



**MASINDE MULIRO UNIVERSITY OF
SCIENCE AND TECHNOLOGY
(MMUST)**

MAIN CAMPUS

**UNIVERSITY EXAMINATIONS
2019/2020 ACADEMIC YEAR**

FIFTH YEAR SECOND SEMESTER EXAMINATIONS

**FOR THE DEGREE
OF
BACHELOR OF SCIENCE IN CIVIL AND STRUCTURAL
ENGINEERING**

COURSE CODE: CSE 552

**COURSE TITLE: GROUNDWATER ABSTRACTION AND
RECHARGE**

DATE: THURSDAY 22ND OCTOBER 2020 TIME: 8.00 – 10.00 AM

INSTRUCTIONS:

1. This paper contains FOUR questions
2. Answer question ONE (compulsory) and any other TWO question
3. Marks for each question are indicated in the parenthesis.
4. Examination duration is **2 Hour**

MMUST observes ZERO tolerance to examination cheating

This Paper Consists of 2 Printed Pages. Please Turn Over.

QUESTION 1 [30 Marks]

- (a) Discuss some of the concerns in using Artificial Recharge in Kenya? and is it sustainable [10 marks]
- (b) Discuss the Five types of Soil Aquifer Treatment (SAT) [10 Marks]
- (c) Briefly discuss Galleries as used in groundwater abstractions [10 Marks]

QUESTION 2 [20 Marks]

Discuss the causes of failure of wells and bore holes, and the rehabilitation methods that can be employed [20marks]

QUESTION 3 [20 Marks]

- (a) Discuss the environmental effects of groundwater drilling and abstraction [10 Marks]
- (b) Briefly discuss the Basin Method of Artificial recharge [10 Marks]

QUESTION 4 [20 Marks]

- (c) Discuss the difference between jetted wells and bored wells [6 marks]
- (d) Discuss in detail the impact of Climate Change on Groundwater recharge and abstraction [14 Marks]