKS)**

9. a. Define biodegradation. (1 mark)

b. Describe the bioremediation conditions. (8 marks)

c. List any **two** factors that can limit bioremediation. (1 mark)

10. Discuss bacterrhizia. (10 marks)

11. Using appropriate illustrations, describe the process of the carbon cycle indicating the important microorganisms in the process. (10 marks)

12. a. Describe humus. (1 mark)

b. Describe the process humification and decomposition of humus. (9 marks)

13. Discuss bacteria as a soil microorganism. (10 marks)