



MACHAKOS UNIVERSITY

University Examinations for 2020/2021

SCHOOL OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF BUILDING AND CIVIL ENGINEERING

SECOND YEAR FIRST TERM EXAMINATION FOR

DIPLOMA IN CIVIL ENGINEERING

2707 / 203 / C: CIVIL ENGINEERING CONSTRUCTION AND DESIGN

DATE: 6/9/2021

TIME: 2:30 – 5:30 AM

INSTRUCTIONS:

- This paper consists of **Five** questions.
- Answer **ALL** questions
- Maximum marks for each part of the question are as shown.

1.
 - a) State **TWO** conditions which necessitate the use of a raft foundation. (4 marks)
 - b) Distinguish between shallow and deep foundations. (4 marks)
 - c) With the aid of labelled sketches, describe **THREE** types of shallow foundations. (12 marks)
2.
 - a) Explain **FOUR** factors that influence the selection of a method of excavation. (8 marks)
 - b) With the aid of labelled sketches, explain **FOUR** methods of excavating deep foundations. (12 marks)
3.
 - a) Illustrate **THREE** requirements of the building code regarding strip foundations. (9 marks)
 - b) Outline the procedure of constructing a concrete swimming pool. (11 marks)
4.
 - a) State **FOUR** risks associated with basements. (4 marks)
 - b) Explain **THREE** methods of constructing basement walls. (6 marks)
 - c) Using sketches, distinguish between breasting and mooring dolphins. (10 marks)

5.

- a) Sketch and label a vertical section through a composite breakwater. (5 marks)
- b) With the aid of sketches, distinguish between breakwaters and seawalls. (6 marks)
- c) Illustrate *THREE* methods of installing tanking in basement walls. (9 marks)