



NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY

FACULTY OF ENVIRONMENTAL SCIENCES

DEPARTMENT OF ENVIRONMENTAL SCIENCE

**BACHELOR OF SCIENCE HONOURS DEGREE IN ENVIRONMENTAL SCIENCE AND
HEALTH**

WASTE SUPPLY, SANITATION AND HYGIENE

ESH 2114

Final Examination Paper

December 2024

This examination paper consists of 2 pages

Time Allowed: 3 hours

Total Marks: 100

Special Requirements: None

Examiner's Name: Dr T Kativhu

INSTRUCTIONS

1. Answer any **FOUR** questions
2. Each question carries 25 marks

MARK ALLOCATION

QUESTION	MARKS
1.	25
2.	25
3.	25
4.	25
5.	25
6.	25
TOTAL	100

Question 1

- a. Describe the impacts of inorganic chemical pollutants in water on human health. (15 marks)
- b. As an environmental health practitioner employed by a small town in Zimbabwe, suggest five measures that can be used to abate pollution of drinking water sources in your area of operation. (10 marks)

Question 2

1. Discuss the importance of the following processes in water treatment:
 - i) Aeration (5 marks)
 - ii) Filtration (5 marks)
 - iii) Coagulation and flocculation (5 marks)
- a. Describe the hydrolysis and ionization processes that take place when chlorine is added into water. (10 marks)

Question 3

- a) From an environmental health point of view, discuss factors that you would consider when selecting a sanitation system. (10 marks)
- b) Describe how waste is treated using septic tanks. (15 marks)

Question 4

Give a detailed analysis of the water, sanitation and hygiene challenges faced communities during an emergency situation.

Question 5

In relation to the F-Diagram, discuss the importance of integrating water, sanitation and hygiene activities in responding to cholera outbreaks.

Question 6.

- a. Describe key indicators that you can use to evaluate good hygiene practices in a rural community of your choice in Zimbabwe
- b. Suggest hygiene promotion tools that you can recommend in a rural area of Zimbabwe that showed poor WASH practices during a Knowledge Attitudes and Practices survey.