



# 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  
**BIMBT**

## **SBT 2170 : MICROBIAL DIVERSITY**

SPECIAL/SUPPLEMENTARY EXAMINATION

FEBRUARY 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) Define the following terminologies

- i) Methanotrophs
- ii) Chemolithotrophy
- iii) Parthenogenesis
- iv) Phagocytosis
- v) Conidia

**(5marks)**

b) Briefly describe *Methanopyrus* sp. as a model hyperthermophilic Euryarchaeete **(5marks)**

- c) Discuss the economic importance of phylum *Deinococci* (5marks)
- d) Discuss the metabolic fate of elemental sulfur among *Acidianus* cultures (5marks)
- e) Explain why *Nanoarchaeum* is considered a unique Archaeon (5marks)
- f) Explain why photosynthesis is not a bioenergetic option among crenarchaeotes.  
(5marks)

### Question TWO

Write brief notes on the following hyperthermophilic Euryarchaeotes:-

- a) *Archaeoglobus* sp. (10marks)
- b) *Ferroplasma* sp. (10marks)

### Question THREE

- a) Discuss the role of Pasteur in the downfall of spontaneous generation theory (10marks)
- b) Describe the role played by early scientist in the discovery of microorganisms (10marks)

### Question FOUR

Discuss the economic importance of the following spirochetes

- a) *Borrelia* sp
  - b) *Leptospira* sp
- (20marks)

### Question FIVE

- a) Discuss protozoal diversity as representatives of unicellular eukaryotes (10marks)
- b) With examples, discuss the economic importance of toxic dinoflagellates. (10marks)