



2ND SEM. 2013

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UNIVERSITY OF SWAZILAND

FINAL EXAMINATION

PROGRAMME: B.Sc. IN AGRONOMY YEAR III

COURSE CODE: CP 308

TITLE OF PAPER: PEDOLOGY

TIME ALLOWED: TWO [2] HOURS

**INSTRUCTIONS: ANSWER QUESTION ONE [1] WHICH IS A
COMPULSORY QUESTION AND ANY TWO [2]
QUESTIONS OF YOUR CHOICE.**

**NOTE: THE PAPER CONTAINS THREE [3] PAGES INCLUDING THE
COVER PAGE.**

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THE CHIEF INVIGILATOR.**

QUESTION 1 [COMPULSORY]

(a) Define or give short descriptions of the following terms and phrases:

- (i) Pedology [3]
- (ii) Soil morphology [3]
- (iii) Soil structure [3]
- (iv) Soil texture [3]
- (v) Horizon [3]

(b) Briefly discuss the influences that are brought about by the following soil forming factors on the formation of soils.

- (i) Time [5]
- (ii) Climate [5]
- (iii) Parent material [5]

(c) Discuss the similarities and differences between the following soil horizons in terms of pedological material contents and soil forming pedogenic processes.

- (i) Horizons E and A [5]
- (ii) Horizons B and C [5]

[40]

QUESTION 2

(a) Briefly discuss the following pedogenic processes:

- (i) Illuviation [5]
- (ii) Leaching [5]
- (iii) Pedoturbation [5]
- (iv) Rubefaction [5]

(b) Discuss the following soil physical properties in terms of their importance in soil pedology.

- (i) Soil Colour [5]
- (ii) Soil texture [5]

[30]

QUESTION 3

(a) Briefly discuss the major criteria used to identify the following soil orders:

- (i) Vertisols [5]
- (ii) Entisols [5]
- (iii) Oxisols [5]
- (iv) Ultisols [5]

(b) Briefly characterize the following diagnostic organic materials. Clearly indicate how they influence soil formation. [10]

[30]

QUESTION 4

(a) Discuss the differences between drainage mottles and matrix mottles in terms of their genesis and morphology. [10]

(b) Discuss the contrasts and comparisons between the following processes.

- (i) Physical weathering and chemical weathering. [5]
- (ii) Leaching and illuviation [5]

(c) List and describe any five [5] of the six [6] soil temperatures regimes or categories. [10]

[30]