



# **MACHAKOS UNIVERSITY**

**University Examinations for 2018/2019 Academic Year**

**SCHOOL OF ENVIRONMENT AND NATURAL RESOURCES MANAGEMENT**

**DEPARTMENT OF ENVIRONMENTAL SCIENCES**

**FOURTH YEAR SPECIAL/SUPPLEMENTARY EXAMINATION FOR**

**BACHELOR IN ENVIRONMENTAL SCIENCES**

**ENS 454: MINING AND SUSTAINABLE DEVELOPMENT**

**DATE: 22/7/2019**

**TIME: 8.30-10.30 AM**

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## **INSTRUCTIONS;**

**Answer question ONE and any other TWO questions**

### **QUESTION ONE (30 MARKS)**

- a) Discuss the roles that mining plays in realizing any one sustainable development goal  
(10 marks)
- b) Briefly discuss any **FIVE** strategies to protect water resources from the adverse impacts of mining activities and operations  
(10 marks)
- c) Highlight **FIVE** ways in which a community can participate in the planning of mined areas  
(10 marks)

### **QUESTION TWO (20 MARKS)**

Using named mining project, discuss any **FOUR** adverse environmental impacts of Acid Rock Drainage and indicate how to manage the impacts

### **QUESTION THREE (20 MARKS)**

Discuss the need for and the steps you will follow to develop an effective monitoring programme for various mining activities in an area

**QUESTION FOUR (20 MARKS)**

Suppose you have been appointed to oversee the development a strategy to manage various adverse impacts of mining in your County, discuss how to undertake the assignment and highlight any likely challenges you will face

**QUESTION FIVE (20 MARKS)**

Discuss the steps you will follow in establishing a mechanism to deal with health and safety issues associated with mining activities and operations in Kenya