



TECHNICAL UNIVERSITY OF MOMBASA

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

BACHELOR OF TECHNOLOGY IN CIVIL ENGINEERING
TCV 4317: ENGINEERING GEOLOGY

SPECIAL/SUPPLEMENTARY EXAMINATION

SERIES: MARCH 2025

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 importance of engineering geology in Civil Engineering.
(6marks)
- b) Briefly discuss the following physical properties of minerals.
i) Hardness ii) Tenacity iii) Luster iv) Cleavage (10marks)
- c) Outline the objectives of site investigation.
(4marks)

ANSWER ANY TWO QUESTIONS FROM THIS SECTION

QUESTION TWO (20 Marks)

- a) Describe Groundwater, highlighting porosity, permeability and Water table.
(6marks)
- b) Briefly discuss the elements of; i) a Fault ii) a Fold.
(8marks)



- c) Describe the mode of formation of the three (3) main types of rocks.
(6marks)

QUESTION THREE

(20 Marks)

- a) Briefly discuss the three (3) types of Quarries. (7marks)
b) Discuss three uses of a dam.
(6marks)
c) Define a tunnel. Outline factors affecting stand-up time.
(7marks)

QUESTION FOUR

(20 Marks)

- a) Describe the metamorphic changes that take place in a rock. (6marks)
b) Using illustrations, discuss the two main types of Aquifers.
(7marks)
c) Briefly describe the engineering properties of rocks. (7marks)

QUESTION FIVE

(20 Marks)

- a) Outline the geologic factors considered in the selection of natural building stones.
(6marks)
b) Describe the classification of igneous rocks based on silica content. (6marks)
c) Outline the genetic classification of sedimentary rocks. Give examples.
(8marks)