



MACHAKOS UNIVERSITY

University Examinations for 2016/2017

SCHOOL OF AGRICULTURE AND NATURAL RESOURCES MANAGEMENT

DEPARTMENT OF AGRIBUSINESS MANAGEMENT AND TRADE

THIRD YEAR SECOND SEMESTER EXAMINATION FOR BACHELOR OF SCIENCE

IN AGRICULTURAL EDUCATION AND EXTENSION

KST 301: AGRICULTURAL ENTOMOLOGY

Date: 8/12/2016

Time: 2:00 – 4:00 PM

INSTRUCTIONS:

Answer ALL questions in section A and ANY TWO questions in section B

SECTION A: 30 MARKS

QUESTION ONE (30 MARKS)

- (a) Explain THREE uses of insect life-tables data. (6 marks)
- (b) With the help of a line graph show the difference between exponential and logistic growth curves of insect population. (4 marks)
- (c) Show which of the two growth types occur mostly for the cabbage pest referred to as diamondback moth when no control measure is applied. (5 marks)
- (d) Explain the THREE egg development types in insect reproduction. (6 marks)
- (e) Explore the role of the THREE hormones involved in insect molting process stating the role of each one. (3 marks)
- (f) State any THREE principles observed in ecosystem preservation in pest management (3 marks)
- (g) State THREE advantages of integrated pest management (IPM) in most pest control measures as opposed to pure chemical methods. (3 marks)

SECTION B: 40 MARKS

QUESTION TWO (20 MARKS)

- (a) Explain SIX main insect Orders of economic importance in crop production. (12 marks)
- (b) Explore reasons for pest assessment in integrated pest management (8 marks)

QUESTION THREE (20 MARKS)

- (a) Explain FIVE control methods of pests on crops in different systems. (10 marks)
- (b) Explain TWO disadvantages of the FIVE pest management options in (a) above. (10 marks)

QUESTION FOUR (20 MARKS)

- (a) Give TWO examples of insect species of holometabolous and another TWO hemimetabolous metamorphosis, showing life stage cohorts (4 marks)
- (b) Explain the difference of the life stages of hemimetabolous and holometabolous insect species. (6 marks)
- (c) Explain the roles of prothoracicotropic hormone (PTTH) in insect molting process. (10 marks)

QUESTION FIVE (20 MARKS)

- (a) Maize crop production is constrained by stem borer pest in varied agro ecological zones. Study **Figure 1** below and analyze effect of “Bulldock” and biocide insecticides in the four production sites of Katumani, Embu, Mtwapa and Kiboko. (12 marks)

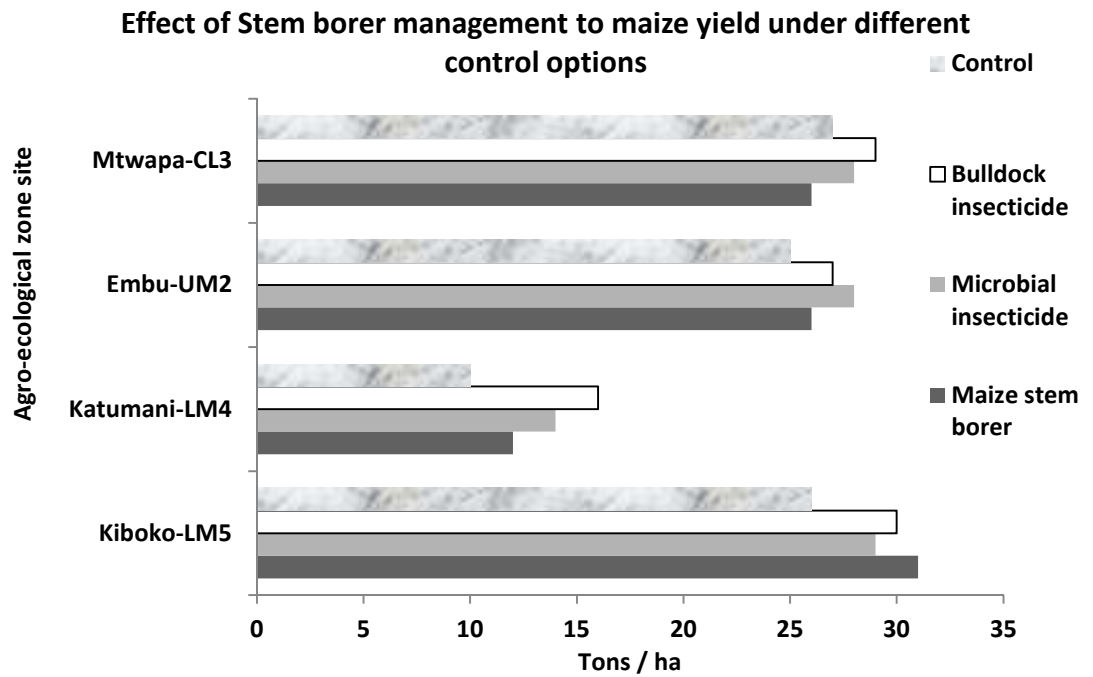


Figure 1: Maize stem borer growth under effect of insecticides and environmental factors

- (b) Referring to suitable environmental factors state which other conditions could have led to highest maize yield in Kiboko than Embu. (8 marks)