



GWANDA STATE UNIVERSITY
FACULTY OF NATURAL RESOURCES MANAGEMENT & AGRICULTURE
DEPARTMENT OF HORTICULTURE & CROP PRODUCTION
BACHELOR OF SCIENCE (HONOURS) DEGREE IN CROP SCIENCE
NHC2202 BIOLOGY AND MANAGEMENT OF PLANT PATHOGENS
MAIN EXAMINATION PAPER

SEPTEMBER 2024

This examination paper consists of 3 pages, inclusive of cover page

Time Allowed: 3 hours

Total Marks: 100

Examiner's Name: Mbiza N

INSTRUCTIONS

- i. Answer **ALL** questions in Section A
- ii. Answer **ONLY THREE** questions in Section B

MARK ALLOCATION

QUESTION	MARKS
SECTION A	40
SECTION B	60
TOTAL ATTAINABLE MARKS	100

SECTION A: ANSWER ALL QUESTIONS

Question 1.

Tomato plants at the local farm have a very severe late blight infection. Make use of the disease triangle to explain the contribution of each of the parameters in the occurrence of the disease. [20]

Question 2

a) Give **TWO** named examples of the following:

- i. Vector [2]
- ii. Soil borne pathogens [2]
- iii. Postharvest disease [2]
- iv. Necrotrophy [2]
- v. Pre-existing structural defences (against pathogen attack) on a plant [2]

Question 3

As a plant pathologist how would you advise a local farmer to break disease cycles in a crop of your choice? [10]

SECTION B: ANSWER THREE QUESTIONS

Question 4.

a) Differentiate between rust and smut diseases. Give causal organisms, symptoms and their control measures. [10]

b) Distinguish between penetration and infection with suitable diagrams [10]

Question 5.

Discuss the followings:

a) Cultural methods of plant disease control [15]

b) Koch's Postulates [5]

Question 6

Use a disease cycle of your choice to explain the interaction between the plant and a pathogen up to the point of disease occurrence and spread. [20]

Question 7

- a) Describe the isolation of a bacterial pathogen from leaves of a disease plant. [10]
- b) Outline the disease development (cycle) of bacterial soft rot of vegetables [10]

Question 8

a) Most plants are immune to most plant pathogens. Discuss the post infection plant resistance mechanisms against pathogen attack. [10]

b) Describe the symptoms of the following diseases:

- i. Tobacco Mosaic Virus [5]
- ii. Tomato Mosaic Virus [5]

END OF EXAMINATION