



# MURANG'A UNIVERSITY OF TECHNOLOGY

## SCHOOL OF PURE AND APPLIED SCIENCES

DEPARTMENT OF APPLIED SCIENCES

UNIVERSITY ORDINARY EXAMINATION

2017/2018 ACADEMIC YEAR

EXAMINATION FOR MASTER OF SCIENCE IN CHEMISTRY

ACH 601: ENVIRONMENTAL CHEMISTRY

DURATION: 3 HOURS

DATE: 23<sup>RD</sup> AUGUST, 2018

TIME: 9.00 – 12.00 NOON

### Instructions to Candidates:

1. Answer **Any Four** questions.
2. Mobile phones are not allowed in the examination room.
3. You are not allowed to write on this examination question paper.

**QUESTION ONE (25 marks)**

- a) Discuss how land use in Kenya contributes to climate change (8 marks)
- b) Suggest ways in which Kenyan Government could reduce land use contribution to climate change (10 marks)
- c) Explain how the concentration of dissolved oxygen in freshwater is an important indicator of the quality of the water (7 marks)

**QUESTION TWO (25 marks)**

- a)
  - i. Explain what you understand by the term carbon credit (2 marks)
  - ii. Discuss the origin of carbon credit and the two main markets for carbon credits (6 marks)
  - iii. Discuss how various governments use carbon credit to reduce emissions and carbon prints of companies (8 marks)
- b) Discuss the contribution of agriculture to environmental degradation (9 marks)

**QUESTION THREE (25 marks)**

- a)
  - i. Discuss at least three sources of acid rain (6 marks)
  - ii. Outline the impact of acid rain to the environment and its eco-system (9 marks)
- b)
  - i. Discuss photochemistry of nitrogen oxides (5 marks)
  - ii. Discuss how catalyst and new technology can make process more energy efficient and help combat climate change (5 marks)

**QUESTION FOUR (25 marks)**

- a) Distinguish between environmental impact assessment and environmental audits (5 marks)
- b) Outline the structure of an EIA report (5 marks)
- c) Discuss briefly what is entailed in each section/chapter of EIA report (10 marks)
- d) Discuss the two main types of environment (5 marks)

**QUESTION FIVE (25 marks)**

- a) Discuss the nature and potential toxicity of particulate and gaseous emissions resulting from the combustion of petroleum based fuels (6 marks)
- b) Uncontrolled growth of urbanization is a threat to the environment. Discuss (10 marks)
- c) Discuss the pros and cons for Mau Summit evictions (9 marks)