



# MACHAKOS UNIVERSITY

University Examinations 2018/2019

SCHOOL OF PURE AND APPLIED SCIENCES

DEPARTMENT OF BIOLOGICAL SCIENCES

FIRST YEAR SECOND SEMESTER EXAMINATION FOR

BACHELOR OF SCIENCE IN PUBLIC HEALTH

HPH 105: MICROBIOLOGY

DATE: 2/5/2019

TIME: 2.00-4.00 PM

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## INSTRUCTIONS

1. Answer Question 1 (compulsory) and **any two** questions in Section B.
2. Use clean well labelled diagrams wherever appropriate.

## SECTION A

### QUESTION ONE (30 MARKS)

- a) Distinguish between the following terms
  - i. Ionizing radiations and non-ionizing radiations (2 marks)
  - ii. Normal microbiota and pathogens (2 marks)
- b) Describe Koch's postulates (4 marks)
- c) Describe desirable three qualities of an effective germicide (3 marks)
- d) Describe three groupings of bacteria according to shape using examples (3 marks)
- e) Explain three terms that describe chemical control of microbes. (3 marks)
- f) Explain the mode of action of cold temperatures in microbial control. (3 marks)
- g) Outline the contribution of Edward Jenner to the history of microbiology (3 marks)
- h) Illustrate the basis of Gram staining (4 marks)
- i) Outline three portals of entry of pathogens into the host (3 marks)

## **SECTION B**

### **QUESTION TWO (20 MARKS)**

Discuss five Mechanisms of Antibiotic Drug action

### **QUESTION THREE (20 MARKS)**

Discuss the structure of a prokaryotic cell.

### **QUESTION FOUR (20 MARKS)**

Discuss microbial virulence factors

### **QUESTION FIVE (20 MARKS)**

Discuss and illustrate:

- a) Categories of media (12 marks)
- b) Microbiological techniques (8 marks)