



# UNIVERSITY OF EMBU

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2016/2017 ACADEMIC YEAR

SECOND SEMESTER EXAMINATION

FIRST YEAR EXAMINATION FOR THE BACHELOR OF SCIENCE IN  
AGRICULTURE, AGRICULTURAL EDUCATION AND BACHELOR OF SCIENCE  
HORTICULTURE

ACP 101: MICROBIOLOGY

**DATE: APRIL 12, 2017**

**TIME: 8:30-10:30AM**

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**INSTRUCTIONS:**

**Answer Question ONE and ANY other TWO Questions**

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**QUESTION ONE (30 MARKS)**

- a) Briefly explain microbial nitrification in nitrogen cycle (4 Marks)
- b) Explain briefly Tyndallization as a method of sterilization (4 Marks)
- c) Explain the meaning of the term “microbiology” (2 Marks)
- d) Explain briefly the differences between biodegradation and bioremediation as used in microbiology (3 Marks)
- e) Outline the contribution of Robert Koch in the field of pathogenic diseases (4 Marks)
- f) Explain the use of *Selective media* in the study of microorganisms (4 Marks)
- g) Briefly explain the proof that *Bacillus anthracis* formed spores (5 Marks)
- h) Explain briefly Viable Plate Count (Standard Plate Count) as a common method for enumeration of bacteria (4 Marks).

**QUESTION TWO (20 MARKS)**

Discuss the applications of any ten biological stains (20 Marks)

**QUESTION THREE (20MARKS)**

Discuss the life cycle of root knot nematodes and their management (20 Marks)

**QUESTION FOUR (20 MARKS)**

Discuss optical techniques in microscopy (20 Marks)

**QUESTION FIVE (20 MARKS)**

Discuss economic importance of microorganisms in:

- a) Food industries (5 Marks)
- b) Biotechnology (5 Marks)
- c) Waste disposal (5 Marks)
- d) Animal nutrition (5 Marks)

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