



MACHAKOS UNIVERSITY

University Examinations For 2018/2019 Academic Year

SCHOOL OF ENVIRONMENT AND NATURAL RESOURCES MANAGEMENT

DEPARTMENT OF ENVIRONMENTAL SCIENCES

SECOND YEAR SECOND SEMESTER EXAMINATION FOR

BACHELOR OF ENVIRONMENTAL STUDIES AND COMMUNITY DEVELOPMENT)

BACHELOR OF ENVIRONMENTAL SCIENCE, ENVIRONMENTAL STUDIES

(RESOURCE CONSERVATION)

ENS 241: BIODIVERSITY CONSERVATION

DATE: 29/4/2019

TIME: 11:00 – 1:00 PM

INSTRUCTIONS: Answer question ONE and TWO other questions

QUESTION ONE (COMPULSORY) (30 MARKS)

- a) Explain the term biodiversity? (3 marks)
- b) (i) Using the Simpson's Diversity Index, calculate the species diversity for the two sites as shown in the table below. (10 marks)

	Numbers of individuals	
Species	Site 1	Site 2
A	5	18
B	12	2
C	6	0
D	1	1
E	2	7

- (ii) Which of the two sites has the highest diversity? (2 marks)
- c) Explain the relationship between size, abundance and diversity of species. (3 marks)
- d) What group of organisms has the largest number of species? (2 marks)

- e) Outline certain cases where and when preservation of natural environments is justifiable. (5 marks)
- f) Explain why species are introduced in an area. (5 marks)

QUESTION TWO (20 MARKS)

- a) Suppose you are having dinner with a friend who orders a fish species that is endangered. Critically explain whether you will support the order. (5 marks)
- b) Outline the species at highest risk of climate change. (5 marks)
- c) Discuss critically the controversy behind adoption of Genetically Modified Products as a means of achieving food security in developing countries (10 marks)

QUESTION THREE (20 MARKS)

Invasive species cause change in bio-geographic patterns.

- a) Giving three local examples of alien species invasion/introduction problem in Kenya, explain why alien plant species have become increasingly invasive in Africa? (15 marks)
- b) Outline five characteristics that make the habitats vulnerable to invasion by this species. (5 marks)

QUESTION FOUR (20 MARKS)

Discuss the three objectives promoted in the Convention for Biological Diversity and how they are being enhanced in Kenya.

QUESTION FIVE (20 MARKS)

Discuss the challenges facing sustainable management of biological resources in Kenya outlining the incentive structures necessary to inform decision makers in internalising the full value of biodiversity.