



TECHNICAL UNIVERSITY OF MOMBASA

Faculty of Engineering and Technology
Department of BUILDING & Civil engineering

UNIVERSITY EXAMINATION FOR:

CERTIFICATE IN BUILDING AND CIVIL ENGINEERING ECV 1201 : ENGINEERING GEOLOGY

SPECIAL/SUPPLEMENTARY EXAMINATION

SERIES: JULY 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 any THREE questions.

Do not write on the question paper.

QUESTION ONE

- (a) Explain THREE sources of heat that contribute to increase in temperature for metamorphism. (6 Marks)
- (b) Describe the following metamorphic changes:
- (i) De-carbonation
 - (ii) Re-crystallization (5 Marks)
- (c) With the aid of a sketch, describe a fault. (7 Marks)
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(d) In regard to faults, differentiate between heave and overlap. (2 Marks)

QUESTION TWO (20 Marks)

(a) Explain the importance of hard rock quarries. (4 Marks)

(b) Drilling methods enable determination of several things. Outline FIVE. (5 Marks)

(c) Identify and explain FOUR geological problems associated with tunneling. (8 Marks)

(d) Explain 'Shortcreting' as applied in tunneling. (3 Marks)

QUESTION THREE (20 Marks)

(a) Briefly explain the importance of geology in the following areas:

(i) Mining works

(ii) Geomaterials

(iii) Wetland rehabilitation (9Marks)

(b) Briefly explain the following mineral characteristics:

(i) Hardness.

(ii) Cleavage.

(iii) Fracture

(iv) Form (8 Marks)

(c) Describe a cubic crystal system. 3 Marks)

QUESTION FOUR (20 Marks)

(a) Describe the following intrusive rocks:

(i) Batholith

(ii) Stock

(iii) Plutons (9 Marks)

(b) Identify and explain the TWO formation processes of sedimentary rocks. (6 Marks)

(c) (i) Briefly explain the creation of biochemical sedimentary rocks.

(ii) Explain THREE examples of the formation of the type of rock in (c) (i) above,
(5 Marks)

(d) Explain the term dam. (2 Marks)

QUESTION FIVE (20 Marks)

(a) Explain the following terms as applied to folds:

(i) Folds

(ii) Limb

(iii) Axial plane

(iv) Fold axis (4 Marks)

(b) Identify and explain THREE areas of geological significance of folds. (6 Marks)

(c) Explain FOUR factors considered when selecting a site for a dam construction.
(8 Marks)

(d) Outline TWO uses of geological maps. (4 Marks)