



MACHAKOS UNIVERSITY

University Examinations for 2020/2021 Academic Year

SCHOOL OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF BUILDING AND CIVIL ENGINEERING

THIRD YEAR FIRST SEMESTER EXAMINATION FOR

DIPLOMA IN CIVIL ENGINEERING

BCE CD 309: CIVIL CONSTRUCTION ENGINEERING II

DATE: 16/8/2021

TIME: 8.30-10.30 AM

INSTRUCTIONS

- This paper comprises of five questions. Answer **three** questions
- Question one is **compulsory** and carry 30 marks
- Answer any other **two** questions.

QUESTION ONE (COMPULSORY) (30 MARKS)

- Make neat sketches of any two construction joints used in road construction. (6 marks)
- Explain the meaning of the term culvert. (4 marks)
- Make a neat sketch of a steel trough sleeper. (6 marks)
- Outline FIVE advantages of using steel trough sleepers. (10 marks)
- Briefly explain the meaning of the term dredging. (4 marks)

QUESTION TWO (20 MARKS)

- Outline FOUR main processes of road construction. (8 marks)
- Name and sketch any FIVE types of culverts. (10 marks)
- Briefly explain the meaning of the term water treatment. (2 marks)

QUESTION THREE (20 MARKS)

- a) Briefly explain the following water treatment processes (18 marks)
- i. Screening
 - ii. Plain sedimentation
 - iii. Filtration
 - iv. Disinfection
 - v. Chlorination
 - vi. softening
- b) Name any two chemicals present in hard water. (2 marks)

QUESTION FOUR (20 MARKS)

Name and sketch any FOUR dredging equipment and briefly explain how they operate.

QUESTION FIVE (20 MARKS)

- a) Outline any FIVE functions of sleepers. (10 marks)
- b) Make a neat sketch of a fish plate and name all the parts. (6 marks)
- c) Explain the meaning of the term “gauge” and state TWO types of gauges giving their widths. (4 marks)