



# MACHAKOS UNIVERSITY

University Examinations for 2016/2017 Academic Year

SCHOOL OF AGRICULTURE AND NATURAL RESOURCES MANAGEMENT

DEPARTMENT OF AGRICULTURAL EDUCATION AND EXTENSION

FIRST SEMESTER EXAMINATION FOR DIPLOMA IN AGRICULTURAL EDUCATION AND  
EXTENSION

SPECIAL EXAMINATION

SBT 0204: GENERAL MICROBIOLOGY

DATE: 1/9/2017

TIME: 2:00 – 4:00 PM

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**INSTRUCTIONS:**

*1. Write your Registration number on the answer booklet*

*2. Answer question 1 in section A (COMPULSORY) and select 2 questions in section B*

**SECTION A: (COMPULSORY)**

**QUESTION ONE (30 MARKS)**

- a) State the major morphological feature and draw a representation of the following bacteria;  
Staphylococcus, Bacillus, Coccus, Streptococcus and Diplococcus (5 marks)
- b) State the difference between sterilization and disinfection (2 marks)
- c) Using flow diagrams, outline the lifecycle of Bacteriophage (5 marks)
- d) i) State the differences between basal media and complex media (5 marks)
- ii) Describe how sexual reproduction takes place in rhizopus (5 marks)
- iii) State the difference between bactericidal and bacteriostatic agents (3 marks)
- iv) Explain how MacConkey's medium works (5 marks)
- v) Discuss the role of enrichments in culture preparations (5 marks)

**SECTION B: ANSWER ANY OTHER TWO QUESTIONS**

2. a) Describe the use of dry and moist heat as means of sterilization (10 marks)
- b) Discuss the use of enrichment and an enriched media in microbiology (5 marks)
- c) Discuss five reproductive mechanisms of microorganisms (5 marks)
3. a) Discuss the economic importance of bacteria, moulds and yeasts with regard to the food industry (12 marks)
- b) Outline the procedure for sensitivity testing in the microbiology laboratory (8 marks)
4. a) Describe the main procedures of bacterial isolation in the laboratory (12 marks)
- b) Describe the application radiation in sterilization (8 marks)
5. a) Describe the laboratory procedure followed in making observation of microorganisms in pond water (10 marks)
- b) State, with examples, the difference between physical and chemical methods of sterilization (5 marks)
- c) Outline the general rules that should be observed in a microbiology laboratory. (5 marks)