



1st SEMESTER 2006/2007

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UNIVERSITY OF SWAZILAND

FINAL EXAMINATION

PROGRAMME: BACHELOR OF SCIENCE IN AGRICULTURAL
EDUCATION YEAR 3 (NEW), BACHELOR OF SCIENCE
IN AGRONOMY YEAR 3 (NEW) AND BACHELOR OF
HORTICULTURE YEAR 3 (NEW)

COURSE CODE: CP 303

TITLE OF PAPER: PLANT PATHOLOGY & DISEASE MANAGEMENT

TIME ALLOWED: TWO (2) HOURS

INSTRUCTIONS: ANSWER ANY FOUR (4) QUESTIONS
BEGIN EACH QUESTION ON A NEW SHEET

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THE CHIEF INVIGILATOR**

QUESTION 1

A farmer who is a dry bean grower has started noticing problems with the germination of his crop. He obtains his bean seeds from a reputable seed company. From a plant pathology perspective:

- a. diagnose what you think the problem might be (8 marks)
 - b. List possible signs/symptoms (6 marks)
 - c. What are possible causal agents? (5 marks)
 - d. Advise the farmer on what to do. (6 marks)
- [25 marks]**

QUESTION 2

A Farmer wants to spray his crop of tomatoes, in a field of 1.3 hectares, against the disease late blight (*Phytophthora infestans*). He has been advised to use a mixture of the fungicides Metalaxyl and mancozeb, at a rate of 150g and 720g, respectively. The farmer is aware that before spraying, one has to calibrate the sprayer to be used.

- a. Describe what the farmer has to do step-by-step in order to determine the amount of water he needs to carry out the exercise. (15 marks)
 - b. Using the information gathered when calibrating the sprayer (above), calculate the quantities of the two fungicides the farmer will use to spray his crop. (10 marks)
- [25 marks]**

QUESTION 3

- a. Define the gene-for-gene concept. (5 marks)
 - b. List Koch's postulates and their exceptions. (5 marks)
 - c. From a variety with 2 resistant genes (R_1 and R_2), work out the possible gene combinations and their reaction to a pathogen with corresponding genes using the gene-for-gene concept. (15 marks)
- [25 marks]**

QUESTION 4

Discuss a disease of your choice under the following topics:

- a. Name of the disease (2 marks)
 - b. Host range (3 marks)
 - c. Symptoms and/or signs (10 marks)
 - d. Possible control measures. (10 marks)
- [25 Marks]**

QUESTION 5

Discuss cultural control in disease management.

[25 marks]