



# TECHNICAL UNIVERSITY OF MOMBASA

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FACULTY OF APPLIED AND HEALTH SCIENCES

DEPARTMENT OF PURE & APPLIED SCIENCES

**UNIVERSITY EXAMINATION FOR:**

**INDUSTRIAL MICROBIOLOGY AND BIOTECHNOLOGY (BIMB)**

**YEAR IV SEMESTER II**

**AAB 4402 : ANALYTICAL MICROBIOLOGY PAPER II**

**END OF SEMESTER EXAMINATION**

**SERIES: APRIL 2016**

**TIME: 2 HOURS**

**DATE:** Pick Date Select Month Pick Year

## Instructions to Candidates

You should have the following for this examination

*-Answer Booklet, examination pass and student ID*

This paper consists of Choose No questions. Attempt Choose instruction.

**Do not write on the question paper.**

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## Question ONE

- a) Outline FOUR characteristics of a good bioassay (4mks)
- b) Explain the following modes of bioassay determination;;
  - i) Chemical
  - ii) microbiological assays (5mks)
- c) compare quantal endpoint assays and graded dose assays (4mks)
- d) Describe the measures that need to be taken to ensure asepsis during sterility testing (4mks)
- e) Outline the advantages of the following methods of sterility testing;
  - i) Immersion (2mks)
  - ii) Membrane filtration (4mks)
- f) Outline the factors influencing the choice of media in disc diffusion tests. (3mks)
- g) Explain the principle behind the phenol tests for carbohydrates. (4mks)

## Question TWO

10 200 ml bottles of Ampicillin antibiotic syrup have been submitted to your laboratory for evaluation. Describe the assay(s) you would set up to determine;

- i) Sterility (8mks)
- ii) Potency against a known bacterial isolate. (8mks)

## Question THREE

- i) Explain the use of serial subculture in culture preservation (10mks)
- ii) Outline FIVE effects of long term preservation on microorganisms (10mks)

## Question FOUR

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

## Question FIVE

- a) Outline 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)