



SUPPLEMENTARY 2013/2014

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UNIVERSITY OF SWAZILAND

SUPPLEMENTARY EXAMINATION PAPER

PROGRAMME: BACHELOR OF SCIENCE IN AGRONOMY YEAR IV

COURSE CODE: CP 406

TITLE OF PAPER: SOIL MANAGEMENT

TIME ALLOWED: TWO (2) HOURS

INSTRUCTIONS: ANSWER ALL QUESTIONS

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QUESTION 1

- (a) Distinguish between Lowland and Upland rice production systems. [5]
- (b) In land preparation for lowland rice production system, there are certain changes in physical and chemical properties of a soil. Discuss these changes and indicate how they influence the yields of rice. [10]
- (c) The lowland rice production system is considered to be labour intensive and yet it is the most popular among rice farmers. Discuss the possible reasons for this apparent contradiction. [10]
[25]

QUESTION 2

- (a) Define the term "soil pollution". [3]
- (b) Discuss the reclamation procedures for the following soil situations:
(i) Herbicide contaminated soils. [11]
(ii) Heavy metal contaminated soils. [11]
[25]

QUESTION 3

- (a) Differentiate between soil salinity and soil sodicity and outline the causes of these soil conditions. [10]
- (b) Discuss the strategies that can be used to improve crop yields in saline heavy textured soil and indicate the relative success of each strategy. [15]
[25]

QUESTION 4

- (a) What is the main difference between exchangeable and non-exchangeable acidity? [5]
- (b) Outline the nature of the charge in tropical and subtropical soils and indicate which soil materials are responsible for such charge. [10]
- (c) Discuss the implications of the charges in (b) above on soil properties and the consequent management requirements. [10]
[25]