



NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY

FACULTY OF INDUSTRIAL TECHNOLOGY

DEPARTMENT OF CIVIL AND WATER ENGINEERING

SOLID WASTE MANAGEMENT

TCW 5006

Supplementary Examination Paper

JULY 2016

This examination paper consists of 2 pages

Time Allowed: 3 hours

Total Marks: 100

Special Requirements: NONE

Examiner's Name: ELLEN MANGORE

INSTRUCTIONS

1. Answer any four (4) questions
2. Each question carries 25 marks
3. Use of calculators is permissible

MARK ALLOCATION

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

QUESTION 1

- a. Describe the major categories of solid waste. (5marks)
- b. Compare and contrast the various options for collection of solid waste. (10 marks)
- c. A community of 50 000 people generates solid wastes at the rate of 0.8kg/ person /day. How many non-compacting vehicles (7000kg per load) are required to collect the waste based on twice weekly collection? The collection system runs on a 5 day week and each vehicle does two trips per day. (10 marks)

QUESTION 2

- a. Define the following terms as used in municipal solid waste management.
 - i. Solid waste
 - ii. Solid waste management
 - iii. Waste composition (10 marks)
- b. Draw the step by step diagram of solid waste management and explain the various steps (15 marks)

QUESTION 3

- a. Write brief notes on the following using diagrams where appropriate:
 - i. Sanitary landfill
 - ii. Incineration
 - iii. Recycling (15 marks)
- b. Describe in detail the composting method of solid waste disposal. (10 marks)

QUESTION 4

Outline the techniques used in achieving impact prediction and assessment in EIA. (25 marks)

QUESTION 5

- a. List and describe the factors that must be addressed in developing a design and an operational plan for a landfill (20 marks)
- b. What are the merits and demerits of the area method for sanitary landfilling. (5 marks)