



EMBU UNIVERSITY COLLEGE

(A CONSTITUENT COLLEGE OF THE UNIVERSITY OF NAIROBI)

SECOND SEMESTER EXAMINATIONS 2013/2014

**SECOND SEMESTER EXAMINATION FOR THE DEGREE OF BACHELOR OF
SCIENCE IN HORTICULTURE, AGRICULTURAL EDUCATION AND EXTENSION
AND AGRICULTURE**

ACP 101: MICROBIOLOGY

DATE: APRIL 9, 2014

TIME: 8.30 - 10.30AM

INSTRUCTIONS:

Answer Question ONE and ANY Other TWO Questions.

QUESTION ONE

- a) Explain the germ theory of disease and state its proponents (5 marks)
- b) State the four criteria used in Koch's postulates (4 marks)
- c) State three harmful effects of microorganisms (3 marks)
- d) Describe the following methods of quantifying microorganisms on solid medium (4 marks)
 - i) Pouring a plate
 - ii) Spreading a plate
- e) Differentiate the following terms as used in culture preservation (4 marks)
 - i.) Stabbing and Slant method

ii.) Lyophilization and Freezing

f) States and explain five factors affecting effectiveness of disinfectants (5 marks)

g) Explain the following microscopy principles (5 marks)

i.) Resolving power

ii.) Field of view

iii.) Depth of Field

iv.) Parfocal

v.) Working Distance

QUESTION TWO

a) Discuss the role of microorganisms in biotechnology (10marks)

b) Sewage treatment (10marks)

QUESTION THREE

a) Describe characteristics used in differentiating colonies (10 marks)

b) State the methods used in microbial colony isolation (10marks)

QUESTION FOUR

a) Describe the role played by microorganisms in the nitrogen cycle (15 marks)

b) Explain decomposition in relation to microorganisms (5 marks)

QUESTION FIVE

a) Describe dry saturated steam sterilization method by use of an autoclave (10 marks)

b) Explain the utilisation of various types of heat sterilization (10 marks)

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