



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

DEPARTMENT OF BUILDING & CIVIL ENGINEERING
DIPLOMA IN BUILDING & CIVIL ENGINEERING (DBCE 12J)

ECV 2303: CIVIL ENGINEERING CONSTRUCTION III

END OF SEMESTER EXAMINATION

SERIES: APRIL 2014

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

All questions carry equal marks

Maximum marks for each part of a question are as shown

This paper consists of **THREE** printed pages

Question One

- a) State the **THREE** objectives of a water supply scheme. **(3 marks)**
- b) Using sketches, describe the following distribution systems: **(8 marks)**
- (i) Radial system
 - (ii) Grid system
- c) Briefly explain the following water pre-treatment works: **(9 marks)**
- (i) Screening
 - (ii) Raw water storage
 - (iii) Pre-chlorination
 - (iv) Aeration

Question Two

- a) With the aid of a sketch, explain slow sand filter. **(8 marks)**
- b) With the aid of sketches, explain the following types of intake: **(10 marks)**
- (i) Submerged
 - (ii) Wet intake tower
- c) State **TWO** main classifications of intakes. **(2 marks)**

Question Three

- a) State the causes of failure of the following dams: **(8 marks)**
- (i) Earth-dam
 - (ii) Rock-fill dam
 - (iii) Concrete dam
- b) (I) With the aid of a sketch describe the construction of rock-fill dam.
- (II) State **THREE**
- (i) Advantages
 - (ii) Disadvantages of rock fill dam **(12 marks)**

Question Four

- a) (I) Define separate sewerage system:
- (II) State the:
- (i) Advantages
 - (ii) Disadvantages of separate sewerage system. **(6 marks)**
- b) State **FOUR** factors that determine choice of sewer materials **(4 marks)**
- c) With the aid of a sketch, explain the working of a septic tank **(10 marks)**

Question Five

- a) With the aid of sketch, explain the working of a biological filter. **(10 marks)**
- b) With the aid of a sketch, explain the following sewer tests:
- (i) Water test
 - (ii) Smoke test
- (10 marks)**