



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

DEPARTMENT OF BUILDING & CIVIL ENGINEERING
**DIPLOMA IN BUILDING & CIVIL ENGINEERING (DBCE 11)
DIPLOMA IN CIVIL ENGINEERING (DC 11)**

ECV 2307: CIVIL ENGINEERING CONSTRUCTION III

SPECIAL/SUPPLEMENTARY EXAMINATION

SERIES: OCTOBER 2013

TIME ALLOWED: 2 HOURS

Instructions to Candidates:

You should have the following for this examination

- *Answer Booklet*
- *Scientific Calculator*

This paper consists of **FIVE** questions.

Answer any **THREE** questions

Maximum marks for each part of a question are as shown

This paper consists of **TWO** printed pages

Question One

- a) State **FOUR** reasons of treating sewage before disposal **(4 marks)**
- b) Outline the **FOUR** steps in treating sewage **(8 marks)**
- c) With the aid of a sketch, explain the sedimentation process when treating sewage. **(8 marks)**

Question Two

- a) With the aid of a sketch, outline the operation of a biological filter. **(10 marks)**
- b) Sketch and label the particulars of a dam. **(6 marks)**
- c) Define the following:
 - (i) Dam
 - (ii) Diaphragm
 - (iii) Reservoir
 - (iv) Coagulant**(4 marks)**

Question Three

- a) (i) List **FOUR** side effects of dams.
(ii) State **FOUR** uses of a reservoir **(8 marks)**
- b) Sketch and label the following types of earth dams:
 - (i) Diaphragm
 - (ii) Zoned**(8 marks)**
- c) With the aid of a sketch, outline the need of spillway gate. **(4 marks)**

Question Four

- a) With the aid of a sketch, explain the working of a slow sand filter for water treatment. **(10 marks)**
- b) Sketch the following discharge regulating structures
 - (i) Ogee spill way
 - (ii) Siphon spillway
 - (iii) Chute spillway
 - (iv) Shaft spillway**(10 marks)**

Question Five

- a) With the aid of a sketch, explain the disinfection of water in a water treatment process using chlorine compound. **(10 marks)**
- b) Explain the factors to consider when selecting a site for a dam **(10 marks)**

