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UNIVERSITY OF SWAZILAND

FINAL EXAMINATION PAPER

**PROGRAMMES: BACHELOR OF SCIENCE YEAR II IN AGRICULTURAL AND BIOSYSTEMS ENGINEERING, AGRICULTURAL EDUCATION, AGRONOMY, ANIMAL SCIENCE, ANIMAL SCIENCE DAIRY OPTION AND HORTICULTURE**

**COURSE CODE: CPR 205**

**TITLE OF PAPER: INTRODUCTORY SOIL SCIENCE**

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

**INSTRUCTIONS: ANSWER ANY FOUR (4) QUESTIONS**

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

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**QUESTION 1**

- (a) Define or give short descriptions of the following terms: (Each question carries 2 marks)
- (i) Soil morphology
  - (ii) Weathering
  - (iii) Eluviation
  - (iv) Isomorphous substitution
  - (v) Soil structure
- [10]
- (b) Discuss the effects of the soil reaction or pH on plant growth. [12]
- (c) What strategies can be recommended to improve crop productivity in acid soils? [3]  
[25]

**QUESTION 2**

Discuss the physical and biogeochemical weathering processes of rocks and minerals to form soil. [25]

**QUESTION 3**

- (a) What is a factor of soil formation [5]
- (b) Discuss the factors of soil formation and indicate how each contributes to soil formation. [20]  
[25]

**QUESTION 4**

- (a) Explain the importance of soil water in crop production. [12]
- (b) Discuss the management of soil water for improved crop yields. [13]  
[25]

**QUESTION 5**

- (a) Define the term "Organic matter" [5]
- (b) Discuss the effects of organic matter which are important when soils are used for crop production. [20]  
[25]