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DCE/DBC 054: Engineering Geology



(University of Choice)

**MASINDE MULIRO UNIVERSITY OF
SCIENCE AND TECHNOLOGY**

(MMUST)

MAIN CAMPUS

UNIVERSITY EXAMINATIONS

2021/2022 ACADEMIC YEAR

FIRST YEAR SECOND SEMESTER EXAMINATIONS

FOR THE

DIPLOMA

IN

CIVIL ENGINEERING AND BUILDING CONSTRUCTION

COURSE CODE: DCE /DBC 054

COURSE TITLE: ENGINEERING GEOLOGY

DATE: FRIDAY 29TH APRIL 2022 TIME: 8.00AM – 10.00AM

INSTRUCTIONS:

- Answer Question **ONE** and any other **TWO** Questions
- Marks for each question are indicated in the parenthesis.
- Examination duration is **2 Hours**
- Use of Mobile phones is **NOT ALLOWED** in the examination room.

MMUST observes ZERO tolerance to examination cheating

This Paper Consists of 2 Printed Pages. Please Turn Over.

QUESTION ONE - COMPULSORY (30 MARKS)

- a) Differentiate the following terms (6 Marks)
 - i. Mafic minerals and silicate minerals
 - ii. SIMA and SIAL
 - iii. Hydration and hydrolysis
- b) Explain how temperature affects rock disintegration (4 Marks)
- c) Discuss the process of Metamorphism (6 Marks)
- d) Define and explain the various types of discontinuity (6 Marks)
- e) Hardness is obtained by using the Moh's scale of hardness outline the scale of the mineral and how hardness is determined (6 Marks)
- f) Geologic mapping is a very important process for a geologist. State and explain any two uses of geologic mapping (2 Marks)

QUESTION TWO (20 MARKS)

- a) Discuss the **three** properties of minerals based on light (6 Marks)
- b) Explain the various types of chemical weathering using an equation (8 Marks)
- c) Explain the engineering properties of igneous rocks (6 Marks)

QUESTION THREE (20 MARKS)

- a) Using a diagram distinguish between a fault, a fold and an outcrop (8 Marks)
- b) Explain the methods of geological investigation (12 Marks)

QUESTION FOUR (20 MARKS)

- a) Discuss the different types of river deposit in geological works in rivers (8 Marks)
- b) Explain the factors that determine geological map classification and differentiate between large and small scale maps (6 Marks)
- c) Describe the biological methods of controlling soil erosion (6 Marks)

QUESTION FIVE (20 MARKS)

- a) Discuss the layering of the interior of the earth with the aid of a diagram (10 Marks)
- b) Explain the stages involved in site investigation (5 Marks)
- c) Explain the relevance of the process of denudation in civil engineering (5 Marks)