



MACHAKOS UNIVERSITY

UNIVERSITY EXAMINATIONS 2024/2025

SCHOOL OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF BUILDING AND CIVIL ENGINEERING

**THIRD YEAR FIRST SEMESTER EXAMINATION FOR BACHELOR OF
SCIENCE IN CIVIL ENGINEERING**

ECV 300: ENGINEERING GEOLOGY

Date:

Time :

INSTRUCTIONS

- *This paper comprises of **FIVE** questions. Answer **THREE** questions*
- *Question one is **Compulsory** and carries 30 marks*
- *Answer any other **TWO** questions*

QUESTION ONE (30 Marks)

- a) Describe any four ways in which minerals can be formed (4Marks)
- b) State the four causes of sedimentary rocks (4Marks)
- c) Discuss the three methods of quarrying stones using hand tools (3Marks)
- d) Explain the significant impacts of weathering on landscape (4Marks)
- e) Discuss the common types of joints in rocks (4Marks).
- f) Describe any three types of slope failure (3Marks).
- g) Elaborate any four types of geological maps (4Marks)

h) State why an understanding of faults and their characteristics is vital for various geological and societal reasons:
(4marks)

i) Differentiate between a Strike and dip on a geological map (3Marks)

QUESTION TWO (20Marks)

- a) Describe any five uses of geological maps (5Marks)
- b) State the guidelines to be followed when the depth of investigations cannot be related to the background information
(5Marks)
- c) Discuss the different types of sampling in site investigation (10 Marks)

QUESTION THREE (20Marks)

- a) Highlight the Importance of understanding earthquakes and seismicity (8Marks)
- b) List and discuss the different types of earthquakes that can occur (6Marks)
- c) Discuss the effects of slope failure (6 Marks)

QUESTION FOUR (20Marks)

- a) Explain any five types of mechanical weathering (8Marks)
- b) What are the importance of Rock Sampling in Mineral Exploration (8Marks)
- c) Discuss the Rock Sampling Techniques used for Analysis (4Marks)

QUESTION FIVE (20Marks)

- a) Describe the steps involved in making geological maps: (9 Marks)

- b) Interpreting geological maps is an important skill for geologists, engineers, and anyone working with the Earth's surface. Discuss the key components and techniques used in interpreting geological maps:.

(6 Marks)

- c) List the specialized equipment commonly used in geological investigations by field geologists

(5 Marks)