



**UNIVERSITY OF SWAZILAND
FINAL EXAMINATION PAPER**

PROGRAMME: BACHELOR OF SCIENCE IN AGRONOMY YEAR FOUR

COURSE CODE: CP 407

TITLE OF PAPER: SUGARCANE PRODUCTION

TIME ALLOWED: TWO (2) HOURS

INSTRUCTIONS: ANSWER ANY FOUR QUESTIONS

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

COURSE CODE: CP 407 (M) 2014/2015**QUESTION 1**

Tissue culture techniques can be used to produce thousands of seedlings from tissue excised from the growing tip of a sugarcane shoot. Seedlings produced in this way become material for establishing seed cane nurseries.

- a) Explain the importance of this way of establishing seed cane nursery. (10 marks)
- b) Give advantages and disadvantages of this method and compare to the conventional method of using seed cane setts. (15 marks)

[25 Marks]**QUESTION 2**

Discuss the main purpose of sugarcane breeding. (5 marks)

Explain the term "nobilisation" and give an example of a noble sugarcane species. (5 marks)

List four sugarcane germplasm sources or species as recognized by Grassl (1974, 1977). (5 marks)

Which climatic factors are important considerations in the breeding of sugarcane? (10 marks)

[25 Marks]**QUESTION 3**

Sugarcane needs to be conditioned by withholding irrigation and ripening.

- a) Name the two groups of chemical ripeners and give a brief explanation of what they are and how they work. (5 marks)
- b) Give a brief outline on the methods of chemical ripener application. (10 marks)
- c) Why is flowering not desirable in sugarcane production? (5 marks)
- d) What practices help farmers avoid flowering. (5 marks)

[25 Marks]**QUESTION 4**

The use of Swazi Nation Land for the production of sugarcane is the cause of hunger and malnutrition in Swaziland.

- a) Discuss this statement. (10 marks)
- b) Discuss the socio economic prospects of converting some of the area under sugarcane to the production of maize under irrigation in the lowveld. (15 marks)

[25 Marks]**QUESTION 5**

- a) List and discuss the five factors conducive for disease development in sugarcane production? (10 marks)
- b) Discuss the five principles of disease control in sugarcane. (15 marks)

[25 Marks]