



2nd SEMESTER 2019/2020

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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**

COURSE CODE: HRT402

TITLE OF PAPER: PLANT BIOTECHNOLOGY

TIME ALLOWED: TWO (2) HOURS

INSTRUCTION: ANSWER ANY FOUR (4) QUESTIONS

**DO NOT OPEN THIS PAPER UNTIL PERMISSION HAS BEEN GRANTED BY
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) What are restriction enzymes types? [4]
 - (d) What are the critical requirements of plant tissue culture? [5]
 - (e) Describe the characteristics that make plant cells suitable for tissue culture. [6]
- [25 marks]**

Question 2

- (a) Describe the production of transgenic 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 benefits of plant biotechnology in horticulture? [20]
- [25 marks]**

Question 4

- (a) Explain the causes of somaclonal variation in plants. [15]
 - (b) Describe the merits and demerits of somaclonal variations. [10]
- [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]**