



MASENO UNIVERSITY
UNIVERSITY EXAMINATIONS 2013/2014

**FIRST YEAR SECOND SEMESTER EXAMINATIONS FOR THE
DEGREE OF BACHELOR OF SCIENCE (ANIMAL SCIENCE,
HORTICULTURE & SOIL SCIENCE) WITH INFORMATION
TECHNOLOGY
(MAIN CAMPUS)**

AAG 103: INTRODUCTORY MICROBIOLOGY

Date: 23rd July 2014

Time: 11.00 – 1.00 pm

INSTRUCTIONS:

- Answer ALL questions in section A and any TWO questions from section B.



MASENO UNIVERSITY

**SECOND YEAR SECOND SEMESTER EXAMINATIONS FOR THE DEGREE OF
BACHELOR OF SCIENCE IN ANIMAL SCIENCE, HORTICULTURE, AND SOIL
SCIENCE (WITH IT)**

AAG 103: INTRODUCTORY MICROBIOLOGY

**INSTRUCTIONS: ANSWER ALL QUESTIONS IN SECTION A AND
ANY TWO QUESTIONS FROM SECTION B**

SECTION A (30 marks)

Answer all questions from this section

1. Black (2008) describes different methods of illumination that can be used to improve viewing of images of microbes under the light microscope. State these methods and outline the key features of each. (6 marks)
2. What is the minimum distance between 2 adjacent microbial cells that can be detected using a light microscope and which terminology is used to describe this distance? (2 marks)
3. State the name and purpose of the technique represented by the image below in microbiology (2 marks)



4. Explain the difference between competitive and allosteric inhibitors within the context of enzymatic reactions in microbes? (4 marks)
5. Which are the main methods of preserving microbial cultures for long-term use in the laboratory? (3 marks)
6. What is the difference between phoresy and proto-cooperation in the context of ecological relationships among microorganisms? (2 marks)
7. How is pH important in growth of microorganisms? (2 marks)

8. Why are viruses structurally the simplest beings, yet biologists do consider them to be the first group of living beings to evolve? (2 marks)
9. State the main phases of the dispersal and succession of microbe communities in an ecosystem (3 marks)
10. Delineate the major forms of antagonism in microorganisms? (4 marks)

SECTION B (40 Marks):

Answer any TWO questions from this section (20 marks each)

11. Using a large well labeled diagram, describe the main functions of the structural components of a Gram negative bacterial cell (20 marks)
12. Describe the key scientific discoveries and innovations that significantly contributed towards the evolution of microbiology as a separate discipline of biology. (20 marks)
13. Write short notes on the modes of reproduction and genetic recombination in prokaryotic microorganisms (20 marks)