



# TECHNICAL UNIVERSITY OF MOMBASA

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FACULTY OF APPLIED AND HEALTH SCIENCES

DEPARTMENT OF PURE AND APPLIED SCIENCES

## UNIVERSITY EXAMINATION FOR:

MASTER OF SCIENCE IN BIOTECHNOLOGY

ABT 5107 ENVIRONMENTAL BIOTECHNOLOGY

## SPECIAL/ SUPPLEMENTARY EXAMINATIONS

**SERIES: SEPTEMBER 2018**

**TIME: 3 HOURS**

**DATE: Sep 2018**

### Instructions to Candidates

You should have the following for this examination

*-Answer Booklet, examination pass and student ID*

This paper consists of six questions. Attempt any four questions

**Do not write on the question paper.**

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### **Question ONE**

- Describe the key characteristics of performant bio-indicators (15 mks)
- Describe the quantification of atmospheric dust removal by plants (10 mks)

### **Question TWO**

- Discuss the future of biosorbents in the removal of heavy metal contamination (10 mks)
- Describe different forms of bioremediation (15 mks)

### **Question THREE**

Discuss the following industrial leaching processes

- Heap leaching (8 mks)
- Dump leaching (8 mks)
- Underground leaching (9 mks)

#### **Question FOUR**

Discuss the treatment and disposal of biomedical waste (25 mks)

#### **Question FIVE**

- a) Discuss the benefits associated with bioremediation technology in controlling environmental pollution (15 mks)
- b) Outline the role of Lichens as bio-indicators of air pollution (10 mks)

#### **Question SIX**

- a) Discuss the significance of Arsenic biomethylation (9 mks)
- b) Explain the significance of biofilms under chemical stress (16 mks)