

CHUKA



UNIVERSITY

UNIVERSITY EXAMINATIONS

**EXAMINATION FOR THE AWARD OF DEGREE
OF BACHELOR OF EDUCATION SCIENCE AND BACHELOR OF SCIENCE
GENERAL.**

BOTA/MICB 131: GENERAL MICROBIOLOGY

STREAMS:

TIME: 2 HOURS

DAY/DATE: FRIDAY 8/12/2017

11.30 A.M - 1.30 A.M.

INSTRUCTIONS:

- **Answer ALL the questions in Section A and ONLY ONE in Section B**

SECTION A: [50 MARKS] ANSWER ALL THE QUESTIONS IN THIS SECTION.

QUESTION ONE

- (a) State two most frequently used differential staining techniques. [2 Marks]
- (b) State two disadvantages using of ultra violet rays in microbial control. [2 Marks]
- (c) Name two sources of nutrient important in microbial metabolism. [2 Marks]
- (d) Explain how nutrients are transported across the cell membrane through group translocation. [2 Marks]
- (e) Name the scientist credited for the following developments in microbiology;
- (i) Postulated the germ theory of disease [1 Mark]
 - (ii) Brought all the plant and animal forms together under one binomial nomenclature. [1 Mark]

QUESTION TWO

- (a) Name two general types of electron microscopy [2 Marks]
- (b) State three types of conidiophores in fungi [3 Marks]
- (c) Explain two roles of viral capsids. [2 Marks]

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- (d) Explain three types of cultures that can be obtained in microbiology laboratory session. [3 Marks]

QUESTION THREE

- (a) Illustrate amphitrichous and lophotrichous flagellation in bacteria. [2 Marks]
- (b) State two members of zoomastigophora that are important blood pathogens. [2 Marks]
- (c) State two methods used for detecting and measuring bacterial growth. [2 Marks]
- (d) Explain the differences between emerging and re-emerging diseases. [2 Marks]

QUESTION FOUR

- (a) List the phases involved in the lytic cycle of animal viruses. [5 Marks]
- (b) State the role of the following bacterial structure;
 - (i) Pili [1 Mark]
 - (ii) Glycocalyx [1 Mark]
- (c) Differentiate between batch culture (closed) and continuous (open) culture. [2 Marks]
- (d) What is bioremediation? [1 Mark]

QUESTION FIVE

- (a) State two Koch's postulate in the development of aseptic technique where he linked microorganism with a specific disease. [2 Marks]
- (b) State three types of microbiological media based on physical state. [3 Marks]
- (c) List five basic techniques used in microbiology laboratory to manipulate, grow, examine and characterize micro-organisms. [5 Marks]
- (d) State two roles of ectoplasm in a protozoan. [2 Marks]

SECTION B [20 MARKS] -ANSWER ONE QUESTION

QUESTION SIX

Discuss the different classes of chemical antimicrobial agents and their mode of action. [20 Marks]

QUESTION SEVEN

Discuss the various industrial biotechnology products and cite specific examples of micro-organisms involved. [20 Marks]

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