



SUPPLEMENTARY 2015/2016

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UNIVERSITY OF SWAZILAND

SUPPLEMENTARY 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 research? [5]
- (b) Why is the application of genetic engineering important in crop production? [5]
- (c) Describe restriction enzymes and name their types. [5]
- (d) What is the importance of a carbon source and agar in the MS media? [5]
- (e) Discuss the characteristics that make plant cells suitable for tissue culture. [5]

[25 marks]

Question 2

- (a) Discuss the Restriction Fragment Length Polymorphism (RFLP) analysis. [15]
- (b) What are the problems associated with this method? [10]

[25 marks]

Question 3

- (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 4

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

[25 marks]

Question 5

Explain how biotechnology is a potential threat to the survival of Agro biodiversity?
[25 marks]