



# Technical University of Mombasa

*Faculty of Engineering and Technology*  
**DEPARTMENT OF MEDICAL ENGINEERING**

DIPLOMA IN MEDICAL ENGINEERING  
(DME 112)

**EHL 2203**  
**SANITATION AND ENVIRONMENTAL MANAGEMENT**

SUPPLEMENTARY/SPECIAL EXAMINATIONS

**SERIES:** OCTOBER, 2013  
**TIME:** 2 HOURS

**INSTRUCTIONS TO CANDIDATES:**

- Question *ONE* is *COMPULSORY*.
- Attempt any other *TWO* questions.

This paper consists of **3 PRINTED** pages

### QUESTION ONE (COMPULSORY)

- (a) (i) Define the term sanitation (2 marks)  
(ii) State any **THREE** reasons why sanitation is very important in Health Institution (3 marks)  
(iii) Explain the **FOUR** categories of diseases that are as a result of poor sanitation (8 marks)
- (b) With the aid of a well labeled diagram, explain incineration as a method of waste disposal. (9 marks)
- (c) (i) Define the following  
(I) Sewerage  
(II) Environment (4 marks)  
(ii) State any **TWO** advantage and any **TWO** disadvantages of sheet metal dustbin (4 marks)

### QUESTION TWO

- (a) (i) With the aid of a diagram explain Trickling filter as a conventional biological treatment. (6 marks)  
(ii) State any **FIVE** classifications of solid waste (5 marks)
- (b) Describe any **THREE** problems/challenges arising from irregular emptying of dustbins (6 marks)
- (c) With the aid of diagrams, distinguish between the open trench and pit latrines as types of sewages system (3 marks)

### QUESTION THREE

- (a) (i) Define environmental science (2 marks)  
(ii) List **FIVE** main facets of the man-environment relationship (5 marks)
- (b) Describe pollution as a problem in environment in the following areas:-  
(i) High technology agriculture  
(ii) Nitrate and phosphate fertilizers  
(iii) Industrial and municipal effluent (9 marks)
- (c) State any **FOUR** main purposes of sanitary appliances (4 marks)

#### QUESTION FOUR

- (a) (i) With the aid of a diagram explain the operation of an automatic flushing cisterns. **(6 marks)**
- (ii) Draw a labeled diagram of a slope hoppen combination **(6 marks)**
- (b) Describe decomposition of organic matter in natural sewage purification **(6 marks)**
- (c) Explain why latrine contents are not safe to handle at any time before further treatment. **(2 marks)**

#### QUESTION FIVE

- (a) (i) List **FIVE** factors that contribute to destruction of pathogens management. **(5 marks)**
- (ii) Explain why resulting effluent has to be further treatment **(6 marks)**
- (b) Describe stabilization ponds as a method of sewage treatment **(5marks)**
- (c) State any **FOUR** British Standard Rules when marking containers for waste disposal **(4 marks)**