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**2<sup>ND</sup> SEMESTER 2015/2016**

**UNIVERSITY OF SWAZILAND**

**FINAL EXAMINATION**

**PROGRAMMES: BACHELOR OF SCIENCE IN AGRONOMY YEAR FOUR (4)**

**COURSE CODE: CPR208 & CP407**

**TITLE OF PAPER: SUGARCANE PRODUCTION**

**TIME ALLOWED: TWO (2) HOURS**

**INSTRUCTIONS: ANSWER QUESTION 1 AND 2 AND ANY OTHER TWO QUESTIONS**

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**QUESTION 1 - COMPULSORY**

- a) Describe the structure of the Swaziland Sugar industry and explain the key functions of the Swaziland Sugar Association.(10 marks)
- b) What are the key requirements that must be met by a grower wishing to establish a sugarcane growing operation in Swaziland? (5 marks)
- c) Why is the distance to the mill an important consideration when a decision to grow sugarcane is made?(5 marks)
- d) Describe how soils are grouped into land classes in the Swaziland sugar industry. Explain the implications of these land classes for the cane grower. Use examples to illustrate your answer.(5 marks)

**[25 Marks]**

**QUESTION 2 - COMPULSORY**

- a) Discuss the main purpose of sugarcane breeding. (5 marks)
- b) Explain the term “nobilisation” and give an example of a noble sugarcane species. (5 marks)
- c) List four sugarcane germplasm sources or species as recognized by Grassl (1974, 1977). (5 marks)
- d) Which climatic factors are important considerations in the breeding of sugarcane? (10 marks)

**[25 Marks]**

**QUESTION 3**

- a) The Sugar Act 1967 (amended from time to time) and the Pest and Disease Control Regulations cover the legislation and procedures for the monitoring, control and penalties (compulsory plough-out) regarding protecting the industry from threat of disease (mainly smut) and pest (e.g. borers). Discuss the four main areas of focus by these regulations. (15 marks)
- b) Discuss the structure of the seed cane scheme followed by the Swaziland sugar Industry. (10 marks)

**[25 Marks]**

**QUESTION 4**

- a) Discuss the methods used to control weeds in sugarcane in the Swaziland sugar industry and highlight the critical times in the life of both the plant and ratoon crop for weed control. (10 marks)



b) Propose strategies for an effective chemical weed control programme. (15 marks)

[25 Marks]

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**QUESTION 5**

Smut is a sugarcane disease caused by the pathogenic a fungus *Ustilago scitaminae*.

- a) Describe this disease and explain its economic importance to the sugar industry. (10 marks)
- b) Give measures that may be taken to reduce the level of infection on farms in which levels exceed the economic threshold. (15 marks)

[25 Marks]