



TECHNICAL UNIVERSITY OF MOMBASA

SCHOOL OF ENGINEERING AND TECHNOLOGY
Department of BUILDING & Civil engineering
UNIVERSITY EXAMINATION FOR:

BACHELOR OF TECHNOLOGY IN CIVIL ENGINEERING
TCV4317 : ENGINEERING GEOLOGY
END OF SEMESTER EXAMINATION
SERIES: AUGUST 2024 PA
TIME: 2 HOURS

Instructions to Candidates

You should have the following for this examination

-Answer Booklet, examination pass and student ID

This paper consists of **five** questions.

Attempt question ONE (Compulsory) and any other TWO questions.

Do not write on the question paper.

QUESTION ONE (COMPULSORY) (20 Marks)

- a) Discuss the application of geology in Civil Engineering. (6marks)
- b) Describe the following physical properties of minerals.
i) Hardness ii) Tenacity iii) Luster. (8marks)
- c) Outline the geologic properties that make granites suitable construction material. (6marks)

ANSWER ANY TWO QUESTIONS FROM THIS SECTION

QUESTION TWO (20 Marks)

- a) Describe the four main causes of Earthquakes. (8marks)
- b) Discuss the genetic classification of sedimentary rocks. Give examples. (8marks)
- c) Briefly discuss the main objectives of site investigation. (4marks)

QUESTION THREE (20 Marks)

- a) Describe the metamorphic changes that take place in a rock. (6marks)



- b) Discuss **Four (4)** earthquake effects. (8marks)
- c) Outline the positive and negative effects of structural deformations. (6marks)

QUESTION FOUR (20 Marks)

- a) Explain the factors affecting the selection of a dam site. (6marks)
- b) Briefly discuss i) Unconfined aquifer ii) Confined aquifer. (8marks)
- c) Briefly discuss the Three (3) types of Quarries. (6marks)

QUESTION FIVE (20 Marks)

- a) Briefly discuss the classification of igneous rocks based on silica content. (6marks)
- b) Explain the Rock Mass rating system. (8marks)
- c) Describe two tunneling methods. (6marks)