



1st SEMESTER 2013/2014

PAGE 1 OF 3

UNIVERSITY OF SWAZILAND

FINAL EXAMINATION

**PROGRAMME: BACHELOR OF SCIENCE IN AGRICULTURAL
EDUCATION YEAR 3, BACHELOR OF SCIENCE IN
AGRONOMY YEAR 3, AND BACHELOR OF SCIENCE IN
HORTICULTURE YEAR 3.**

COURSE CODE: CP 304

TITLE OF PAPER: PLANT PATHOLOGY & DISEASE MANAGEMENT

TIME ALLOWED: TWO (2) HOURS

INSTRUCTIONS: ANSWER ANY FOUR (4) QUESTIONS

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THE CHIEF INVIGILATOR**

QUESTION 1

- a) Discuss the three fundamental elements required for disease development in plants. (9 marks)
 - b) What is the difference in the function between a nonhost-specific and a host-specific toxin in pathogenesis? (6 marks)
 - d) Compare and contrast race-specific and general race-non specific resistance. (10 marks)
- [25 marks]**

QUESTION 2

Name the causal agents of the following diseases:

- a) Bacterial wilt on tomatoes (3 marks)
 - b) Halo blight on beans (4 marks)
 - c) Angular leaf spot on beans (3 marks)
 - d) Grey leaf spot on maize (3 marks)
 - e) Early blight on potatoes (3 marks)
 - f) White rust on mustard leaf (3 marks)
 - g) Smut on sugarcane (3 marks)
 - h) rust on beans (3 marks)
- [25 marks]**

QUESTION 3

Using the disease caused by *Puccinia sorghi* on maize as a model, describe the five different spore forms of a heteroecious rust. **[25 marks]**

QUESTION 4

Describe symptoms of the following diseases:

- a) Bacterial canker on citrus (5 marks)
 - b) Blossom-end rot on tomatoes (4 marks)
 - c) Powdery mildew on mustard leaf (4 marks)
 - d) Smut on sugarcane (6 marks)
 - e) Late blight on tomatoes (6 marks)
- [25 marks]**

QUESTION 5

A Farmer wants to spray his crop of tomatoes, in a field of 1.2 hectares, against the disease late blight. He has been advised to use a mixture of the fungicides Metalaxyl and Mancozeb, at a rate of 220g/ha and 340g/ha, 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 (s)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/her crop.

(10 marks)

[25 marks]