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SRI LANKA INSTITUTE OF ADVANCED TECHNOLOGICAL EDUCATION

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(Established in the Ministry of Higher Education, vide in Act No. 29 of 1995)

Higher National Diploma in Technology (Agriculture)

First Year, Second Semester Examination – 2016

AG 1209: Pests of Crops and Their Management

Instructions for Candidates:

No. of questions : 07

Answer All Questions

No. of pages : 08

One (01) hour for part I & part II. Two (02) hours for part III

Time : 03 hours

Part –I

Q1.

01. Select the paddy pest responsible for “**dead heart**” symptom.

- i. Brown plant hopper
- ii. Yellow stem borer
- iii. Gall midge
- iv. Paddy bug

02. Identify the paddy pest that shows the damage symptoms of,

a. If population density is high, the leaves may turn into yellow colour from tip to downwards.

b. It acts as a vector of various virus diseases such as Tungro, rice dwarf, transitory yellowing etc.

- i. Brown plant hopper
- ii. Green leaf hopper
- iii. Gall midge
- iv. Paddy bug

03. The scientific name, *Nymphula depunctalis* is belonged to,

- i. Brown plant hopper
- ii. Green leaf hopper
- iii. Gall midge
- iv. Rice case worm

04. Find the insects that are showing 'parthenogenesis'

- i. Maize stem borers
- ii. Maize aphids
- iii. Army worm
- iv. Cabbage caterpillar

05. Select the insect pest that damage to leaves, stem and pod.

- i. Tomato pod borer
- ii. Maize stem borer
- iii. Cabbage looper
- iv. Brinjal pod and shoot borer

06. Find a beetle that belongs to order Coleoptera and family Meloidae

- i. Grain moth weevil
- ii. Blister beetle
- iii. Cowpea bruchid
- iv. Sweet potato weevil

07. The scientific name of *Bemisia tabaci* belongs to

- i. Bean fly
- ii. Carrot fly
- iii. Whitefly
- iv. Sciarid fly

08. What is the pest responsible for the following life cycle characteristics?

- a) Eggs are round greenish-white eggs laid singly on leaf surfaces. Incubation period is about 3-5 days
- b) Larva is greenish with a thin white line and moves in a looping fashion. Pupa is a white, thin, fragile cocoon formed underside of foliage, or in plant debris, or in soil. Pupal period is about 4-6 days
- c) Adult is a greyish-brown and it has mottled front wings with silvery spot near middle of each. It is a nocturnal insect.
 - i. *Trichoplusia ni*
 - ii. *Psila rosae*

- iii. *Plutella xylostella*
- iv. *Pieris rapae*

09. Identify the damage of **Sugar beet leaf minor**-*Liriomyza huidobrensis*.

- i. Punching leaves for both feeding and oviposition.
- ii. Sap sucking from the lower epidermis
- iii. Rasping the leaf tissues
- iv. Biting the upper epidermis

10. Select the correct statement on sweet potato weevil.

- i. Larvae can be seen in the petioles
- ii. Larvae can be seen in the stem and tubers
- iii. Female lays eggs on the petiole of the leaves.
- iv. Larvae can be seen in the soil near to host plants.

11. *Sitophilus oryzae* attacks to,

- i. Paddy in the field
- ii. Maize in the field
- iii. Paddy in the storage.
- iv. Cowpea in the storage

12. Find the insect pest that contain both holometabolous and hemimetabolous characters.

- i. Mites
- ii. Thrips
- iii. Scales
- iv. Caterpillars

13. Phorids fly does the damage to,

- i. Chili cultivation
- ii. Mushroom cultivation

- iii. Carrot cultivation
- iv. Legume cultivation

14. Select a pest responsible for the following symptoms of damage in groundnut cultivation.

- a) Young larvae initially mine into the leaflets, feed on the mesophyll.
- b) Forms small brown blotches on the leaf.
- c) Later stages larvae web the leaflets together and feed on them, remaining within the folds.
- d) Severely attacked field looks “burnt” from a distance.
 - i. Groundnut pod borer
 - ii. Tobacco caterpillar
 - iii. Groundnut leaf miner
 - iv. Groundnut aphids

15. Select the correct statement related to **Groundnut Bruchid** as storage product pest,

- i. They attack both pods in the field & seeds in storage and attack nearly mature or dried pods.
- ii. They make tightly webbed masses with larval galleries, cocoons, frasses & faecal matters in the pods under the storages conditions.
- iii. The damage shows the “windows” on the pod wall made by the grub before pupation, to facilitate adult emerge.
- iv. They only attack in the field to the nearly mature or dried pods.

16. *Sitotroga cerealella* is belongs to,

- i. Order coleoptera
- ii. Order hymenoptera
- iii. Order Diptera
- iv. Order Lepidoptera

(16 marks)

Part II

Q2.

i. Fill in the table according to the given symptoms of damage of paddy pests.

(04 marks)

Symptoms of damage	Insect pest related to damage symptoms
1. Silver shoot	
2. Dead heart and white head	
3.Hopper burn	
4. Floating of tubular cases on the water	

ii. Write two (02) symptoms of damage of Maize stem borer. (*Chilo partellus*) (04marks)

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iii. Write the place of attack of the insect pest for the following pests (04marks)

Insect Pest	Place of attack
Adult blister beetle in legume cultivation	
Epilachna adult and larva in vegetable cultivation	
Fruit fly in cucurbits	
Lace bug in brinjal cultivation	

Q3.

i. Write the orders for the following pests.

(04 marks)

Name of the Pest	Order
Carrot fly	
Brinjal shoot and pod borer	
Serpentine leaf miner	
Cabbage Leaf Miner.	

ii. Write two damage symptoms of flea beetle in cruciferaceae crops.

(04 marks)

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iii. Write life cycle stages for Chillie pod borer (*Leucinoides orbonalis*).

(04 marks)

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Part III

Q4.

- i. Write 04(four) non-sucking pests in paddy cultivation. **(04 marks)**
- ii. Briefly state the damage symptoms of yellow stem borer. **(05 marks)**
- iii. “Water management is very important to manage some insect pests that attack to paddy cultivation” . Justify this statement. **(06 marks)**

Q5.

- i. Name caterpillar complex in cabbage cultivation with their common names and scientific names. **(03 marks)**
- ii. What are the management practices of cabbage aphids? **(06 marks)**
- iii. Briefly explain the life cycle characteristics of the bean fly. **(06 marks)**

Q6

- i. State 03 (three) damage symptoms of tobacco caterpillar in groundnut cultivation.

(03 marks)

- ii. According to the given damage and damage symptoms of a stored product insect of sweet potato. Write answers for the questions given below.

- Larvae bore into the vine sometimes penetrate the storage roots.
- Larval feeding produces the tunnels.
- Hollow cavities in the vine causing wilting & eventually death of the plant.
- Infested plants usually have a pile of frass which can be found close to the infested vine.

1. Identify and name the pest. **(02 marks)**

2. Write three (03) life cycle characteristics of above pest in relation to larva, pupa and adults **(04 marks)**

3. Briefly explain the management practices to manage the above pest.

(06 marks)

Q7.

i. Write 02(two) insect pests that attack to flowers in floricultural plants.

(02 marks)

ii. What are the identification characteristics of Cessides flies in mushroom cultivation?

(06 marks)

iii Briefly explain how to control mushroom pests in mushroom houses.

(07 marks)