1ST SESTER 2008/2009 PAGE 1 OF 2

UNIVERSITY OF SWAZILAND

FINAL EXAMINATION

PROGRAMME: BACHELOR OF SCIENCE IN AGRONOMY YEAR 3
HORTICULTURE YEAR 3

COURSE CODE: CP 301

TITLE OF PAPER: CROP BREEDING

TIME ALLOWED: TWO (2) HOURS

INSTRUCTIONS: ANSWER ANY FOUR (4) QUESTIONS

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QUESTION 1

Explain fully, the following terms and their importance in crop breeding:

a) Interspecific hybridization. [5 Marks]
b) Narrow Sense heritability [5 Marks]
c) Molecular genetic markers [5 Marks]
d) General combining ability [5 Marks]
e) G x E Interaction [5 Marks]

[25 Marks]

QUESTION 2

Fully explain the different systems of self incompatibility in crop plants. Your answer should include examples of crops under each system.

[25 marks]

QUESTION 3

Compare and contrast:

a) The pure line breeding method and mass selection. [10 Marks]
b) Pedigree and bulk breeding methods. [15 Marks]

[25 Marks]

QUESTION 4

Define recurrent selection. Describe the different methods of recurrent selection and how they are used in population improvement programs.

[25 Marks]

QUESTION 5

You have been employed as a maize breeder at Malkerns Research Station and you are about to release a new hybrid which is high yielding but is prone to stem and root lodging. The local plant gene bank has maize landraces that are resistant to stem and root lodging. Explain in details how you can improve your new hybrid in lodging using the plant gene bank landraces. **[25 Marks]**

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