



MACHAKOS UNIVERSITY

University Examinations for 2018/2019

SCHOOL OF ENVIRONMENT AND NATURAL RESOURCE MANAGEMENT

DEPARTMENT OF ENVIRONMENTAL SCIENCES

SECOND YEAR SUPPLEMENTARY EXAMINATION FOR

BACHELOR OF ENVIRONMENTAL STUDIES AND COMMUNITY DEVELOPMENT

ECD 205: PRINCIPLES OF INTEGRATED WATERSHED MANAGEMENT

DATE: 26/9/2019

TIME: 2:00 – 4:00 PM

INSTRUCTIONS: Answer question ONE and any other TWO questions

QUESTION ONE (30 MARKS)

- a) Explain the following terms
 - i) Watershed (2 marks)
 - ii) Integrated watershed management (IWM) (2 marks)
 - iii) Participatory watershed management (2 marks)
 - iv) Process-based hydrological models (2 marks)
 - v) Decision Support Systems (2 marks)
- b) Citing suitable examples, discuss the significance of wastewater recycling in effective watershed management urban areas (10 marks)
- c) Citing relevant examples, explain the significance of stakeholder participation in watershed planning and management (10 marks)

QUESTION TWO (20 MARKS)

Using relevant examples, discuss the indicators that can be used in the management of Nairobi River ecosystem

QUESTION THREE (20 MARKS)

- a) Discuss the key steps in the watershed modeling process as used in Integrated Watershed Management. (10 marks)
- b) Explain the key factors to consider in developing a sampling plan for collection of new data for watershed planning and management (10 marks)

QUESTION FOUR (20 MARKS)

Citing relevant examples, explain the significance of following factors in the planning and management of watersheds

- i) Geographic information system (5 marks)
- ii) Spatial decision support systems (5 marks)
- iii) Remote sensing (5 marks)
- iv) Watershed models (5 marks)

QUESTION FIVE (20 MARKS)

Citing relevant examples, discuss the key steps in the development and implementation of watershed management plans.