



KENYATTA UNIVERSITY

UNIVERSITY EXAMINATIONS 2011/2012

SECOND SEMESTER EXAMINATION FOR THE DEGREE OF BACHELOR OF CIVIL ENGINEERING

ECV 512: WATER RESOURCES MANAGEMENT II

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DATE: WEDNESDAY 18TH APRIL 2012

TIME: 4.30 P.M. – 6.30 P.M.

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INSTRUCTIONS

This question paper contains 5 questions. Answer Question One & Any Other Two Questions

QUESTION ONE

- a) State and discuss the four principles which laid the foundation for guiding integrated management of the world's water resources.
(12 marks)
- b) With the aid of a sketch describe the cycle for development and adjusting an Integrated Water Resources Management Plan.
(13 marks)
- c) State factors contributing to droughts in Kenya.
(5 marks)

QUESTION TWO

- a) Discuss key issues in water management.
(10 marks)
- b) What is Integrated Water Resources Management?
(2 marks)
- c)
 - i. State key organizations for managing the integrated water resources management planning process.
 - ii. Give the roles and responsibilities of each organization stated in (i) above.
(8 marks)

QUESTION THREE

- a) Describe the potential drought impacts on:
 - i. Water Supply
 - ii. Water Quality
 - iii. Aquatic Environment

(13 marks)

- b) Discuss water harvesting and conservation techniques in arid areas in areas of Kenya

(7 marks)

QUESTION FOUR

- a) State the challenges in the Kenya water sector which contributed to the development of National Water Policy.

(6 marks)

- b) Water supply administration in Kenya is carried out under the Water Act 2002. Discuss with the aid of a diagram the institutional framework provided under the Water Act 2002 giving the roles of each institution.

(14 marks)

QUESTION FIVE

- a) Describe national water harvesting and storage policy objectives for Kenya.

(8 marks)

- b) Describe the steps which can be followed in an engineering economy study.

(4 marks)

- c) Water projects X, Y and Z have costs of US \$ 130, US \$ 180 and US \$150 respectively. The benefit – cost ratios are 1.3, 1.8 and 1.9. Which of these projects would you select and why?

(8 marks)