



MURANG'A UNIVERSITY OF TECHNOLOGY

SCHOOL OF ENGINEERING AND TECHNOLOGY

**DEPARTMENT OF ELECTRICAL AND ELECTRONICS
ENGINEERING**

UNIVERSITY ORDINARY EXAMINATION

2023/2024 ACADEMIC YEAR

**FOURTH YEAR SECOND SEMESTER EXAMINATION FOR BACHELOR
OF TECHNOLOGY IN MECHANICAL ENGINEERING**

EMT 414 – INDUSTRIAL POLLUTION

DURATION: 2 HOURS

INSTRUCTIONS TO CANDIDATES:

1. Answer question one and any other two questions.
2. Mobile phones are not allowed in the examination room.
3. You are not allowed to write on this examination question paper.

SECTION A: ANSWER ALL QUESTIONS IN THIS SECTION

QUESTION ONE (30 MARKS)

- a.**
- i. State how ground level ozone is formed as a secondary pollutant. (2marks)
 - ii. State two factors that influence formation of ground level zone. (2marks)
- b. Name three principal water/quality pollutants tested in water. (3marks)
- c. Distinguish between primary and secondary pollutants. (4marks)
- d. Name four ways that can be adopted to minimize noise pollution from a point source (4marks)
- e. Explain the occurrence of eutrophication. (5marks)
- f. State five main classification of air pollution. (5marks)
- g. You have been tasked to advice the county government on solid wastes management policies. Name five key criteria that should be followed to draft an effective management plan. (5marks)

SECTION B – ANSWER ANY TWO QUESTIONS IN THIS SECTION

QUESTION TWO (20 MARKS)

- a. The basic law for environmental pollution control was the first legislation in Japan to set out a comprehensive framework for environmental pollution control measures following the Minamata disaster. State four articles that this law stipulates. (4marks)
- b. Despite the initial Basic Law for Environmental Pollution control was designed to complement healthy economic growth and development, it did not meet its stipulated mandate. State the main reason for its failure. (4marks)
- c. Briefly discuss at least Eight main features that were included in amendment of the basic law for Environmental Pollution Control to curb environmental damage. (12marks)

QUESTION THREE (20 MARKS)

- a. Name and briefly explain five causes of industrial pollution. (10marks)
- b. With the aid of a well labelled diagram explain the working principle of an electrostatic precipitator. (10marks)

QUESTION FOUR (20 MARKS)

- a. Name and briefly describe the following sampling techniques. (5marks)
- i. Systematic sampling (5marks)
 - ii. Judgemental sampling (5marks)
- b. Write the procedure for collecting a soil sample for determination of heavy metals along Nairobi River. (10marks)