



1ST SEM. 2011/2012

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UNIVERSITY OF SWAZILAND

FINAL EXAMINATION PAPER

**PROGRAMME: BACHELOR OF SCIENCE IN HORTICULTURE
YEAR 4**

COURSE CODE: HORT 403

TITLE OF PAPER: PLANT BIOTECHNOLOGY

TIME ALLOWED: TWO (2) HOURS

INSTRUCTION: ANSWER ANY FOUR (4) QUESTIONS

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INSTRUCTIONS: ANSWER ANY FOUR (4) QUESTIONS

Question 1

- a) Distinguish between genetic engineering and plant tissue culture [5 marks]
 - b) How would you accomplish DNA transformation in cereal crops? [5 marks]
 - c) What are the benefits of plant biotechnology in agricultural production [5 marks]
 - d) What are the factors affecting plant tissue culture? [5 marks]
 - e) List the stages of plant micro-propagation. [5 marks]
- [25 marks]**

Question 2

- (a) What is Recombinant DNA (rDNA)? [5 marks]
 - (b) Describe the process of making Recombinant DNA. [12 marks]
 - (c) Give a **schematic** outline of Random Amplified Polymorphic DNA (RAPD) analysis. [8 marks]
- [25 marks]**

Question 3

- (a) What is a genetic marker? [2 marks]
 - (b) Describe the general characteristics of genetic markers? [8 marks]
 - (c) What are the benefits and risks of GMOs in Agriculture? [15 marks]
- [25 marks]**

Question 4

Describe the steps involved in cryopreservation and its application? [25 marks]

Question 5

Discuss the advantages and disadvantages of plant tissue culture. [25 marks]