



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

MAIN CAMPUS

**UNIVERSITY EXAMINATIONS
2019/2020 ACADEMIC YEAR**

FOURTH YEAR FIRST SEMESTER EXAMINATIONS

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

COURSE CODE: CSE 451

COURSE TITLE: WATER RESOURCES MANAGEMENT

DATE: TUESDAY 21ST JANUARY 2020 TIME: 12.00 – 2.00 PM

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) It's the absolute role of the government to create enabling environment for all stakeholders including investors for the successful implementation of Integrated Water Resources Management programmes. Discuss [20 marks]
- (b) Sustainable development will not be achieved without a water secure world. This is in line with Strategic Development Goals 6 and 3. Discuss. [10 Marks]

QUESTION 2 (20 Marks)

- (a) The deterioration of Water quality world over is of great concern, and more importantly its effects in the developing countries. Discuss including key water quality indicators. [10 marks]
- (b) Briefly discuss the various sources of Groundwater pollution in a watershed [10 Marks]

QUESTION 3 (20 Marks)

- (a) Discuss the need of and objectives of an Integrated Water Resources Management approach in watersheds (IWRM) [10 marks]
- (b) Discuss in detail the Environmental Issues to be considered in Water Resources Engineering planning and management [10marks]

QUESTION 4 (20 Marks)

- (a) Briefly discuss the economic Instruments used for regulation in IWRM [10 marks]
- (b) Briefly discuss the Transboundary Water Management as an International Public Good [10marks]