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(University of Choice)

**MASINDE MULIRO UNIVERSITY OF
SCIENCE AND TECHNOLOGY
(MMUST)**

MAIN CAMPUS

**UNIVERSITY EXAMINATIONS
2022/2023 ACADEMIC YEAR**

FOURTH YEAR SECOND SEMESTER EXAMINATIONS

**FOR THE DEGREE
OF
BACHELOR OF SCIENCE
IN
CIVIL AND STRUCTURAL ENGINEERING**

COURSE CODE: CSE 226

COURSE TITLE: ENGINEERING GEOLOGY

DATE: 27TH APRIL 2023

TIME: 3 – 5 P.M

INSTRUCTIONS:

1. This paper contains FIVE (5) questions
2. Question ONE (1) is compulsory
3. Attempt a total of FOUR (4) questions in this booklet
4. Marks for each question are indicated in the parenthesis
5. It is in the best interest of the student to write legibly

Examination duration is **2 Hours**

MMUST observes ZERO tolerance to examination cheating

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

Question 1	COMPULSORY	[30 Marks]
a)	Describe Glacial processes as agents of landscape change	[4 Marks]
b)	Describe the effects of seismic loading on engineering projects	[3 Marks]
c)	Differentiate between denudation and aggradation	[3 Marks]
d)	Describe how volcanoes are formed	[2 Marks]
e)	State the importance of engineering Geology to a civil engineer	[3 Marks]
f)	List and describe the evidences supporting the theory of continental drift	[4 Marks]
g)	Explain the geological factors that affect the design of a building	[2 Marks]
h)	Briefly describe the following in relation to engineering geology:	
	i) Plate tectonics	[3 Marks]
	ii) Importance of igneous rocks	[2 Marks]
	iii) Earth quake Engineering	[2 Marks]
	iv) Diastrophism	[2 Marks]

Question 2	[20 Marks]
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|----|---|------------|
| a) | Explain how geomorphic processes influence the design of engineering structures | [10 Marks] |
| b) | With an aid of a sketch, describe how Divergent plate boundary beneath a continent lead to occurrence of an earthquakes, ocean basins, landslides and rift valley formation | [5 Marks] |
| c) | Explain the effects of groundwater on civil engineering projects | [5 marks] |

Question 3	[20 Marks]
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| a) | Discuss the effects of earthquakes on structures | [10 Marks] |
| b) | Describe Seismic Reflection Method in relation to engineering Geology | [10 Marks] |

Question 4	[20 Marks]
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|----|---|------------|
| a) | Describe different magma flow types based on temperature, viscosity and gas content | [10 marks] |
| b) | State and describe categories of volcanoes in relation to their formation | [10 Marks] |

Question 5	[20 Marks]
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| a) | With an aid of a sketch, describe four distinct regions of earth structure | [10 Marks] |
| b) | List and describe FOUR evidences supporting the theory of plate tectonics in relation to engineering Geology | [5 Marks] |
| c) | What is the significance of the geological structures in the civil engineering project? | [5 marks] |

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