



TECHNICAL UNIVERSITY OF MOMBASA

Faculty of Engineering and Technology

Department of BUILDING & Civil engineering

UNIVERSITY EXAMINATION FOR: BACHELOR OF SCIENCE IN CIVIL ENGINEERING

ECV 4513 : WATER RESOURCES ENGINEERING II

END OF SEMESTER EXAMINATION

SERIES: DECEMBER 2023

TIME: 2 HOURS

DATE: 15 Apr 2025

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.

SPECIAL /SUPPLIMENTARY EXAM

QUESTION ONE (COMPULSORY)

QUESTION 1 (30 MARKS)

- (a) Explain what IWRM is and discuss with the aid of well labelled diagrams, the main components of the IWRM cycle. (6 mks)
- (b) With aid of a well labeled sketch, explain three basic pillars upon which IWRM approach is based (8 mks)
- (c) Explain the **benefits of Integrated Water Resources Management to at least three different sectors** (10 marks)
- (d) Explain six specific functions of the Water Services Regulatory Board (WASREB): (6 Marks)

ANSWER ANY TWO QUESTIONS FROM THIS SECTION

QUESTION 2 (20 MARKS)

- (a) Explain how the agricultural sector is affected by water use from other sectors (12 marks)
- (b) Discuss the responsibilities of Water Works Development Agencies (WWDAs) (8 Marks)

QUESTION 3 (20 MARKS)

- a) Discuss the objects of the water sector trust fund (WSTF) (10Mrks)
- b) Discuss issues and challenges in IWRM where a **Decision Support Systems (DSS)** can contribute to management processes.(10 Marks)

QUESTION 4 (20 MARKS)

- a) Explain the barriers to implementing IWRM in the agricultural sector (10 marks)
- b) Explain the benefits of IWRM to the water supply and sanitation sector (10 Marks)

QUESTION 5 (20 MARKS)

- a) Explain the function Basin Water Resource Committees (8 Marks)
- b) Explain the functions of the National Government and the role of County Government in water and Sanitation services (12 Marks)

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