



**UNIVERSITY OF SWAZILAND**

**FINAL EXAMINATION PAPER**

**PROGRAMME: BACHELOR OF SCIENCE IN AGRONOMY YEA IV**

**COURSE CODE: CP 406**

**TITLE OF PAPER: SOIL MANAGEMENT**

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

**INSTRUCTIONS: ANSWER ANY FOUR QUESTIONS**

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GRANTED BY THE CHIEF INVIGILATOR**

**QUESTION 1**

- (a) Outline the various ways of characterizing saline and sodic soils. [5]
- (b) Explain the possible causes of these soil conditions? [8]
- (c) What strategies can be recommended to increase crop productivity in such soil conditions? [12]
- [25]**

**QUESTION 2**

- (a) Discuss the effects of a long cycle of pineapple production on soil properties and yields of preceding crops. [15]
- (b) What strategies can be recommended to increase soil productivity in a piece of land previously under a long cycle of pineapple production? [10]
- [25]**

**QUESTION 3**

- (a) Describe the genesis of acid-sulphate soils. [10]
- (b) Discuss the challenges posed by acid-sulphate soils to increased crop yields and recommend strategies that can improve crop yields in such soils. [15]
- [25]**

**QUESTION 4**

Discuss the major soil management requirements of soils in the middleveld and highveld of Swaziland for increased crop yields. [25]

**QUESTION 5**

(a) Distinguish between “effective cation exchange capacity” and “total cation exchange capacity” in the context of tropical and subtropical environments [5]

(b) Highlight the charge characteristics of soils in tropical and subtropical environments and indicate the soil materials responsible for such charge and the implications these characteristics have on plant nutrition. [10]

(c) Suggest possible management interventions that can be recommended to increase crop yields in these environments. [10]

**[25]**

**QUESTION 6**

Discuss the soil properties ideal for sugarcane production and their subsequent management requirements. [25]