



# TECHNICAL UNIVERSITY OF MOMBASA

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FACULTY OF APPLIED AND HEALTH SCIENCES

DEPARTMENT OF PURE & APPLIED SCIENCES

**UNIVERSITY EXAMINATION FOR:**

**BTMB**

**AAB 4202 : ENVIRONMENTAL MICROBIOLOGY**

**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.**

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**Question ONE** a) Differentiate between

i) Eutrophication and Biocorrosion. (3 marks)

ii) Phototaxis and chemotaxis (3 marks)

b) Explain the symbiotic relationship between *Rhizobium* and legume. (4 marks)

d) Outline the factors limiting the growth of microorganisms in the atmo-ecosphere (6mks)

e) Explain the significance of the denitrification process in the nitrogen cycle. (4 marks)

f) Give four reasons for the preference of coliforms as indicators of pollution. (4 marks)

g) Compare the microbial interactions of symbiosis and amensalism (6mks).

**Question TWO**

.a) Explain the application of bioaugmentation in bioremediation (10 marks)

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

### **Question THREE**

Giving emphasis to the role played by microorganisms, describe the biogeochemical cycling of sulphur,  
(20 marks)

### **Question FOUR**

a) Outline the steps involved in the development of biofilms. (10 marks)

b) Explain five problems caused by biofilms to industrial systems. (10 marks)

### **Question FIVE**

. Describe the biodegradation of following polymers:

a) Cellulose (14 marks)

b) Lignin (6 marks)