



FreeExams.co.ke

**UNIVERSITY EXAMINATIONS  
2023/2024 ACADEMIC YEAR**

**FOURTH YEAR FIRST SEMESTER  
MAIN EXAMINATIONS**

**FOR THE DEGREE OF BACHELOR OF CHEMISTRY**

**COURSE CODE: SCH 416**

**COURSE TITLE: CHEMICAL TOXICOLOGY AND MANAGEMENT**  
**DURATION: 2 HOURS**

**DATE: 7/12/2023**

**TIME: 9:00-11:00AM**

---

**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.

**Question one (Compulsory) (30 Marks)**

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

**Question Two (20 Marks)**

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

**Question Three (20 Marks)**

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

**Question Four (20 Marks)**

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

**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