



1st SEMESTER 2013/2014

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UNIVERSITY OF SWAZILAND

FINAL EXAMINATION PAPER

PROGRAMMES: BACHELOR OF SCIENCE IN HORTICULTURE
YEAR IV AND BACHELOR OF SCIENCE IN
AGRONOMY YEAR IV

COURSE CODE: HORT 403

TITLE OF PAPER: PLANT BIOTECHNOLOGY

TIME ALLOWED: TWO (2) HOURS

INSTRUCTION: ANSWER ANY FOUR (4) QUESTIONS

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THE CHIEF INVIGILATOR**

INSTRUCTION: ANSWER ANY FOUR (4) QUESTIONS.

Question 1

- (a) What are the essential requirements for using marker assisted selection (MAS) in plant breeding? [5]
 - (b) Distinguish between genetic engineering and plant tissue culture. [5]
 - (c) Describe **5** genetic and **5** non-genetic engineering methods of plant improvement. [5]
 - (d) Describe the factors affecting plant tissue culture. [5]
 - (e) What are the basic components of culture media used in cell invitro culture? [5]
- [25 marks]**

Question 2

- (a) Describe the production of genetically modified crops. [12]
 - (b) What are the **merits** and **demerits** of such crops in Swaziland? [13]
- [25 marks]**

Question 3

- (a) Describe the process of micro-propagation. [15]
 - (b) What are the advantages of using plant tissue culture methods? [10]
- [25 marks]**

Question 4

- (a) Describe the steps involved in the selection and regeneration of transformed cells. **[13]**
 - (b) Describe the regulatory process of the Institution Biosafety Committee (IBC) for transgenic crops. **[12]**
- [25 marks]**

Question 5

Discuss the process and application of cryopreservation in germplasm storage.

[25 marks]