



GWANDA STATE UNIVERSITY
FACULTY OF NATURAL RESOURCES MANAGEMENT AND AGRICULTURE
DEPARTMENT OF HORTICULTURE AND CROP PRODUCTION
BACHELOR OF SCIENCE HONOURS DEGREE IN CROP SCIENCE
LCS4202 BIOLOGY AND MANAGEMENT OF PLANT PATHOGENS
SECOND SEMESTER EXAMINATION
APRIL 2024

This examination consists of 3 pages

Time Allowed: 3 hours
Total Marks: 100
Special Requirements: None
Examiner's Name: Mrs. B. Dube

INSTRUCTIONS

1. Answer **ALL** questions in Section A
2. Answer any **TWO (2)** questions in Section B

MARK ALLOCATION

| Question | Marks |
|-------------------------------|--------------|
| Section A | 60 |
| Section B | 40 |
| TOTAL ATTAINABLE MARKS | 100 |

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SECTION A: ANSWER ALL QUESTIONS IN SECTION A

Question 1

- a) Describe the preventative measures employed in bacterial disease management (10 marks)
- b) Explain the survival mechanisms (overwintering) of the pathogens during the off-season. (10 marks)

Question 2

- a) Describe the basis of classification of plant virus (10 marks)
- b) Describe the characteristics of the plant pathogenic bacteria. (10 marks)

Question 3

- a) Describe the transmission methods of the virus in plants (10 marks)
- b) Complete the table below on the classification of Phyla in fungi based on methods of producing spores (10 marks)

| Phyla in fungi | Methods of producing spores |
|------------------------|-----------------------------|
| <i>Chytridiomycota</i> | |
| <i>Zygomycota</i> | |
| <i>Ascomycota</i> | |
| <i>Deuteromycota</i> | |
| <i>Basidiomycota</i> | |

SECTION B: Answer any TWO questions

Question 4

- a) Describe the structures formed by the host plant to prevent the infection by the pathogen after infection (8 marks)

- b) Distinguish between horizontal host resistance and vertical host resistance (6 marks)

Question 5

- a) Describe the environmental factors contributing to the disease escape by the host plant (8 marks)

- b) Describe the growth of bacterial population with the aid of a diagram (12 marks)

Question 6

- a) Describe five (5) management practices of the club root disease in brassicas. (10 marks)

- b) Describe five (5) major disease symptoms induced by bacteria in plants. (10 marks)