



TECHNICAL UNIVERSITY OF MOMBASA
**Faculty of Engineering &
Technology**

DEPARTMENT OF BUILDING & CIVIL ENGINEERING
DIPLOMA IN BUILDING & CIVIL ENGINEERING (DBCE 13J)

ECV 2303: CIVIL ENGINEERING CONSTRUCTION III

END OF SEMESTER EXAMINATION

SERIES: APRIL 2015

TIME ALLOWED: 2 HOURS

Instructions to Candidates:

You should have the following for this examination

- *Answer Booklet*

This paper consists of **FIVE** questions. Answer any **THREE** questions of the **FIVE** questions

Maximum marks for each part of a question are as shown

Use neat, large and well labeled diagrams where required

This paper consists of **THREE** printed pages

Question One

- a) Distinguish between wastewater treatment and water treatment **(2 marks)**
- b) Describe the following methods of wastewater treatment procedures;
(i) Phase separation
(ii) Oxidation
(iii) Chemical oxidation
(iv) Polishing
(v) Filtration **(10 marks)**
- c) Give **THREE** advantages of rainwater harvesting **(3 marks)**
- d) Briefly describe the following biogas digester plants:
(i) Continuous plants
(ii) Dry-fermentation plants **(5 marks)**

Question Two

- a) State **FIVE** ways in which farmers can implement nutrient management plans to mitigate pollution of water quality **(5 marks)**
- b) State and briefly describe **SIX** ways of properly maintaining a septic tank **(9 marks)**
- c) State **FOUR** things that should not be done when maintaining a septic tank **(4 marks)**
- d) What is a cesspool? **(1 mark)**
- e) State **FIVE** factors to be considered when designing an oxidation pond **(4 marks)**

Question Three

- a) Differentiate between a **SEPTIC TANK** and a **CESSPOOL** **(2 marks)**
- b) Describe the construction of an Earthfill dam **(10 marks)**
- c) State **FIVE** factors to be considered when designing a dam **(5 marks)**
- d) State **THREE** factors that may lead to dam failure **(3 marks)**

Question Four

- a) Distinguish between **PHYSICAL** and **CHEMICAL** water treatment **(2 marks)**
- b) Explain the following types of solid waste disposal methods:
(i) Incineration
(ii) Landfills

**(iii) Recycling
marks)**

(8

c) Describe briefly the following types of dams;

(i) Rockfill dams

(ii) Cofferdams

(iii) Arch gravity dams

(iv) Barrages

(10 marks)

Question Five

a) Describe the procedures of treating rain water from collection point to drinking

(8 marks)

b) State FIVE factors to be considered when designing a SEWAGE TREATMENT PLANT

(5 marks)

c) Sketch and label the following:

(7 marks)

(i) Septic tank

(ii) Soak pit

(7 marks)