

1ST SEM. 2008/2009



PAGE 1 OF 3

UNIVERSITY OF SWAZILAND

FINAL EXAMINATION PAPER

PROGRAMME: BSC OF SCIENCE IN AGRONOMY YEAR IV

COURSE CODE: CP 404

TITLE OF PAPER: SOIL MANAGEMENT

TIME ALLOWED: TWO AND A HALF (2.5) HOURS

INSTRUCTIONS: ANSWER ANY FOUR (4) QUESTIONS

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

QUESTION 1

- (a) What is the essential difference between Upland and Lowland rice production systems? [5]
- (b) The Lowland rice production system is considered to be labour intensive and yet it is the most popular. Discuss this apparent contradiction. [8]
- (c) Discuss the effects of flooding in land preparation for lowland rice production on physical and chemical properties of soils. [12]

[25 MARKS]

QUESTION 2

- (a) Give the location of the tropical and subtropical zones [3]
- (b) Highlight the origin of charge in highly weathered soils of the tropics and subtropics [8]
- (c) Discuss the implications of variable charge in tropical and subtropical soils on (i) nutrient retention and (ii) lime requirement [14]

[25 MARKS]

QUESTION 3

- (a) What is meant by the term “soil pollution?” [3]
- (b) Discuss the reclamation procedures you would recommend for the following:
(i) Herbicide contaminated soils [11]
(ii) Heavy metal contaminated soils [11]

[25 MARKS]

QUESTION 4

- (a) Define the term “saline soil” [2]
- (b) Outline the causes of soil salinity [8]
- (c) Discuss the strategies you would recommend to increase crop yields in saline soils [15]

[25 MARKS]

QUESTION 5

(a) Outline the major characteristics of soils in arid and semi-arid regions of the world
[12]

(b) Outline in detail the agricultural potential of vertisols in these regions [13]
[25 MARKS]