



MACHAKOS UNIVERSITY

University Examinations 2022/2023 academic Year

SCHOOL OF PURE AND APPLIED SCIENCES

DEPARTMENT OF BIOLOGICAL SCIENCES

THIRD YEAR SECOND SEMESTER EXAMINATION FOR

BACHELOR OF SCIENCE (AGRICULTURAL EDUCATION AND EXTENSION)

KST301 UNIT NAME AGRICULTURAL ENTOMOLOGY

DATE:

TIME:

INSTRUCTIONS

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

QUESTION (COMPULSORY) (30 MARKS)

- a) Explain the important items on the label of an insecticide for use in Kenya (3 marks)
- b) Explain the physical features of a typical insect mouthparts (3 marks)
- c) Explain “insect diapause” and its significance (3 marks)
- d) Characterize hemimetabolous metamorphosis in insects (3 marks)
- e) Describe the excretory system of insects (3 marks)
- f) Explain the mode of action of the insecticide DDT (3 marks)
- g) With examples, outline the characteristics of the order Homoptera (3 marks)
- h) Explain the economic importance of the *Sitotroga cerealella* (3 marks)
- i) Explain how use of insecticide treated bednets assist in managing malaria (3 marks)
- j) Citing specific examples, differentiate between Pyrethrin and pyrethroid (3 marks)

QUESTION TWO (20 MARKS)

- a) Explain the modification of the mouthparts of a coleopteran to suit its function (10 marks)
- b) Discuss why *Heliothis armigera* is an insect pest of agricultural concern (10 marks)

QUESTION THREE (20 MARKS)

Discuss the role of fumigation in the management of insect pest problems.

QUESTION FOUR (20 MARKS)

- a) Discuss use of SIT in the management of a named pest of a horticultural product (10 marks)
- b) Trace the route taken by insect sperms from insemination of a female to fertilisation (10 marks)

QUESTION FIVE (20 MARKS)

- a) Discuss the structure of the female reproductive system of an insect (10 marks)
- b) Discuss the economic importance of a specific banana weevil (10 marks)