



TECHNICAL UNIVERSITY OF MOMBASA
**Faculty of Engineering &
Technology**

DEPARTMENT OF BUILDING & CIVIL ENGINEERING
UNIVERSITY EXAMINATION FOR BACHELOR OF SCIENCE IN CIVIL
ENGINEERING (BSCE 10 & 11B)

ECE 2402: HYDROLOGY

SPECIAL/SUPPLEMENTARY EXAMINATION

SERIES: MARCH 2014

TIME ALLOWED: 2 HOURS

Instructions to Candidates:

You should have the following for this examination

- Answer Booklet

This paper consists of **FIVE** questions.

Answer question **ONE (COMPULSORY)** in section **A** and any other **TWO** questions from section **B**

Maximum marks for each part of a question are as shown

This paper consists of **TWO** printed pages

SECTION A

Question One (Compulsory)

- a) Explain the hydrologic cycle. Use illustrations **(10 marks)**
- b) Define hydrology **(3 marks)**
- c) Define precipitation **(3 marks)**
- d) Outline the main types of precipitation **(8 marks)**
- e) Explain:
 - (i) Evaporation

(ii) Transpiration

(6 marks)

SECTION B (Attempt any TWO questions)

Question Two

- a) Briefly discuss the FOUR types of uplift mechanisms responsible for the formation of precipitation (8 marks)
- b) Outline the factors necessary for precipitation to occur (6 marks)
- c) Explain return period in relation to storms and flood events (6 marks)

Question Three

- a) Define a flood (2 marks)
- b) Explain a design storm (4 marks)
- c) Outline the factors contributing to floods (4 marks)
- d) Briefly discuss measures for reducing/mitigating flood damages (10 marks)

Question Four

- a) What is pan evaporation (4 marks)
- b) Briefly discuss method for determination of rate of evaporation (8 marks)
- c) Outline the TWO methods for presentation of rainfall data (8 marks)

Question Five

- a) Define:
 - (i) Infiltration
 - (ii) Percolation
 - (iii) Permeability(4 marks)
- b) Outline the THREE ground water hydrologic zones (6 marks)
- c) Outline the main factors affecting runoff (10 marks)