MACHAKOS UNIVERSITY

University Examinations 2018/2019

SCHOOL OF PURE AND APPLIED SCIENCES

DEPARTMENT OF BIOLOGICAL SCIENCES

SECOND YEAR SECOND SEMESTER EXAMINATION FOR

BACHELOR OF EDUCATION (SCIENCE)

BACHELOR OF SCIENCE IN BIOLOGY

SBT 202: GENERAL MICROBIOLOGY

DATE: 30/4/2019 **TIME: 8.30-10.30AM**

INSTRUCTIONS

1. Anwer 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) Illustrate the working of a differential media using specific example (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 (20 MARKS)

Discuss

a) Gram staining protocol (10 marks)

b) Microbiological techniques (10 marks)

QUESTION THREE (20 MARKS)

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 (20 MARKS)

Describe the structure and functioning of:

a) Bacterial cell surface appendages (10 marks)

b) Bacterial cell membrane (10 marks)

QUESTION FIVE (20 MARKS)

a) Using illustrations discuss different types of media. (12 marks)

b) Describe the shapes of bacteria and their possible variants. (8 marks)