



**TECHNICAL UNIVERSITY OF MOMBASA**

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FACULTY OF ENGINEERING AND TECHNOLOGY  
DEPARTMENT OF BUILDING & CIVIL ENGINEERING  
**UNIVERSITY EXAMINATION FOR:**  
BACHELOR OF SCIENCE IN CIVIL ENGINEERING

**ECE 2302 : ENGINEERING GEOLOGY**  
SPECIAL/SUPPLEMENTARY EXAMINATION  
**SERIES: SEPTEMBER 2018**  
**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) 30 Marks.**

- a) Outline the applications of geology in Civil Engineering. **(5marks)**
- b) Briefly describe the following structural features.
  - i) Folds. **(5marks)**
  - ii) Faults. **(5marks)**
- c) Outline the factors affecting igneous textures. **(8marks)**
- d) Briefly discuss the geological functions influencing quarrying. **(5marks)**
- e) Define metamorphism. **(2marks)**

**ANSWER ANY TWO QUESTIONS FROM THIS SECTION**

**QUESTION TWO (20 Marks)**

- a) Describe the importance of site investigation. **(4marks)**
- b) Outline the major objectives of site investigation. **(10marks)**
- c) Briefly discuss the metamorphic changes that take place in a rock. **(6marks)**



### QUESTION THREE (20 Marks)

- a) Describe the classification of igneous rocks based on silica content. **(8marks)**
- b) Explain the following terms;
  - i) Diagenesis.
  - ii) Lithification.
  - iii) Cement. **(6marks)**
- c) Outline the two main groups of rock forming minerals. **(6marks)**

### QUESTION FOUR (20 Marks)

- a) Briefly discuss the different types of quarries. **(6marks)**
- b) Outline the four (4) stages of site investigation. **(10marks)**
- c) Describe the weathering process. **(4marks)**

### QUESTION FIVE (20 Marks)

- a) Briefly discuss **five (5)** major earthquake effects. **(10marks)**
- b) Outline the agents of metamorphism. **(8marks)**
- c) Differentiate between conglomerates and agglomerates. **(2marks)**