



TECHNICAL UNIVERSITY OF MOMBASA

FACULTY OF APPLIED AND HEALTH SCIENCES
DEPARTMENT OF ENVIRONMENT & HEALTH SCIENCES

**UNIVERSITY EXAMINATION FOR:
DIPLOMA IN ENVIRONMENTAL AND HEALTH SCIENCE 18S/ YEAR 2/
SEMESTER 2**

**AES 2109: ENVIRONMENTAL MICROBIOLOGY
END OF SEMESTER EXAMINATION
SERIES: AUGUST 2019
TIME: 2 HOURS**

Instructions to Candidates

This paper consists of FIVE questions

Answer question ONE (COMPULSORY) and any other TWO questions.

This paper consists of two printed pages.

Mobile phones are NOT allowed in the examination room

Do not write on the question paper

QUESTION ONE (30 MARKS)

a) Differentiate the following terms:

- i. Differential and Selective media [2mks]
- ii. Enriched and Transport media [3mks]

b) Briefly explain public health importance of microorganisms [5mks]

c) State the difference between Gram positive and Gram negative bacteria [5mks]

d) Briefly explain factors to consider when heat sterilizing [5mks]

f) Briefly describe pathological classification of fungi [5mks]

g) Briefly describe the role of microorganisms in vaccine production [5mks]

QUESTION TWO

Describe the Gram staining procedure

[15mks]

QUESTION THREE

Describe the role of microorganisms in biogeochemical cycles

[15mks]

QUESTION FOUR

a) Using a well labeled diagram, discuss the bacterial growth curve [7mks]

b) Describe methods that can be employed to achieve the killing principle [8mks]

QUESTION FIVE

Describe standard drinking water sampling procedure for microbial analysis in the laboratory [15mks]