



MAASAI MARA UNIVERSITY

**REGULAR UNIVERSITY EXAMINATIONS
2018/2019 ACADEMIC YEAR
FIRST YEAR SECOND SEMESTER**

**SCHOOL OF SCIENCE
MASTER OF SCIENCE IN CHEMISTRY**

**CHE 8208
ENVIRONMENTAL CHEMISTRY**

DATE: FRIDAY, 7TH DECEMBER 2018

TIME: 3 Hours

INSTRUCTIONS TO CANDIDATES

1. Answer Question **ONE** and any other **TWO** questions.
2. All Examination Rules Apply.

QUESTION ONE (THIRTY MARKS) – COMPULSORY

- [a]. Using the Big Four Agenda, describe the impacts of this to the environment and provide possible mitigation measures. **[10 Marks]**
- [b]. State 5 functions of the atmosphere **[5 Marks]**
- [c]. Timonjero, a renowned industrialist in Mombasa, wants to establish a good wastewater treatment using integrated approach to be reused within the industry. He has approached you to advise him on how to approach this using your knowledge of environmental chemistry. Describe your advice as an environmental chemist. **[10 Marks]**
- [d]. Briefly describe the merits and demerits of ban of plastic bags in Kenya. **[5 Marks]**

QUESTION TWO (TWENTY MARKS)

- [a]. Giving specific examples, describe any four factors that are contributing immensely to environmental pollution. **[8 Marks]**
- [b]. Explain the role played by chemist in environmental monitoring, preservation and conservation in Kenya and the world at large. **[6 Marks]**
- [c]. State 3 effects of global warming and climate change and suggest any 3 ways that can be used to solve this phenomenon. **[6 Marks]**

QUESTION THREE (TWENTY MARKS)

- [a]. State and explain three ways that can be adopted in Kenya in order to embrace integrated solid waste management. **[6 Marks]**
- [b]. Describe soil pollution under the following sub-headings;
- i. Sources of Soil Pollution **[3 Marks]**
 - ii. Effects of Soil Pollution **[3 Marks]**
 - iii. Control of Soil Pollution **[3 Marks]**
- [c]. Define the term eutrophication and state its effects, responsible pollutants and how it can be mitigated. **[5 Marks]**

QUESTION FOUR (TWENTY MARKS)

[a]. Muigai Ngeni is a resident of industrial area in one of the major towns in Kenya where he has stayed for over 8 years. Recently he noticed that his iron sheets from the roofing of his bungalow has turned brownish. Using chemical equations describe the possible causes of this scenario. **[12 Marks]**

[b]. Describe four major factors that Kenya needs to consider before deciding to build a nuclear plant. **[8 Marks]**