



TECHNICAL UNIVERSITY OF MOMBASA

FACULTY OF ENGINEERING AND TECHNOLOGY

DEPARTMENT BUILDING AND CIVIL ENGINEERING

UNIVERSITY EXAMINATION FOR:

BSC IN CIVIL ENGINEERING

ECE 2513: WATER RESOURCE ENGINEERING II

END OF SEMESTER EXAMINATION

SERIES: APRIL 2016

TIME: 2 HOURS

DATE: 13 May 2016

Instructions to Candidates

You should have the following for this examination

-Answer Booklet, Drawing Instruments, Scientific calculator, examination pass and student ID

This paper consists of five questions. Attempt question ONE (Compulsory) and any other TWO questions.

Question One (Compulsory)

- a) Write the formula for the required storage of a dam and explain the elements that are involved **(3 marks)**
- b) When water is considered a commodity of considerable value **(3 marks)**
- c) Enumerate the rights the owner of land adjacent to a stream is entitled to receive **(3 marks)**
- d) The riparian owner is protected against any adverse effects by the upstream owner, describe them **(10 marks)**
- e) Describe the serious defects the riparian doctrine has in modern society **(4 marks)**
- f) Enumerate the parameters to be measured in water quality **(5 marks)**
- g) What other additional information shall be needed if the objective is to evaluate the influence of pollution control measures on the cost of water treatment **(2 marks)**

Question Two

- a) Describe the two steps in an engineering economy study (5 marks)
- b) Describe in your understanding the meaning of integrated water resource planning and management (15 marks)

Question Three

- a) An aquifer serves two functions describe them (5 marks)
- c) Define transmissibility T (5 marks)
- d) Optimization models for hydraulic management for ground water have been developed based on three approaches: describe them (10 marks)

Question Four

- a) Describe the main objective of flood control (3 marks)
- b) Enumerate the five basic subsystems which characterize the urban drainage system (10 marks)
- c) Describe three assumptions and constraints used in storm water design (7 marks)

Question Five

- a) Describe as to how flood control is normally done (10 marks)
- b) What is your understanding of flood plain management? (7 marks)
- c) Who is a riparian farmer? (3 marks)