



MACHAKOS UNIVERSITY

University Examinations for 2018/2019 Academic Year

SCHOOL OF AGRICULTURAL SCIENCES

DEPARTMENT OF AGRICULTURAL EDUCATION AND EXTENSION

..... YEAR SPECIAL/SUPPLEMENTARY EXAMINATION FOR

BACHELOR OF SCIENCE IN AGRICULTURAL EDUCATION AND EXTENSION

KST 301: AGRICULTURAL ENTOMOLOGY

DATE:

TIME:

INSTRUCTIONS:

Answer question one and two other questions

SECTION A: COMPULSORY: (30 MARKS)

QUESTION ONE

- a) Explain THREE uses of insect life-tables data (6 marks)
- b) (i) With the help of a line graph show the difference between exponential and logistic growth curves of insect populations (4 marks)
(ii) Show which of the two growth types occurs mostly for the cabbage pest referred to as diamondback moth when no control measure is applied (5 marks)
- c) Explain THREE egg development types in insect reproduction (6 marks)
- d) Describe the difference between parasitoids, pollinators and predators giving an example of each (3 marks)
- e) Explain any THREE principles observed in ecosystem preservation in pest management (3 marks)
- f) Explain THREE advantages of integrated pest management (IPM) in most pest control measures as opposed to pure chemical methods (3 marks)

SECTION B: ANSWER ANY TWO QUESTIONS (40 MARKS)

QUESTION TWO

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

QUESTION THREE

- a) Explain FIVE methods of controlling pests in crop production systems (10 marks)
- b) Explain TWO disadvantages of the FIVE pest management options in (i) above. (10 marks)

QUESTION FOUR

- a) Describe 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

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

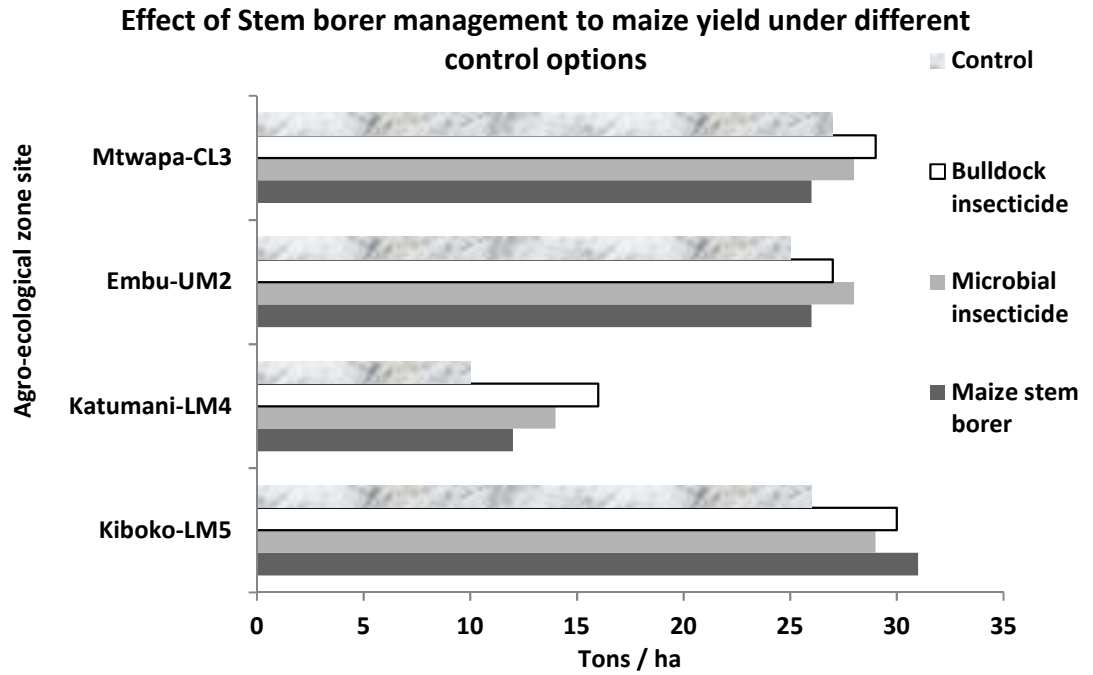


Figure 1: Maize stem borer growth under effect of insecticides and environmental factors

- b) Explain FOUR environmental factors that conditions could have led to highest maize yield in Kiboko than Embu. (8 marks)