UNIVERSITY OF SWAZILAND
FINAL EXAMINATION PAPER

PROGRAMME: B.Sc. IN AGRONOMY 3 AND B.Sc. IN HORTICULTURE 3.

COURSE CODE: CP 301

TITLE OF PAPER: CROP BREEDING

TIME ALLOWED: TWO (2) HOURS

INSTRUCTIONS: ANSWER QUESTION ONE (1) AND ANY OTHER THREE (3) QUESTIONS.

DO NOT OPEN THIS PAPER UNTIL PERMISSION HAS BEEN GRANTED BY THE CHIEF INVIGILATOR

QUESTION 1 (THIS IS A COMPULSORY QUESTION)

Write short notes on the following crop breeding terms:

a) V_P (2.5 Marks)

b) V_G (2.5 Marks)

c) V_{GxE} (2.5 Marks)

d) V_A (2.5 Marks)

e) V_D (2.5 Marks)

f) V_I (2.5 Marks)

g) $GCV < PCV$ (2.5 Marks)

h) F_2 population   (2.5 Marks)

i) h^2n (2.5 Marks)

j) G_S (2.5 Marks)

                                                                 [25 Marks]

QUESTION 2

a) Differentiate between vegetative propagation and apomixes.   [10 Marks]

b) What are the breeding implications of vegetative propagation? [15 Marks]

                                                                 [25 Marks]

QUESTION 3

Define recurrent selection. Describe the different methods of recurrent selection and how they are used in the improvement of plant breeding populations.

                                                                 [25 Marks]

QUESTION 4

a) Discuss the importance of inbreeding depression and heterosis in hybrid breeding programs.

                                                                 [10 Marks]

b) Discuss with relevant examples, the genetic basis of heterosis in crop plants.   [15 Marks]

                                                                 [25 Marks]

QUESTION 5

Write a paper for a presentation to a UNISWA departmental seminar on the contributions of rDNA technology in crop improvement programs.   **[25 Marks]**