



**1<sup>ST</sup> SEM. 2012/2013**

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**UNIVERSITY OF SWAZILAND**

**FINAL EXAMINATION PAPER**

**PROGRAMME: BACHELOR OF SCIENCE IN HORTICULTURE YEAR IV**

**COURSE CODE: HORT 404**

**TITLE OF PAPER: TEMPERATE FRUIT AND NUT PRODUCTION**

**TIME ALLOWED: TWO [2] HOURS**

**INSTRUCTION: ANSWER ANY FOUR (4) QUESTIONS**

**DO NOT OPEN UNTIL PERMISSION HAS BEEN GRANTED BY THE INVIGILATOR**

ANSWER ANY FOUR (4) QUESTIONS

**Question 1**

- (a) What is a genetically modified organism? [2]
  - (b) In what ways is genetic engineering useful in plant improvement? [6]
  - (c) Describe the steps involved in the production of transgenic crops. [17]
- [25 marks]

**Question 2**

Discuss the advantages and disadvantages of plant tissue culture. [25 marks]

**Question 3**

- (a) Discuss marker assisted selection in plant breeding. [15]
  - (b) What are the merits and demerits of mass assisted selection. [10]
- [25 marks]

**Question 4**

Describe the steps involved in cryopreservation and its application in plant biotechnology? [25 marks]

**Question 5**

- (a) What are the different methods of gene transfer in plants? [12]
  - (b) Discuss the general characteristics of molecular markers. [13]
- [25 marks]

**QUESTION 4**

Write notes on the postharvest handling of cashew nuts using the following guidelines:

- a) Drying and shelling (15 marks)
- b) Removal of the testa (4 marks)
- c) Grading and packaging (6 marks)

[25 marks]

**QUESTION 5**

- a) What is the importance of sufficient chilling accumulation in temperate fruits?

(10 marks)

- b) Discuss the physiological symptoms associated with insufficient chilling as follows:

- i) delayed foliation (5 marks)
- ii) reduced fruit set and increased buttoning (5 marks)
- iii) reduced fruit quality (5 marks)

[25 marks]