



1st SEMESTER 2018/2019

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UNIVERSITY OF ESWATINI

FINAL EXAMINATION PAPER

PROGRAMMES:

**BACHELOR OF SCIENCE IN HORTICULTURE
YEAR IV AND BACHELOR OF SCIENCE IN AGRONOMY
YEAR IV (OLD PROGRAMME)**

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? [6]
- (b) Why is the application of genetic engineering important in crop production? [4]
- (c) List the components of plant tissue culture media. [5]
- (d) Describe the properties of a DNA vector [6]
- (e) Discuss the characteristics that makes plant cells suitable for tissue culture. [4]

[25 marks]

Question 2

- (a) Describe the production of genetically modified crops. [12]
- (b) What are the **merits** and **demerits** of such crops in ESWATINI? [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 the selection and regeneration of transformed cells. [13]
- (b) Give a **schematic** outline of Random Amplified Polymorphic DNA (RAPD) analysis. [12]

[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]