



1st SEMESTER 2014/2015

PAGE 1 OF 2

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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 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 research? [5]
- (b) Why is the application of genetic engineering important in crop production? [5]
- (c) What are restriction enzymes and name their types? [5]
- (d) Describe the process of seed sterilization [5]
- (e) Discuss the characteristics that make plant cells suitable for tissue 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) What is plant biotechnology? [5]
- (b) What are the potential benefits of plant biotechnology to agricultural production?

[20]

[25 marks]

Question 4

- (a) Describe the steps involved in selection and regeneration of transformed cells. [10]
- (b) Describe the regulatory process of the Institution Biosafety Committee (IBC) for transgenic crops. [15]

[25 marks]

Question 5

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

[25 marks]