



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

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.



SGS ISO 9001:2008 Certified

QUESTION ONE

- a) With the aid of diagrams discuss how drainage in retaining walls can be achieved. **(8 marks)**
- b) State four factors to be considered during the design of retaining walls **(4 marks)**
- c) Discuss the modes of failure of retaining walls **(8 marks)**

QUESTION TWO

- a) With the aid of a well labelled diagram discuss the pneumatic caisson. **(10 marks)**
- b) Outline the functional requirements of foundations **(4 marks)**
- c) Discuss the factors that may lead to settlements of foundations **(6 marks)**

QUESTION THREE

- a) Classify piles according to the materials of construction **(4marks)**
- b) With the aid of sketches explain two methods of transmitting pile loads into the ground **(6 marks)**
- c) State the advantages of floating caissons. **(4 marks)**
- d) Using sketches discuss the following
- i. Earth-fill cofferdams
 - ii. Rock-fill cofferdams **(6 marks)**

QUESTION FOUR

- 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 FIVE

- a) Outline advantages of labour based construction **(4 marks)**
- b) Discuss six indicators of labour based approach. **(10 marks)**
- c) Discuss the cantilever sheet piles **(6 marks)**

