



KIBABII UNIVERSITY

UNIVERSITY EXAMINATIONS
2021/2022 ACADEMIC YEAR

FOURTH YEAR FIRST SEMESTER
SUPPLEMENTARY EXAMINATIONS

FOR THE DEGREE OF BACHELOR OF CHEMISTRY

COURSE CODE: SCH 416

COURSE TITLE: CHEMICAL TOXICOLOGY AND MANAGEMENT
DURATION: 2 HOURS

DATE: 15/11/2022

TIME: 8:00AM-10:00AM

INSTRUCTIONS TO CANDIDATES

- Answer **QUESTION ONE** (Compulsory) and any other two (2) Questions.
 - Indicate **answered questions** on the front cover.
- Start every question on a new page and make sure question's number is written on each page.

This paper consists of 3 printed pages.  Please Turn Over

KIBU observes ZERO tolerance to examination cheating

Question one (Compulsory) (30 Marks)

- (a) Define the following terminologies as used in toxicology;
- (i) Greenhouse gas (1)
 - (ii) Acidic oxide (1)
- (b) State two major ways by which human activities contribute to the addition of CO₂ to the atmosphere (2)
- (c) Differentiate between natural and anthropogenic sources of air pollution (2)
- (d) CFCs are a group of substances known to cause damage to the ozone layer
- (i) State two effects of damage of ozone layer (2)
 - (ii) Give an example of a CFC (1)
 - (iii) Give one former major use of CFCs (1)
 - (iv) Identify the group of compounds now used as ozone friendly CFC replacements (2)
- (e) State two reasons why the stratosphere is highly vulnerable (2)
- (f) Differentiate between primary and secondary municipal sewage treatment processes (4)
- (g) List four pollutants designated under clean air act and identify the major sources and health effects of each (4)
- (h) List three sources from which carbon dioxide is released to the atmosphere and explain the health effects of each (4)
- (i) List four factors that must be considered in collection of municipal solid wastes (4)

Question Two (20 Marks)

- (a) List four pollutants designated under clean air act and identify the major sources and health effects (8)
- (b) Describe briefly how the atmosphere plays an essential role as a protective shield (6)
- (c) With the help of equations, explain how photochemical smog is formed (6)

Question Three (20 Marks)

- (a) Discuss the adverse effects associated with pesticides and herbicides (5)
- (b) Discuss atleast four consequences of the inappropriate disposal of refuse (8)
- (c) Outline briefly the various types of interactions of toxic substances (7)

Question Four (20 Marks)

- (a) What is a solid waste? List and describe the major health hazards associated with solid wastes (8)
- (b) Describe methods used for collection of solid wastes (7)
- (c) Explain the sources and classification of solid wastes (5)

Question Five (20 Marks)

Discuss the biochemical effects of the following toxic chemicals

(20)

- (a) Lead
- (b) Ozone
- (c) CO
- (d) Oxides of Nitrogen
- (e) Photochemical smog