

**NATIONAL UNIVERSITY OF LESOTHO**

**B.Sc. AGRICULTURE EXAMINATIONS**

**CPS 3509: Plant Protection: Disease and Pest Control**

**Final Examination**

**January 2024**

**Marks: 100**

**Time: 3 hours**

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**INSTRUCTION:**

**1. Answer any two questions from this section**

**QUESTION ONE**

A. Explain the following terms as used in insecticides Science. Give examples.

- |      |                        |           |
|------|------------------------|-----------|
| i.   | Systemic insecticides. | [5 marks] |
| ii.  | Contact insecticides.  | [5 marks] |
| iii. | Organophosphates.      | [5 marks] |
| iv.  | Active ingredient.     | [5 marks] |
| v.   | Synergists.            | [5 marks] |

**QUESTION TWO**

With the aid of a labeled diagram **explain** the following economic decision making concepts

- |      |   |            |
|------|---|------------|
| i.   | Economic damage.  | [10marks]  |
| ii.  | Economic threshold  | [ 8 marks] |
| iii. | Economic injury level   | [4 marks]  |
| iv.  | Explain the effect of decrease or increase of degree of damage on Economic injury level | [3 marks]  |

**QUESTION THREE**

- |    |  |            |
|----|--|------------|
| A. | Elaborate on the following pest management methods | [15 marks] |
|    | i. Physical control                                |            |
|    | ii. Cultural control.                              |            |
| B. | Elaborate on any two pseudo-resistance mechanisms. | [10 marks] |

## Section B

Answer any two questions from this section on a separate answering sheet.

### QUESTION 1

- a) Discuss the importance of environmental conditions in the development of any plant disease you know. [6]
- b) Discuss the epidemiology and disease cycle of the pathogen causing disease mentioned in (a) above. [8]
- c) Discuss how you can manage the disease mentioned in (a) above. [6]
- d) Explain the contribution of humans in the development of disease epidemics [5]

### QUESTION 2

- a) Explain plant defense mechanisms and discuss their relevance in plant disease control measures [20]
- b) Explain what is meant by disease quarantine? [5]

### QUESTION 3

- a) Distinguish between vertical and horizontal resistance [6]
- b) Define and elaborate on how hypersensitive (HR) reaction works? [5]
- c) Describe the following plant disease terminology: [5]
1. Obligate parasite
  2. Saprophyte
  3. Inoculum
  4. Pathogenicity
  5. Forma specialis (f. sp.)
- d) List and explain how you can manipulate 3 components of disease triangle in the management of plant diseases. [9]