



MACHAKOS UNIVERSITY

University Examination 2018/2019

SCHOOL OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF BUILDING AND CIVIL ENGINEERING

FIRST YEAR SECOND SEMESTER EXAMINATION FOR

DIPLOMA IN CIVIL ENGINEERING

BCECD 216 CIVIL ENGINEERING CONSTRUCTION I

DATE: 8/5/2019

TIME: 8:30 – 10:30 AM

INSTRUCTIONS TO CANDIDATES

- This paper comprises of five questions.
- Question one is compulsory and carries 30 marks
- Answer any two questions which carry 20 marks.

QUESTION ONE (COMPULSORY) (30 MARKS)

- a) Define the term foundation (2 marks)
- b) State two functional requirements of a good foundation (4 marks)
- c) Make a neat sketch of a combined pad and strip foundation (6 marks)
- d) Outline FIVE reasons as to why underpinning is necessary (10 marks)
- e) Outline FOUR design principles to be observed when constructing retaining walls. (8 marks)

QUESTION TWO (20 MARKS)

Sketch and briefly explain any FOUR types of retaining walls.

QUESTION THREE (20 MARKS)

- a) Outline any FOUR steps to be undertaken before underpinning is commenced. (10 marks)
- b) Outline FIVE factors dependent on the number and length of bays in wall underpinning (10 marks)

QUESTION FOUR (20 MARKS)

- a) Explain the term “coffer dam” (2 marks)
- b) Outline FOUR factors to be considered in the design of double- wall coffer dams (8 marks)
- c) State and explain FIVE types of coffer dams (10 marks)

QUESTION FIVE (20 MARKS)

- a) Differentiate between a caisson and a coffer dam. (4 marks)
- b) Name and sketch FOUR types of caissons. (16 marks)