

UNIVERSITY OF SWAZILAND

SUPPLEMENTARY EXAMINATION PAPER

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

COURSE CODE: CP 201

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**

QUESTION 1

(a) Define or give brief descriptions of the following: (Each answer carries 2 marks)

- (i) Soil genesis
- (ii) Field capacity
- (iii) Buffering capacity
- (iv) Eluviation
- (v) Cation exchange capacity

(b) Define “soil horizon” and indicate how horizons are identified and named in a soil profile. [4]

(c) Using an appropriate diagram, illustrate the major soil horizons in a representative mineral soil profile and describe the properties of each [11]

QUESTION 2

(a) Outline the significance of good soil structure in crop production [7]

(b) Discuss the management strategies you would recommend to improve or maintain good soil structure [18]

QUESTION 3

(a) Define the term “humus” [4]

(b) Discuss the properties of organic matter which you consider important when soils are used for crop production [21]

QUESTION 4

(a) Outline the importance of soil water in soil science [8]

(b) Discuss the management of soil water in arable farming [17]

QUESTION 5

(a) What is a factor of soil formation? [5]

(b) Discuss the factors of soil formation and comment on the importance of each in the formation of soils in your named country [20]