UNIVERSITY OF SWAZILAND

FINAL EXAMINATION PAPER

PROGRAMMES: **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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QUESTION 1

Explain how one can tell the difference between: (5 Marks each)

(a) Early and late leafspot on groundnuts
(b) Early and late blight on tomatoes
(c) Wilting of tomatoes caused by *Ralstonia solanacearum* and *Fusarium oxysporum lycopersi*
(d) Rust and halo blight on beans
(e) Smutted sugarcane and healthy sugarcane

[25 marks]

QUESTION 2

Name the causal agents of the following diseases:

a) Bacterial wilt of bananas (3 marks)
b) Common blight of beans (3 marks)
c) Web blotch of groundnuts (4 marks)
d) Rust of groundnuts (3 marks)
e) Early blight on tomatoes (3 marks)
f) A heteroecious rust of maize (3 marks)
g) Smut of sugarcane (3 marks)
h) A leafspot of beetroot (3 marks)

[25 marks]

QUESTION 3

Describe a disease profile of a fungal disease on maize **[25 marks]**

QUESTION 4

From a variety with 3 resistant genes (R_1 R_4 and R_6), work out the possible gene combinations and their reaction to a pathogen with corresponding genes using the gene-for-gene concept.

[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 860g/ha and 640g/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]