



## TECHNICAL UNIVERSITY OF MOMBASA

---

FACULTY OF ENGINEERING AND TECHNOLOGY  
DEPARTMENT OF BUILDING & CIVIL ENGINEERING

**UNIVERSITY EXAMINATION FOR:**  
DIPLOMA IN BUILDING AND CIVIL ENGINEERING  
EBC 2106: ENGINEERING GEOLOGY  
END OF SEMESTER EXAMINATION

**SERIES: AUGUST 2019**

**TIME: 2 HOURS**

**DATE: ----AUG 2019**

### Instructions to Candidates

You should have the following for this examination

- Answer Booklet, examination pass and student ID
- Drawing instruments.
- Scientific calculator

This paper consists of **FIVE** questions.

Attempt **any THREE** questions.

**Do not write on the question paper**

**Mobile Phones are NOT allowed inside the examination room**

### **QUESTION ONE**

(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 TWO

(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)

## QUESTION THREE

(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)

(d) In regard to faults, differentiate between heave and overlap.

(2 Marks)

#### **QUESTION FOUR**

(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) Explain the term dam.

(2 Marks)

#### **QUESTION FIVE**

(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)