



NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY

FACULTY OF ENVIRONMENTAL SCIENCES

DEPARTMENT OF ENVIRONMENTAL HEALTH

BACHELOR OF SCIENCE HONOURS DEGREE IN PUBLIC HEALTH

WASTE MANAGEMENT

EPH3111

Examination Paper

October 2024

This examination paper consists of 3 pages

Time Allowed: 3 hours

Total Marks: 100

Special Requirements: None

Examiner's Name: Mr C Sithole

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) Discuss Vermicomposting as a method of solid waste management siting advantages and disadvantages. **(10 marks)**
- (b) Write notes on the following solid waste management systems:
- i. Hauled container system **(5 marks)**
 - ii. Stationery container system **(5 marks)**
 - iii. Pyrolysis process **(5 marks)**

QUESTION 2

Describe the following properties of Municipal Solid Waste highlighting their importance in solid waste management.

- a) Physical **(10 marks)**
- b) Chemical **(10 marks)**
- c) Biological **(5 marks)**

QUESTION 3

- a) (a) List and describe the factors that must be addressed in developing a design and an operational plan for a sanitary landfill. **(10 marks)**
- b) (b) Medical health facilities make use of incineration to manage health care waste. Explain the incineration processes siting advantages and disadvantages. **(15 marks)**

QUESTION 4

- a) With a neat schematic diagram and reference to sustainable management, explain the functional elements of solid waste management. **(15 marks)**
- b) Describe briefly ocean disposal of solid waste, and indicate advantages and disadvantages. **(10 marks)**

QUESTION 5

- a) Explain the formation, movement and control of leachate in the sanitary landfill. **(5)**
- b) List out the factors to be considered in selecting solid waste collection equipment. **(10)**
- c) Write briefly on the rules to be kept in mind while designing the collection route. **(10)**

QUESTION 6

- a) Describe the main components of Zero Waste Emission concept. (10)
- b) Briefly discuss the various types of waste collection systems used in solid waste management systems. (15)