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UNIVERSITY OF SWAZILAND

FINAL EXAMINATION PAPER

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] AND ANY TWO [2] QUESTIONS**

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QUESTION 1 (COMPULSORY)

a. Define the following Soil Pedology terms   [10]

    i)   Soil

    ii) Pedology

    iii) solum

    iv) Polypedon

    v) Horizon

b. Show and explain the relationship amongst the following environmental soil

   forming factors   [10]

    i)   Topography

    ii) Climate

    iii) Organisms

c. Describe and state the differences between the following master horizons   [10]

    i)   O and E

    ii) B and C

d. Discuss the following pedogenic processes   [10]

    i)   Lessivage

    ii) Illuviation

    iii) Pedoturbation

    iv) Mineralization

    v) Humification

[Total marks, 40]

QUESTION 2

a. What is soil classification and why is it important?   [5]

b. Explain and differentiate the six (6) Soil Taxonomy levels in soil classification   [12]

c. Describe and differentiate the following soil orders in soil taxonomy   [10]

    i)   Alfisols

    ii) Inceptisols

    iii) Vertisols

    iv) Spodosols

d. What is a soil temperature regime and why is it important?   [3]

[Total marks, 30]

QUESTION 3

a. Differentiate by giving examples between transitional and combination horizons   [5]

b. Discuss and differentiate the four (4) diagnostic organic materials   [10]

c. Describe and differentiate the following diagnostic horizons   [15]

   i)   Mollic epipedon

   ii) Ochric epipedon

   iii) Argillic horizon

   iv) Oxic horizon

   v)   Melanic epipedon

[Total marks, 30]

QUESTION 4

a. Discuss the 5 soil moisture regime classes used in soil classification   [10]

b. Define a mapping unit and discuss the four (4) examples of mapping units   [10]

c. Briefly outline the following concepts: [10]

   i)   Spatial variability

   ii) Soil survey

   iii) Geographic information systems (GIS)

   iv) Global positioning systems (GPS)

[Total marks, 30]