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2ND SEM. 2015/2016

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UNIVERSITY OF SWAZILAND

FINAL EXAMINATION

PROGRAMME: B.SC. IN AGRONOMY YEAR III

COURSE CODE: CP 308

TITLE OF PAPER: SOIL PEDOLOGY

TIME ALLOWED: TWO [2] HOURS

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

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QUESTION 1 [COMPULSORY]

a) Give short descriptions of the following terms and phrases:

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

b) Briefly discuss the impacts of the following soil forming factors on the development of soils.

- i) Organisms [5]
- ii) Climate [5]
- iii) Time [5]

c) Discuss the similarities and differences between the following soil horizons in terms of pedogenic processes.

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

[40 marks]

QUESTION 2

ANSWER ANY TWO QUESTIONS FROM THE FOLLOWING QUESTIONS

a) Briefly discuss the following pedogenic processes:

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

[20]

b) Discuss the following soil physical characteristics in terms of their importance in soil pedology:

- i) Soil colour [5]
- ii) Soil texture [5]

[10]

[30 marks]

QUESTION 3

a) Briefly discuss the major differentiating characteristics of the following soil Orders:

- i) Oxisols [5]
- ii) Mollisols [5]
- iii) Inceptisols [5]
- iv) Entisols [5]

[20]

b) Briefly explain the characterization of the following diagnostic organic materials

- i) Hemic soil material [2]
- ii) Sapric soil material [2]
- iii) Humiluvic soil material [2]
- iv) Fibric soil material [2]
- v) Limnic soil material [2]

[10]

[30 marks]

QUESTION 4

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

b) Discuss the following processes of soil formation:

- i) Physical weathering [5]
- ii) Chemical weathering [5]

[10]

c) Describe the following soil moisture regimes:

- i) Xeric moisture regime [5]
- ii) Ustic moisture regime [5]

[10]

[30 marks]