



(The University Of Choice)

**MASINDE MULIRO UNIVERSITY OF
SCIENCE AND TECHNOLOGY
(MMUST)**

UNIVERSITY EXAMINATIONS

2021/2022 ACADEMIC YEAR

**FIFTH YEAR FIRST SEMESTER SPECIAL/SUPPLEMENTARY
EXAMINATIONS**

FOR THE DEGREE OF

BACHELOR OF SCIENCE IN

MECHANICAL AND INDUSTRIAL ENGINEERING

COURSE CODE: MIE 573

COURSE TITLE: INDUSTRIAL POLLUTION AND CONTROL

DATE: 3 – 10 - 2022

TIME: 9:00 AM – 11:00 AM

Instructions to candidates:

1. This paper consists of Five questions
2. Answer Question ONE (**compulsory**) and any other TWO Questions
3. All symbols have their usual meaning

QUESTION ONE **(30 marks)**

- a) Give the definition of the term albedo **(2 marks)**
- b) Discuss four ways through which heat islands can be controlled **(8 marks)**
- c) Using equations, discuss how Ozone depletion occurs **(8 marks)**
- d) Explain the difference between bioaccumulation, biomagnifications and eutrophication **(6 marks)**
- e) Explain how mining, agriculture and deforestation contribute to land/soil pollution **(6 marks)**

QUESTION TWO **(20 marks)**

- a) Distinguish between ecosystem restoration and land reclamation **(6marks)**
- b) Explain the difference between noise and sound **(2marks)**
- c) Discuss the followings methods of industrial wastes treatment and disposal **(12marks)**
- 1) Stabilization 2) flocculation and coagulation 3) Incineration 4) Chemical Precipitation

QUESTION THREE **(20 marks)**

- a) Define a greenhouse gas and give any four examples of greenhouse gases **(4marks)**
- b) Greenhouse gases are meant to keep our earth/climate warm. Why then is it an issue of concern **(4 marks)**
- c) With the aid of a labelled diagram, explain the principle of operation of Electrostatic precipitators **(12 marks)**

QUESTION FOUR **(20 marks)**

- a) Explain how burning of nitrogen and sulfur-containing fuel results in acid rain **(4 marks)**
- b) State any five causes of industrial waste generation **(5 marks)**
- c) Discuss the following curative measures used in wastewater treatment **(9 marks)**
1)Physical Methods, 2)Biological Wastewater Treatment 3)Chemical Wastewater Treatment
- d) Distinguish between a pollutant and a contaminant **(2 marks)**