



MAASAI MARA UNIVERSITY

**REGULAR UNIVERSITY EXAMINATIONS
2017/2018 ACADEMIC YEAR
THIRD YEAR SECOND SEMESTER**

**SCHOOL OF TOURISM AND NATURAL
RESOURCE MANAGEMENT
BACHELOR OF ENVIRONMENTAL BIOLOGY
AND HEALTH**

**COURSE CODE: EBH 311
COURSE TITLE: SOIL AND WATER POLLUTION
CONTROL**

DATE: 26TH APRIL, 2018

TIME: 1100 – 1300 HRS

INSTRUCTIONS TO CANDIDATES

Answer **ALL** questions in section **A** and any other three in section **B**

This paper consists of 3 printed pages. Please turn over.

SECTION A

Answer all the questions in this section (25 marks)

1. Define the following terms;
 - i) Water pollution (1 mark)
 - ii) Eutrophication (1 mark)
 - iii) Acid rains (1 mark)
 - iv) Biogeochemical cycle (1 mark)
2. Distinguish between the following
 - i) Wet and dry deposition (2 marks)
 - ii) Nitrification and denitrification (2 marks)
 - iii) Land pollution and erosion (2 marks)
 - iv) Chemical transport and fate (2 marks)
3. a) Describe 3 different units which can be expressed by the following concentrations;
 - i) Air (3 marks)
 - ii) Water (3 marks)
 - iii) Soil (3 marks)b) The concentration of nitrogen and phosphorus in the soils sampled at Maasai Mara University were 30 g/kg and 5000 mg / kg respectively. Convert the measured concentrations in parts per million (PPM). (4 marks)
4. a) Using equations explain how nitrogen dioxide gas result to acid rains (3 marks)
c) Describe the three broad categories of eutrophication (3 marks)

SECTION B

Answer any 3 (THREE) questions (45 marks)

5. a) Explain the nitrogen cycle and state its importance to the environment (10 marks)
b) Eutrophication has resulted to poor performance of water systems. Discuss the sources and effects of eutrophication and its control measures (10 marks)
6. a) Discuss the causes of soil and water pollution (6 marks)
b) Discuss the best way of treating soils with low pH (4 marks)
c) How are agricultural practices associated with heavy metal pollution (4 marks)
d) Briefly explain how heavy metals can be removed from soil and water (6 marks)
7. a) What are acid rains and how are they formed (3 marks)
b) Discuss the effects of acid rains on soil, water and plants (10 marks)
c) Discuss remedial steps undertaken to curb acid rains in the atmosphere (4 marks)
d) Discuss briefly the synergistic effect of particulates and SO_x (3 marks)
8. a) Discuss thermal, chemical and microbial treatment methods as pollution remedial and restoration measures (10 marks)
b) Discuss five major factors to be considered during planning for soil monitoring (10 marks)

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