



TECHNICAL UNIVERSITY OF MOMBASA
**Faculty of Engineering &
Technology**

DEPARTMENT OF BUILDING & CIVIL ENGINEERING
UNIVERSITY EXAMINATION FOR BACHELOR OF SCIENCE IN CIVIL
ENGINEERING (BSCE 13M)

ECE 2302: ENGINEERING GEOLOGY

END OF SEMESTER EXAMINATION

SERIES: AUGUST 2013

TIME ALLOWED: 2 HOURS

Instructions to Candidates:

You should have the following for this examination

- Answer Booklet

This paper consists of **FIVE** questions.

Answer question **ONE (COMPULSORY)** in section **A** and any other **TWO** questions from section **B**

Maximum marks for each part of a question are as shown

This paper consists of **TWO** printed pages

SECTION A

Question One (Compulsory)

- a) Briefly discuss the mode of formation of igneous rocks **(4 marks)**
- b) Outline the processes that are involved in the formation of sedimentary rocks. **(9 marks)**
- c) Explain the role of geology in civil engineering **(4 marks)**
- d) Define “Metamorphism” **(2 marks)**
- e) Briefly discuss the following physical properties of minerals:
 - (i) Hardness

- (ii) Tenacity
 - (iii) Luster
- (8 marks)**

SECTION B (Attempt any TWO questions)

Question Two

- a) Outline the purpose of site investigation in civil works **(10 marks)**
- b) Using illustrations, explain anticline and syncline in folds. **(4 marks)**
- c) Write short notes on:
 - (i) Contact metamorphism **(6 marks)**
 - (ii) Regional metamorphism

Question Three

- a) Briefly discuss the classification igneous rocks (classification scheme) **(6 marks)**
- b) Define a Geological map. State its uses **(6 marks)**
- c) Using illustrations, discuss FOUR types of faults **(8 marks)**

Question Four

- a) Explain the implications deformational structures can have on construction. **(6 marks)**
- b) Outline the engineering geological factors used in the selection of building stones. **(6 marks)**
- c) Differentiate between Quarrying and mining **(4 marks)**
- d) Outline the effects of quarries **(4 marks)**

Question Five

- a) Write short notes of the following:
 - (i) Ructites (Rudaceous Rocus) **(2 marks)**
 - (ii) Arenites (Arenaceous Rocks) **(2 marks)**
- b) Outline FOUR possible earthquake effects. **(8 marks)**
- c) Briefly discuss the following quarry prospecting methods:
 - (i) Topographical maps
 - (ii) Use of aerial photographs
 - (iii) Use of geological maps
 - (iv) Use of geophysical methods **(8 marks)**