



1st SEMESTER 2008/2009

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**UNIVERSITY OF SWAZILAND
SUPPLEMENTARY EXAMINATION PAPER**

**PROGRAMMES: BACHELOR OF SCIENCE IN AGRONOMY YEAR 2,
BACHELOR OF SCIENCE IN HORTICULTURE YEAR 2,
AND BACHELOR OF SCIENCE IN AGRICULTURAL
EDUCATION YEAR 2**

TITLE OF PAPER: AGRICULTURAL ENTOMOLOGY

COURSE CODE: CP 201

TIME ALLOWED: TWO (2) HOURS

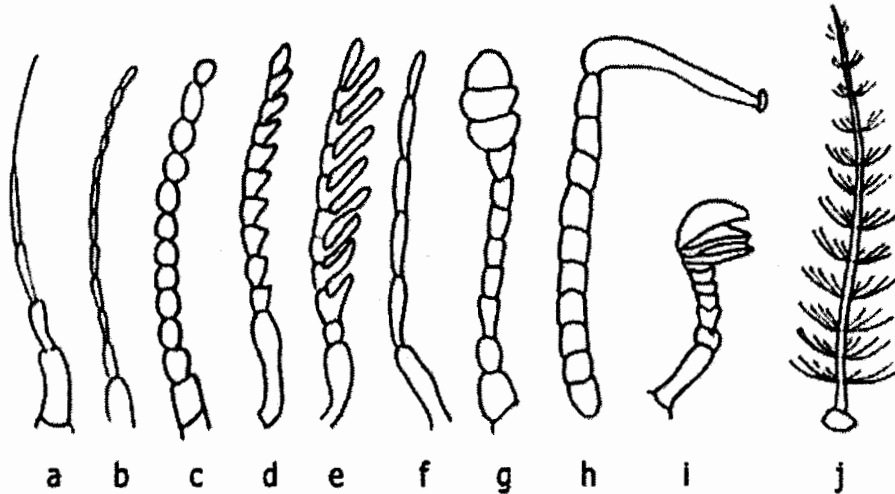
- INSTRUCTIONS:**
- 1. THIS PAPER HAS FIVE (5) QUESTIONS**
 - 2. ANSWER QUESTION 1 AND ANY OTHER THREE (3) QUESTIONS**
 - 3. ALL QUESTIONS CARRY EQUAL MARKS OF TWENTY FIVE (25). MARKS FOR SUBSECTIONS ARE GIVEN IN BRACKETS WHERE APPLICABLE**

**THIS PAPER IS NOT TO BE OPENED UNTIL PERMISSION HAS BEEN
GRANTED BY THE CHIEF INVIGILATOR**

Instruction:- Answer Question 1 and any other three (3) questions

Question 1

A. Give the names of the antennae labelled (a) – (j) below (10 Marks)



B. To which insect Order does each the following belong?

- (a) Springtails
- (b) Silverfish
- (c) Ladybird beetles
- (d) Butterflies and moths
- (e) Scorpionflies
- (f) Cicadas
- (g) Cockroaches
- (h) Earwigs
- (i) Mayflies
- (j) Stoneflies
- (k) Dog fleas
- (l) Ants
- (m) Twisted-wing parasites

(n) Bees

(o) Blister beetles

(15 Marks)

(25 Marks)

Question 2

- (a) Give examples of at least three(3) insect Orders that have the following types of development:-
- (i) Ametabolous (3)
 - (ii) Hemimetabolous (3)
 - (iii) Paurometabolous (3)
 - (iv) Holometabolous (3)
- (b) Briefly explain what hypermetamorphosis is and give two (2) examples of insects that have hypermetamorphosis (4)
- (c) How do insects escape drought and temperature extremes (9)

(25 Marks)

Question 3

Make labelled sketches of each of the following:-

- (a) Insect Antenna (5)
- (b) Insect Leg (5)
- (c) Insect wing (10)
- (d) Insect Abdomen (5)

(25 Marks)

Question 4

- (a) How would you identify the following insect Orders?
- (i) Siphonaptera (2)
 - (ii) Thysanoptera (2)
 - (iii) Homoptera (2)
 - (iv) Mecoptera (2)
 - (v) Strepsiptera (2)
- (b) In which insect Orders are the following found?
- (i) Median caudal filament (2)
 - (ii) Halteres (2)
 - (iii) Scales on the body (2)

- (iv) Saltatorial legs (2)
- (v) Moniliform antennae (3)
- (vi) Opisthognathous mouthparts (1)
- (vii) Rasping and sucking mouthparts (1)
- (viii) Elytra (1)
- (ix) Tegmina (1)

(25 Marks)

Question 5

- (a) What are differences between termites and ants? (5)
- (b) Why are termites economically important? (5)
- (c) Why are bees such good plant pollinators? (10)
- (d) Briefly explain how you would control either the ants or termites. (5)

(25 Marks)