

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:

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|---------------|-----------|
| 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]