



MACHAKOS NIVERSITY

University Examinations for 2018/2019

SCHOOL OF ENVIRONMENT AND NATURAL RESOURCE MANAGEMENT

DEPARTMENT OF ENVIRONMENTAL SCIENCES

FIRST YEAR SUPPLEMENTARY EXAMINATION FOR

BACHELOR OF ENVIRONMENTAL RESOURCE CONSERVATION

ERC 104: PRINCIPLES OF BIOLOGY

DATE: 25/9/2019

TIME: 2:00 – 4:00 PM

INSTRUCTIONS: Answer question ONE and TWO other questions

QUESTION ONE (COMPULSORY) (30 MARKS)

- a) Distinguish with examples between ecosystem and habitat (10 marks)
- b) Explain why natural ecosystems are likely to have more species diversity than a simplified/manipulated ecosystems that undergo moderate disturbance. (10 marks)
- c) Discuss the possible effects if one organism in a food web becomes unavailable. (10 marks)

QUESTION TWO (20 MARKS)

- a) Discuss the energy flow in an ecosystem (10 marks)
- b) Explain the principle of competitive exclusion and how the organisms deal with competition in an ecosystem. (10 marks)

QUESTION THREE (20 MARKS)

Write short notes on the following

- a) Ecological succession (5 marks)
- b) Carbon cycle (5 marks)
- c) Photosynthesis (5 marks)
- d) Ecological Pyramid (5 marks)

QUESTION FOUR (20 MARKS)

Describe the characteristics of the following biomes and explain what would happen if they are converted to agricultural farms.

- a) Tropical rain forests (10 marks)
- b) Savannah grassland (10 marks)

QUESTION FIVE (20 MARKS)

The amount of water in the world is fixed on a human time scale. Discuss the water cycle and how it is disrupted by human activities.