



MACHAKOS UNIVERSITY

University Examinations 2018/2019

SCHOOL OF PURE AND APPLIED SCIENCES

DEPARTMENT OF BIOLOGICAL SCIENCES

SECOND YEAR SPECIAL/SUPPLEMENTARY EXAMINATION FOR

BACHELOR OF EDUCATION (SCIENCE)

BACHELOR OF SCIENCE IN BIOLOGY

SBT 202: GENERAL MICROBIOLOGY

DATE: 24/7/2019

TIME: 11.00-1.00 PM

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) Using specific example, illustrate the working of a differential media (3 marks)
- b) Explain why a virus is neither eukaryotic nor prokaryotic (3 marks)
- c) Negate the theory of spontaneous generation (3 marks)
- d) Distinguish between the following terms
 - i. Incubation and Inoculation (2 marks)
 - ii. A counter stain and a mordant (2 marks)
- e) Describe Koch's postulates (3 marks)

- f) Explain factors that influence the rate of activity of antimicrobial agents. (3 marks)
- g) Classify germicides based on their effectiveness. (3 marks)
- h) Describe three branches of microbiology (3 marks)
- i) Differentiate between narrow-spectrum and broad spectrum antibiotics (3 marks)
- j) Outline the contribution of **Antonie Leeuwenhoek** to the history of microbiology(3 marks)

SECTION B:

QUESTION TWO

Discuss

- a) Gram staining protocol (10 marks)
- b) Microbiological techniques (10 marks)

QUESTION THREE

- a) Discuss the modes of action of antibacterial agents (15 marks)
- b) Explain why Edward Jenner is referred to as the father of immunology (5 marks)

QUESTION FOUR

Describe the structure and functioning of:

- a) Bacterial cell surface appendages (10 marks)
- b) Bacterial cell membrane (10 marks)

QUESTION FIVE

- a) Using illustrations discuss different types of media. (12 marks)
- b) Describe the shapes of bacteria and their possible variants. (8 marks)