

1ST SEM. 2008/2009



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UNIVERSITY OF SWAZILAND

FINAL EXAMINATION PAPER

**PROGRAMME: BSC II (AGRONOMY, AGRICULTURAL EDUCATION,
HORTICULTURE, AND LAND AND WATER MANAGEMENT)**

COURSE CODE: CP 203

TITLE OF PAPER: INTRODUCTORY SOIL SCIENCE

TIME ALLOWED: TWO (2) HOURS

INSTRUCTIONS: ANSWER ANY FOUR (4) QUESTIONS

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CHIEF INVIGILATOR**

QUESTION 1

- (a) Define or give short descriptions of the following terms and indicate the importance of each term in soil science: (Each question carries **two marks**).
- (i) Cation exchange capacity
 - (ii) Illuviation
 - (iii) Chemical weathering
 - (iv) Mechanical analysis
 - (v) Essential nutrient
- (b) Highlight the importance of the carbon to nitrogen ratio in soils. **(5 marks)**
- (c) Discuss the properties of organic matter which are important when soils are used for crop production. **(10 marks)**
- [25 MARKS]**

QUESTION 2

- (a) Describe the three types of acidity found in soils and indicate their significance in soil science. **(6 marks)**
- (b) Discuss the influence of soil acidity on plant growth. **(13 marks)**
- (c) What strategies would you recommend to improve crop yields in acid soils? **(6 marks)**
- [25 MARKS]**

QUESTION 3

- (a) What is a factor of soil formation? **(3 marks)**
- (b) Discuss the factors of soil formation and indicate the significance of each in the formation of soils in your named country **(22 marks)**
- [25 MARKS]**

QUESTION 4

- (a) Highlight the importance of soil structure in crop production (5 marks)
- (b) What management strategies would you recommend to improve or maintain good soil structure? (20 marks)
- [25 MARKS]

QUESTION 5

- (a) Distinguish between “chemical” and “physical” weathering of rocks and minerals in the environment. (5 marks)
- (b) Discuss the chemical weathering processes of rocks and mineral in the environment and comment on how they may have influenced soil formation in your country. (20 marks)
- [25 MARKS]