TECHNICAL UNIVERSITY OF MOMBASA

FACULTY OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF BUILDING AND CIVIL ENGINEERING

DIPLOMA IN BUILDING AND CIVIL ENGINEERING

ECV 2202: CIVIL ENGINEERING CONSTRUCTION I

END OF SEMESTER EXAMINATION

SERIES: APRIL 2016

TIME: 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 other **THREE** questions
Use neat, large and well labelled diagrams where required
Maximum marks for each part of a question are as shown
This paper consists of **TWO** printed papers.

ECV 2202: CIVIL ENGINEERING CONSTRUCTION I

QUESTION ONE

a) Define the term underpinning **(2 marks)**
b) Discuss four conditions that may lead to the need of underpinning. **(8 marks)**
c) With the aid of sketches briefly discuss the needle and pile method of wall underpinning **(10 marks)**

QUESTION TWO

a) Discuss the factors that may lead to settlements of foundations **(5 marks)**
b) Outline the functional requirements of foundations **(4 marks)**
c) With the aid of sketches explain two methods of transmitting pile loads into the ground **(6 marks)**
d) Discuss five applications of piles **(5 marks)**

QUESTION THREE

a) Discuss the cantilever sheet piles **(6 marks)**
b) With the aid of a well labelled diagram discuss the pneumatic caisson. **(10 marks)**
c) State the advantages of floating caissons. **(4 marks)**

QUESTION FOUR

a) State four factors to be considered during the design of retaining walls **(4 marks)**
b) Using sketches discuss the following
    i. Earth-fill cofferdams
    ii. Rock-fill cofferdams **(8 marks)**
c) Discuss the modes of failure of retaining walls **(8 marks)**

QUESTION FIVE

a) Outline advantages of labour based construction **(5 marks)**
b) Discuss six indicators of labour based approach**.** **(9 marks)**
c) With the aid of diagrams discuss how drainage in retaining walls can be achieved. **(6 marks)**