TECHNICAL UNIVERSITY OF MOMBASA

FACULTY OF APPLIED AND HEALTH SCIENCES

DEPARTMENT OF PURE & APPLIED SCIENCES

UNIVERSITY EXAMINATION FOR:

BACHELOR OT TECHNOLOGY IN MICROBIOLOGY AND

BIOTECHNOLOGY

AAB 4402 : ANALYTICAL MICROBIOLOGY

SPECIAL/SUPPLEMENTARY EXAMINATION

SERIES: SEPTEMBER 2018

TIME: 2HOURS

DATE: Pick DateSep2018

<u>**Instructions to Candidates**</u>
You should have the following for this examination
Answer Booklet, examination pass and student ID
This paper consists of **FIVE** questions. Attemptquestion ONE (Compulsory) and any other TWO questions.
Do not write on the question paper.

Question ONE

a) Describe the following methods of sterility testing;

      i) Immersion   (2mks)
      ii) Membrane filtration   (2mks)

b) Using a diagram explain the relationship between the MIC and zone of inhibition diameters   (6mks)

c) Outline the procedure(s) used to verify the purity of cultures   (4mks)

d) State SIX advantages of measuring potency during the early stages of product development   (6mks)

e) Give FOUR reasons microbiologists need to maintain pure cultures.   (4mks)

f) Outline Six qualities that need to be put into consideration when choosing a method of bioassaying   (6mks)

Question TWO

a) Explain the use of serial subculture in culture preservation (10mks)

   b) Outline FIVE effects of long term preservation on microorganisms (10mks)

Question THREE

You have successfully isolated a key *Azotobacter spp*. to be used as a biofertilizer. Explain how the isolate can be maintained in purity over a period of time. (20mks)

Question FOUR

 a) Describe ONE procedure used to determine the sensitivity of a given bacterial isolate to an antimicrobial agent. (14mks)

   b) Give the advantages of using the procedure described in (a) above. (6mks)

Question FIVE

In designing a microbiological assay the choice of the test organism is critical. Elaborate the characteristics to consider in choosing test organisms and their implication on the test outcome(s). (20mks)