



**NAMIBIA UNIVERSITY
OF SCIENCE AND TECHNOLOGY**

FACULTY OF HEALTH, NATURAL RESOURCES AND APPLIED SCIENCES

DEPARTMENT OF AGRICULTURAL SCIENCES AND AGRIBUSINESS

QUALIFICATION: BACHELOR OF SCIENCE IN HORTICULTURE	
QUALIFICATION CODE: 07BHOR	LEVEL: 7
COURSE CODE: PPN610S	COURSE NAME: PLANT PROTECTION
DATE: JULY 2024	PAPER: 2
DURATION: 3 HOURS	MARKS: 100

SECOND OPPORTUNITY / SUPPLEMENTARY EXAMINATION QUESTION PAPER	
EXAMINER(S)	Dr Edgar Mowa
MODERATOR:	Dr Grace Kanguuehi

INSTRUCTIONS	
1. Answer ALL the questions. 2. Write clearly and neatly. 3. Number your answers clearly.	

PERMISSIBLE MATERIALS

1. Examination Question paper
2. Examination Answer booklet
3. Calculators

THIS MEMORANDUM CONSISTS OF 4 PAGES (including this front page)

SECTION A: SHORT ANSWER QUESTIONS**[4 MARKS]****QUESTION 1:**

Define or explain the following terms used in plant protection with examples.

- i. Systemic insecticide [2]
 - ii. Post-emergence herbicide application [2]
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Question 2**[5 MARKS]**

Briefly, explain the impact of plant pests to the horticultural sector in Namibia. [5]

Question 3**[24 MARKS]**

- a. Name a plant disease of your choice and explain the aetiology and epidemiology of the disease and recommend appropriate recommended control measures. [20]
 - b. Explain the importance of epidemiology in disease management. [4]
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Question 4**[10 MARKS]**

Using your own examples of pest/ disease and crop; explain how crop rotation can be used to control pest and plant diseases. [10]

Question 5**[5 MARKS]**

- a. Name four (4) advantages of using biological pest control methods. [2]

List three (3) precautions to keep in mind when using chemical control measures. [3]

Question 6**[2 MARKS]**

Tomato spotted wilt (caused by tomato spotted wilt virus) is generally considered a monocyclic disease of tomatoes. Explain what this means. [2]

Question 7**[8 MARKS]**

Damping off is a disease that affects seedlings in the nursery.

- a. Describe the symptoms of damping-off on seedlings and factors favouring its development. [4]
 - b. Describe the integrated pest management of damping off in the nursery seed bed. [4]
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Question 8**[10 MARKS]**

5. a. What are three ways that a plant virus can be transmitted from one plant to another in a field? [3]
 - b. Why is management of plant viral diseases always based on prevention, rather than curing? [2]
 - c. A potato grower in Tsumeb sprayed his virus infected potato plants with a pesticide. Is the use of pesticide to manage viruses in the field a correct procedure? Yes or No. Justify your answer. [2]
Suggest to the farmer any three strategies that he can use to prevent future outbreak of viral diseases in his potato field. [3]
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Question 9**[14 MARKS]**

- a. Explain why weeds are a problem in conservation agricultural systems? Explain in detail how you would address the problem. [6]

b. Weeds can be controlled by mechanical and biological methods. For each of these methods, describe the advantages and disadvantages of each. [8]

Question 10 [4 MARKS]

Tuta absoluta is one of the most destructive pests in Namibia causing yield losses in potato and tomato production. What will be the disadvantages of using insecticide for controlling *Tuta absoluta* on potato. [4]

Question 11 [10 MARKS]

As a horticulturalist responsible for production of quality tomatoes and potatoes at Mashare irrigation scheme, you have been using insecticides to control *Tuta absoluta* in potato fields for several years, but it's no longer effective. Explain two possible causes of what could have led to this development and discuss ways you would deal with such a situation. [10]

Question 12 [4 MARKS]

Mention any of the four strategies that you would use to reduce the primary sources of inoculum of any pathogen of your choice. [4]

END OF QUESTION PAPER