



TECHNICAL UNIVERSITY OF MOMBASA

FACULTY OF APPLIED AND HEALTH SCIENCES

DEPARTMENT OF PURE & APPLIED SCIENCES

UNIVERSITY EXAMINATION FOR:

BTMB

AAB 4401 : APPLIED MICROBIAL ECOLOGY

END OF SEMESTER EXAMINATION

SERIES: DECEMBER 2016

TIME: 2 HOURS

DATE: Pick Date Dec 2016

Instructions to Candidates

You should have the following for this examination

-Answer Booklet, examination pass and student ID

This paper consists of **FIVE** questions. Attempt question ONE (Compulsory) and any other TWO questions.

Do not write on the question paper.

Question ONE

- a) Outline a merit and demerit of the following waste treatment techniques;
 - i) Compositing
 - ii) Landfilling (4mrks)
- b) Outline the causes of recalcitrance in xenobiotics. (6mrks)
- c) Outline four beneficial features of any successfully applied biosensors. (4mrks)
- d) Describe the general biodegradation and rates of decomposition of naturally occurring compounds (6mrks)
- e) Describe three methods of application of biofertilizers (6mrks)

f) Explain the challenges faced in the implementation of biopesticide usage by farmers

(4mrks)

Question TWO

a) Explain the application of bioaugmentation in bioremediation (10 mrks)

b) Describe composting as a method in bioremediation (10 mrks)

Question THREE

Describe the process of production and application of biofertilizers (20mrks)

Question FOUR

a) Explain the role of microorganisms in the bioleaching of metals from low grade deposits.

(10mrks)

b) Outline the various factors (ecological and environmental) that may affect the process in (a) above.

(10mrks)

Question FIVE

a) Describe the use of activated sludge system for waste water treatment (16mrks)

b) Explain the mode of action of chlorine in inactivating bacterial and viral pathogens.

(4mrks)