



# TECHNICAL UNIVERSITY OF MOMBASA

---

FACULTY OF APPLIED AND HEALTH SCIENCES

DEPARTMENT OF PURE & APPLIED SCIENCES

**UNIVERSITY EXAMINATION FOR:**

**BACHELOR OF TECHNOLOGY IN INDUSTRIAL MICROBIOLOGY AND  
BIOTECHNOLOGY**

**AAB 4107 : MICROBIAL DIVERSITY-PAPER 1**

**END OF SEMESTER EXAMINATION**

**SERIES:** APRIL 2016

**TIME:** 2 HOURS

**DATE:** Pick Date May 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) Define the following terminologies

- i) Marine Saltern
- ii) Solfatara
- iii) Chemolithotrophy
- iv) Bulking
- v) Meromictic Lake (5 mks)

b) Explain how *Lactobacilli* can be selectively isolated from a culture media (5 mks)

c) Discuss the metabolic adaptation of *Ferroglobus* as a model Euryarchaeote (5 mks)

d) Briefly discuss the salient features of Purple non-sulfur bacteria (5 mks)

- e) Describe the major contributions of Martinus Beijerinck in Microbiology (5 mks)
- f) Discuss the economic importance of Phylum *Deinococcus* (5 mks)

### Question TWO

- a) Phylum *Proteobacteria* is a coherent, but highly diverse phylogenetic group. Discuss (12 mks)
- b) Describe the characteristics of *Thermocrinis ruber* in a static and out-flowing culture (8 mks)

### Question THREE

- a) Explain the adaptation of genus *Sulfolobus* and *Acidianus* to their habitats (10 mks)
- b) Discuss the salient features of Purple Sulfur Bacteria (8 mks)

### Question FOUR

- a) Discuss the salient features of Purple phototrophic bacteria (12 mks)
- b) Discuss the potential of *Bacillus thuringiensis* in crop protection (10 mks)

### Question FIVE

- a) With examples, discuss microbial physiological diversity (10 mks)
- b) With examples, discuss the economic importance of phylum *Apicomplexa* (10 mks)