TECHNICAL UNIVERSITY OF MOMBASA

Faculty of Engineering & Technology

DEPARTMENT OF BUILDING & CIVIL ENGINEERING

DIPLOMA IN BUILDING & CIVIL ENGINEERING (DBCE 12M)

ECV 2302: CIVIL ENGINEERING CONSTRUCTION II

END OF SEMESTER EXAMINATION
SERIES: APRIL 2014
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 of the **FIVE** questions
All questions carry equal marks
Maximum marks for each part of a question are as shown

Use neat, large and well labeled diagrams where necessary
This paper consists of **TWO** printed pages

Question One

a) Briefly describe the types, uses and requirements of the following railway components:
- **(i)** Sleepers
- **(ii)** Ballast **(10 marks)**

b) With the aid of sketches, explain the following features of railway:
- **(i)** Pot sleepers
- **(ii)** Plate sleepers **(10 marks)**

Question Two

a) State FOUR factors affecting choice of bridge systems **(4 marks)**

b) With the aid of a sketch, briefly describe suspension bridge. **(6 marks)**

c) Explain the following types of bridge components:
- (i) Abutments
- (ii) Anchorage
- (iii) Deck
- (iv) Arch
- (v) Bearing **(10 marks)**

Question Three

a) State the circumstances that permit the construction of causeway. **(4 marks)**

b) Using sketches, describe the construction of high level/submersible causeway. **(6 marks)**

c) (i) State the FOUR advantages of tunneling
(ii) With the aid of a sketch, describe drift method of tunneling. **(10 marks)**

Question Four

a) Define the following:
- **(i)** Sea wall
- **(ii)** Quay
- **(iii)** Wharf
- **(iv)** Berth **(10 marks)**

b) With the aid of sketches, describe the traditional types of breakwaters. **(10 marks)**

Question Five

a) With the aid of a sketch, describe the layers of flexible pavements. **(10 marks)**

b) State TWO: (i) Advantages
(ii) Disadvantages of rigid pavement **(4 marks)**

c) (i) State THREE functional of requirements of joints in concrete pavement.

(ii) Sketch and label expansion joint in concrete. **(6 marks)**