



MAASAI MARA UNIVERSITY

REGULAR UNIVERSITY EXAMINATIONS

2022/2023 ACADEMIC YEAR

FIRST YEAR SECOND SEMESTER

**SCHOOL OF PURE, APPLIED AND
HEALTH SCIENCES**

MASTER OF SCIENCE IN CHEMISTRY

COURSE CODE: CHE 8208

COURSE TITLE: ENVIRONMENTAL CHEMISTRY

DATE: April 2023

TIME:

INSTRUCTIONS TO CANDIDATES

1. Answer any **THREE** questions.

*This paper consists of **TWO** printed pages. Please turn over.*

QUESTION ONE (20 MARKS)

- a) Define the following terms as used in environmental chemistry.
- i) Photochemical smog (2 marks)
 - ii) Reverse osmosis (2 marks)
 - iii) Anthropogenic activities (2 marks)
 - iv) Electrostatic precipitators (2 marks)
 - v) Particulate scrubbers (2 marks)
- b) Discuss the various sources of air pollution. (5 marks)
- c) Citing the relevant pollutants, discuss the various harmful effects of air pollutants. (5 marks)

QUESTION TWO (20 MARKS)

Water pollution is contamination of water bodies by discharge of pollutants directly or indirectly into water bodies without adequate treatment to remove harmful compounds.

- i) Explain the TWO main ways of measuring the quality of water. (4 marks)
- ii) Discuss any FIVE causes of water pollution. (10 marks)
- iii) Discuss THREE ways in which water pollution can be controlled. (6 marks)

QUESTION THREE (20 MARKS)

Acid rain refers to a mixture of deposited material both wet and dry coming from the atmosphere containing more than normal amounts of nitric and sulfuric acid.

- i) Discuss the TWO major forms in which acid deposition occurs to form acid rain. (4 marks)
- ii) State and explain any FIVE significant effects of acid rain on the world environment and public health. (10 marks)
- iii) Hence or otherwise, enumerate any THREE remedies of acid rain. (6 marks)

QUESTION FOUR (20 MARKS)

The planet contains many gases which surface a layer and prevents unwanted radiations to reach the surface. The greenhouse gas absorbs and emits these radiations within the range which ultimately causes greenhouse effect.

- i) List any FIVE common greenhouse gases in the earth's atmosphere. (5 marks)
- ii) Discuss the consequences of global warming. (10 marks)
- iii) Explain how global warming can be controlled. (5 marks)

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