



TECHNICAL UNIVERSITY OF MOMBASA

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.

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)