



**TECHNICAL UNIVERSITY OF MOMBASA**

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FACULTY OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF MEDICAL ENGINEERING

**UNIVERSITY EXAMINATION FOR:**

**DIPLOMA IN MEDICAL ENGINEERING**

**EHL 2202: SANITATION & ENVIRONMENTAL MANAGEMENT**

**END OF SEMESTER EXAMINATION**

**SERIES: DECEMBER 2016**

**TIME: 2 HOURS**

**DATE: 9 Dec 2016**

**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

a) i) Describe the following methods of waste disposal:-

- I) Open dumping
- II) Land filling
- III) Incineration
- IV) Composting

ii) State **ONE** advantage for each of the above methods in 1a) i)

**20 Marks**

b) Define the following terms:-

- i) Biomagnification
- ii) Bio accumulation
- iii) Environmental pollution
- iv) Natural Eutrophication

**4 Marks**

c) Explain the function(s) of the following bacteria in the waste management:-

- i) Aerobic bacteria
- ii) Anaerobic bacteria
- iii) Facultative bacteria

**6 Marks**

## Question TWO

a) Differentiate between the following terms:-

- i) Primary and secondary pollutants
- ii) Carcinogenic and Teratogenic substances

**8 Marks**

b) i) State any **FOUR** effects of ionizing radiation on human beings

ii) Outline any **TWO** advantages and disadvantages of

Ventilated Improved Pit latrine

**12 Marks**

### Question THREE

- a) i) State **FIVE** effects of Acid Rain on environment  
ii) Differentiate between re-use and recycling methods when dealing with municipal waste **9 Marks**
- b) i) State **THREE** advantages and disadvantages of land fill system  
ii) Sketch to show a cross-section view of a modern landfill for disposal of waste **11 Marks**

### Question FOUR

- a) i) State any **FOUR** types of diseases caused by poor sanitation  
ii) Outline any **FOUR** factors to be considered in determining the method of waste disposal **8 Marks**
- b) Explain the process of sewage treatment by waste stabilisation ponds/lagoon **12 Marks**

### Question FIVE

- a) Differentiate between a pit latrine and composting latrine **6 Marks**
- b) With the aid of a block diagram, explain the conventional method of treating sewage **14 Marks**