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## TECHNICAL UNIVERSITY OF MOMBASA

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SCHOOL OF ENGINEERING AND TECHNOLOGY

Department of BUILDING & Civil engineering

**UNIVERSITY EXAMINATION FOR:**

BACHELOR OF TECHNOLOGY IN CIVIL ENGINEERING

**TCV 4410 : SOLID WASTE MANAGEMENT & TREATMENT**

SPECIAL/SUPPLEMENTARY EXAMINATION

**SERIES: JULY 2025**

**TIME: 2 HOURS**

### **PAPER B**

#### **Instructions to Candidates**

You should have the following for this examination

*-Answer Booklet, examination pass and student ID*

This paper consists of **five** questions.

Attempt question ONE (Compulsory) and any other TWO questions.

**Do not write on the question paper.**

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#### **QUESTION ONE (COMPULSORY) 20 Marks**

- a) State the impacts of poor solid waste management (4 marks)
- b) Describe the following types of incinerators
  - i) Fixed grate
  - ii) Rotary kiln
  - iii) Fluidized bed (12 marks)
- c) Outline the roles of environment officer at the main dump site (4 mark)

#### **ANSWER ANY TWO QUESTIONS FROM THIS SECTION**

#### **QUESTION TWO (20 Marks)**

- a) Describe a solid waste transfer station (10 marks)
- b) State the constraints faced in solid waste management (4 marks)
- c) State the factors influencing the composition and rate of generation of solid waste (6 marks)

### **QUESTION THREE (20 Marks)**

- a) With the aid of a sketch explain the solid waste hierarchy triangle (6 marks)
- b) Outline the factors to consider in locating a site for landfill (4 marks)
- c) Explain the process of leachate collection and control (10 marks)

### **QUESTION FOUR (20 Marks)**

- a) Explain the key points in solid waste management (10 marks)
- b) Solid waste management is an industry, Explain. (10 marks)

### **QUESTION FIVE (20 Marks)**

- a) Explain the 3R concept of waste management (Explain the windrow composting process (8 marks)