



TECHNICAL UNIVERSITY OF MOMBASA

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SCHOOL OF ENGINEERING AND TECHNOLOGY  
DEPARTMENT OF BUILDING & CIVIL ENGINEERING  
**UNIVERSITY EXAMINATION FOR:**

BACHELOR OF SCIENCE IN CIVIL ENGINEERING  
**ECV 4513 : WATER RESOURCES ENGINEERING 11**

SPECIAL/SUPPLEMENTARY EXAMINATION  
**SERIES: MARCH 2025**

**TIME: 2 HOURS**

**PAPER B**

**Instructions to Candidates**

You should have the following for this examination

*-Answer Booklet, examination pass and student ID*

This paper consists of **five** questions.

Attempt question ONE (Compulsory) and any other TWO questions.

**Do not write on the question paper.**

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**QUESTION ONE (COMPULSORY) 30 Marks**

- a) Explain four types of drought (12 marks)
- b) Explain the importance of Water Law in water resources management (10 marks)
- c) Outline the advantages and disadvantages of ground water as a reservoir (8 marks)

**ANSWER ANY TWO QUESTIONS FROM THIS SECTION**

**QUESTION TWO (20 Marks)**

- a) Name and explain the water harvesting methods (12 marks)
- b) Explain four severe drought (8 marks)

**QUESTION THREE (20 Marks)**

- a) Write on
  - i) Water self-sufficiency versus water as a social good
  - ii) Integration of land and water management

- iii) Integration of surface water and ground water (12 marks)
- b) Explain the roles of government in drought management (8 marks)

**QUESTION FOUR (20 Marks)**

- a) Explain the concerns of integrated water resources management (12 marks)
- b) Outline the challenges faced by integrated water resources managers (8 marks)

**QUESTION FIVE (20 Marks)**

- a) Five the drought mitigation tools (10 marks)
- b) Sketch the layered disaster risk management including finance from different sources (10 marks)