



# TECHNICAL UNIVERSITY OF MOMBASA

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FACULTY OF APPLIED AND HEALTH SCIENCES  
DEPARTMENT OF PURE & APPLIED SCIENCES  
**UNIVERSITY EXAMINATION FOR:**  
BACHELOR OF TECHNOLOGY IN INDUSTRIAL MICROBIOLOGY AND  
BIOTECHNOLOGY  
AAB 4201: BACTERIOLOGY  
END OF SEMESTER EXAMINATION  
**SERIES: DECEMBER 2016**  
**TIME: 2 HOURS**  
**DATE: Pick Date Dec 2016**

## **Paper 1**

### **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) Describe the major characteristics of Gram-positive bacteria (5mks)
- b) State 3 economic roles of Actinomycetes (3mks)
- c) State the application of Cyanobacteria in biotechnology industry (6mks)
- d) List the major symptoms of *Mycoplasma pneumonia* (4mks)
- e) Name the diseases caused by the following species (4mks)
  - i) *Borrelia burgdorferi*
  - ii) *Borrelia recurrentis*
  - iii) *Treponema pallidum*
  - iv) *Brachyspira pilosicoli*
- f) Explain the differences between Gram positive and Gram negative bacteria (8mks)

### **Question TWO**

Using specific examples, describe the classification of bacteria (20 mks)

### **Question THREE**

State the principle and describe basic steps in Gram staining technique (20mks)

**Question FOUR**

Discuss the role of cyanobacteria in;

- a) Photosynthesis (10mks)
- b) Nitrogen fixation (10mks)

**Question FIVE**

Using illustrations, discuss the following forms of reproduction in bacteria

- a) Binary Fission (10mks)
- b) Budding (10mks)