



**NAMIBIA UNIVERSITY
OF SCIENCE AND TECHNOLOGY**

FACULTY OF HEALTH, APPLIED SCIENCES AND NATURAL RESOURCES

DEPARTMENT OF AGRICULTURE AND NATURAL RESOURCES SCIENCES

QUALIFICATION : BACHELOR OF SCIENCE IN HORTICULTURE	
QUALIFICATION CODE: 07BHOR	LEVEL: 6
COURSE: PLANT PROTECTION	COURSE CODE: PPN610S
DATE: JUNE 2022	SESSION: JUNE
DURATION: 3 HOURS	MARKS: 100

FIRST OPPORTUNITY EXAMINATION QUESTION PAPER

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MODERATOR: Dr E. Mowa

**THIS EXAMINATION PAPER CONSIST OF FOUR (4) PAGES
(INCLUDING THIS FRONT PAGE)**

INSTRUCTIONS

1. All examination **RULES** apply
2. Read all the questions carefully before answering
3. Marks are indicated at the end of each question
4. Write clearly and neatly
5. All written work **MUST** be done in **BLUE** or **BLACK** ink

PERMISSIBLE MATERIALS

None

Section A: Multiple choice questions (6 marks)

1. What was the causal pathogen of the Irish potato famine of 1845-1846?
 - A. *Alternaria tomatophila*
 - B. *Botrytis cinerea*
 - C. *Phytophthora infestans*
 - D. *Meloidogyne javanica*

2. Which of the following pathogens belongs to the oomycete group?
 - A. *Pythium myriotylum*
 - B. *Rhizoctonia solani*
 - C. *Colletotrichum coccodes*
 - D. *Pectobacterium carotovorum*

3. Which development stage of an insect is most damaging to the crops?
 - A. Pupae
 - B. Larvae
 - C. Adult
 - D. Eggs

4. Rust on the leaf is a sign of
 - A. Bacteria
 - B. Fungi
 - C. Virus
 - D. Nematodes

5. Which of the following plant diseases produce only one infection cycle per host cycle
 - A. Soil-borne disease
 - B. Foliar diseases caused by fungi
 - C. Fruit diseases
 - D. Stem diseases

6. Insecticides that act by permeating the entire plant are said to be:
 - A. Porous insecticides
 - B. Penetrating insecticides
 - C. Contact poisons
 - D. Systematic insecticides

Section B: Answer all questions (94 MARKS)

1. 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]
2. Using your own examples of pest/ disease and crop; explain how crop rotation can be used to control pest and plant diseases. [10]
3. a. Name four advantages of using biological pest control methods. [2]
b. List three (3) precautions to keep in mind when using chemical control measures.[3]
4. Tomato spotted wilt (caused by tomato spotted wilt virus) is generally considered a monocyclic disease of tomatoes. Explain what this means. [2]
5. 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]
6. a. What are the three ways that a plant virus can be transmitted from one plant to another in a field? [3]
c. Why is management of plant viral diseases always based on prevention, rather than curing? [2]
d. A potato grower in Tsumeb sprayed his virus infected potato plants with a pesticide. Is the use of pesticides to control viruses in the field a correct procedure? Yes or No. Justify your answer. [2]
e. Suggest to the farmer any three strategies that he can use to prevent future outbreak of viral diseases in his potato field. [3]
7. 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. [8]
8. a. *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]

- b. 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]
9. Explain the importance of forecasting in managing plant diseases. [3]
10. Mention any four strategies that you would use to reduce the primary sources of inoculum of any pathogen of your choice. [4]