



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: 25/9/2019

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)