# UNIVERSITY OF SWAZILAND DEPARTMENT OF GEOGRAPHY, ENVIRONMENTAL SCIENCE AND PLANNING FINAL EXAMINATION, MAY 2007

TITLE OF PAPER:

APPLIED

**GEOGRAPHY** 

**PHYSICAL** 

**COURSE CODE:** 

**GEP 227** 

TIME ALLOWED:

THREE HOURS

**INSTRUCTIONS:** 

**ANSWER QUESTION ONE AND** 

**ANY OTHER TWO QUESTIONS** 

MARKS ALLOCATED:

**QUESTION 1 CARRIES 40** 

MARKS. THE OTHER

**QUESTIONS CARRY 30 MARKS** 

EACH.

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## **SECTION A**

## QUESTION 1 (COMPULSORY)

- a. Critically discuss the factors that have contributed to the distribution of soils around the world. [10 marks]
- b. Describe the following processes of soil formation stating the climatic conditions under which they are dominant

i. Calcification [5 marks]
ii. Laterisation [5 marks]

c. Write explanatory notes on the following soil properties, indicating how they affect soil productivity

i. Soil texture [5 marks]
ii. Soil structure [5 marks]
iii. Soil pH [5 marks]
iv. Soil micro-organisms [5 marks]

[40 MARKS]

#### **SECTION B**

#### **ANSWER ANY TWO QUESTIONS**

#### **QUESTION 2**

- a. Describe the mineralogical organization of silicate clays. Use diagrams to illustrate your descriptions. [20 marks]
- b. Discuss the origin charges found in silicate clay minerals. [10 marks]

[30 marks]

#### **QUESTION 3**

a. Discuss the factors that determine the rate of weathering of rocks.

[10 marks]

b. Using examples, describe the processes involved in mechanical weathering of rocks and the various landforms produced [20 marks]

[30 marks]

## **QUESTION 4**

Critically examine the natural and anthropogenic causes that contribute to slope failures. [30 marks]

# **QUESTION 5**

Discuss the following mass wasting processes stating measures that could be taken to reduce their occurrence:

a.	Landslides	[5 marks]
b.	Mudflows	[5 marks]
C.	Soil creep	[5 marks]
d.	Avalanches	[5 marks]
e.	Rock fall	[5 marks]
f.	Earth flow	[5 marks]

[30 marks]