



1ST SEMESTER 2010/2011

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UNIVERSITY OF SWAZILAND

FINAL EXAMINATION PAPER

PROGRAMME: BACHELOR OF SCIENCE IN AGRONOMY YEAR FOUR

COURSE CODE: CP 404

TITLE OF PAPER: SOIL MANAGEMENT

TIME ALLOWED: TWO (2) HOURS

INSTRUCTIONS: ANSWER ANY FOUR (4) QUESTIONS

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THE CHIEF INVIGILATOR**

QUESTION 1

- (a) Discuss the possible reasons for the poor yields of cereal crops grown in soils previously under a 7-year pineapple production cycle. [14]
- (b) Outline the strategies you would recommend to increase the yields of cereal crops in soils. [11]

QUESTION 2

- (a) Distinguish between salinity and sodicity. [4]
- (b) What are the major causes of soil salinity? [6]
- (c) What remedial actions would you recommend to improve plant growth in saline soils? [15]

QUESTION 3

- (a) Discuss the nature and origin of charge in highly weathered soils of the tropics and subtropics. [10]
- (b) Comment on the implications of these charges on plant nutrition and on lime requirement [15]

QUESTION 4

- (a) What is the essential difference between “upland” and “lowland” rice production systems? [4]
- (b) Discuss the effect of flooding in land preparation for lowland rice production on physical and chemical properties of soils. [10]
- (c) Lowland rice production system is considered to be labour intensive and yet it is the most popular. Discuss this apparent contradiction. [11]

QUESTION 5

(a) What is meant by the term “soil pollution”? [3]

(b) Discuss the reclamation procedures you would recommend for the following soil conditions:

(i) Herbicide contaminated soil [11]

(ii) Heavy metal contaminated soils [11]