



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: JANUARY 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) Briefly discuss the main common rock forming minerals (6marks)
- b) Discuss the following physical properties of minerals. (8marks)
 - i) Hardness ii) Tenacity iii) Form.
- c) Describe the properties of basalts that make them suitable for construction. (6marks)

ANSWER ANY TWO QUESTIONS FROM THIS SECTION

QUESTION TWO (20 Marks)

- a) Describe the classification of igneous rocks based on silica content. Give examples. (6marks)
- b) Outline the genetic classification of sedimentary rocks. Give examples. (8marks)
- c) Briefly discuss the metamorphic changes that take place in a rock. (6marks)

QUESTION THREE (20 Marks)

- a) Briefly discuss the main objectives of site investigation. (4marks)
- b) Discuss **Four (4)** earthquake effects. (8marks)
- c) With the aid of sketches, describe a;
 - i) A Fold,
 - ii) A Fault (8marks)

QUESTION FOUR

(20 Marks)

- a) Outline the causes of Earthquakes. **(5marks)**
- b) Briefly discuss i) Unconfined aquifer ii) Confined aquifer. **(8marks)**
- c) Briefly discuss the **Three (3)** types of **Quarries**. **(7marks)**

QUESTION FIVE

(20 Marks)

- a) Briefly discuss the geotechnical effects associated with deformational structures. **(6marks)**
- b) Outline the applications of engineering geology. **(6marks)**
- c) Discuss factors affecting site of a dam. **(8marks)**