TECHNICAL UNIVERSITY OF MOMBASA

Faculty of Engineering & Technology

Department of Building & Civil Engineering

UNIVERSITY EXAMINATION FOR DIPLOMA IN:

DIPLOMA IN CIVIL ENGINEERING

DBCE/JANUARY 2014 (DBCE 14J)

ECV 2303: CIVIL ENGINEERING CONSTRUCTION III

END OF SEMESTER EXAMINATION

SERIES: MAY 2016

TIME ALLOWED: 2 HOURS

Instruction To Candidates;

You should have the following for this examination;

- *Answer booklet*
- *Pocket calculator*

*This paper consists of FIVE questions. Answer **ANY THREE** questions.*
Maximum marks for each part of a question are as shown

1. (a) State FIVE factors to be considered when selecting location of intake facility. (10 marks)

b. Describe the following stages in water treatment plant:-

i. Intake

ii. Screens

iii. Coagulation

iv. Sedimentation

v. Disinfection (10 marks)

2. (a) Outline FIVE factors which are considered in estimation of design period. (10 marks)

(b) Describe the following term as used in water quality estimation.

i. Design period

ii. Seasonal variation

iii. Daily variation

iv. Hourly variation (8 marks)

(c) State the Geometric progression equation used in determining future populations. (2 marks)

3. (a) Briefly describes the following types of dams;

i. Earth fill dam

ii. Concrete arch dam

iii. Rock fill dam

iv. Concrete gravity dam (10 marks)

(b) State FIVE factors to be considered when designing a dam. (5 marks)

c. Briefly describe the following:-

i. Drying beds

ii. Oxidation ponds (5 marks)

4. (a) i. Describe the following below ground drainage systems:-

a) Combine system
b) Totally Separate System
c) Partially separate.

(9 marks)

ii. State ONE advantage and ONE disadvantage of each of the above drainage system in a (1) above.

(6 marks)

(b) Sketch and label a Biogas digester.

(5 marks)

5. (a) State THREE principles of good drainage.

(6 marks)

(b) Outline SIX general principles which should govern the design of any drainage system.

(6 marks)

(c) Describe the following water distribution pipes:-

i. Trunk main

ii. Communication pipe

iii. Supply pipe

iv. Rising main

(8 marks)