



Technical University of Mombasa

Faculty of Applied and Health Sciences

DEPARTMENT OF PURE AND APPLIED SCIENCES
UNIVERSITY EXAMINATION FOR THE DEGREE OF BACHELOR OF
TECHNOLOGY IN INDUSTRIAL MICROBIOLOGY AND
BIOTECHNOLOGY
BTMBT

SBT 2446 : APPLIED MICROBIAL ECOLOGY

SPECIAL/SUPPLEMENTARY EXAMINATION

OCTOBER 2013 SERIES

2 HOURS

Instructions to candidates:

This paper consist of **FIVE** questions

Answer question **ONE** (compulsory) and any other **TWO** questions

Question ONE

- a) Explain nitrogenase protection using oxygen buffer mechanism **(5marks)**
- b) Explain the mode of action of delta endotoxin produced by *Bacillus thuringiensis*.
(5marks)
- c) Name the FIVE categories of biosensors **(5marks)**
- d) Describe the use of aerated pile method in composting **(5marks)**
- e) Outline FIVE disadvantages of commercial dump leaching operations. **(5marks)**

- f) Outline the requirements of a flow-through biogas digester **(5marks)**

Question TWO

Discuss myconlizeae under the following:-

- (i) Types **(10marks)**
(ii) Factors that cause their degradation **(5marks)**
(iii) Benefits to the plant **(5marks)**

Question THREE

- a) Discuss the use of the following fungal biopesticides:-
(i) Beauvaria bassiana **(5marks)**
(ii) Trichoderma **(4marks)**
(iii) Muscudar albus **(4marks)**
(iv) Metarrhizium anisopliae **(4marks)**
b) State the disadvantages of using fungal biopesticides **(3marks)**

Question FOUR

- a) Outline the functions of the three components of a biosensor **(6marks)**
b) Explain the use of enzymes in biosensors. **(14marks)**

Question FIVE

- a) List down the aims of sewage treatment **(4marks)**
b) Explain the importance of primary sewage treatment **(4marks)**
c) Describe use of oxidation ponds in sewage treatment **(12marks)**