



MACHAKOS UNIVERSITY

University Examinations 2018/2019

SCHOOL OF PURE AND APPLIED SCIENCES

DEPARTMENT OF BIOLOGICAL SCIENCES

FOURTH YEAR SPECIAL/SUPPLEMENTARY EXAMINATION FOR

BACHELOR OF EDUCATION (SCIENCE)

BACHELOR OF ENVIRONMENTAL SCIENCES

ERC 407: BIOLOGICAL CONTROL

DATE: 27/9/2019

TIME: 2.0-4.00 PM

INSTRUCTIONS

1. Answer Question 1 (compulsory) and **any two** questions in Section B.
2. Use clean well labelled diagrams wherever appropriate.

SECTION A

Question 1. –

- a) Define the term biological control and highlight at least three economic characteristics of Biological controls (3 marks)
- b) Briefly describe three features of highly effective biological controls (3 marks)
- c) Highlight the positive and negative aspects on the use of Fishes and Bacteria as agents of Biological control giving an examples in each case (3 marks)
- d) Briefly explain how conservation and biodiversity can be used in Biological controls (3 marks)
- e) Using case histories List some of the past mistakes in biological control that can be used to predict the future of biocontrol (3 marks)
- f) Distinguish between Cross protection and induced resistance as methods in biological control (3 marks)
- g) Name any six Biological information required for vector control (3 marks)
- h) Describe the pathosystem concept that leads to “damage (3 marks)
- i) Distinguish between Pest Injury versus pest Damage (3 marks)
- j) Draw a graph of a working concept that leads to pest damage of the plant (3 marks)

- k) Define the following terminologies in the context of ecosystem Organization and Succession (3 marks)
- a) Population
 - b) Guild
 - c) Community

SECTION B

QUESTION TWO

You have just been employed by the National environmental Mangement Authority to draft a document containing how you will measure environmental impacts and minimise the risks / benefits of biocontrol. Please evaluate your salient points (20 marks)

QUESTION THREE

Discuss any known genetically engineered agent of biological control (20 marks)

QUESTION FOUR

Discuss in detail the agricultural, environmental and medical benefits of Biological control (20 marks)