



TECHNICAL UNIVERSITY OF MOMBASA

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

ECV4222 : 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) Define the following; i) Geology ii) Engineering Geology. **(4marks)**
- b) Discuss role of geology in Civil Engineering. **(4marks)**
- c) Discuss the four (4) main agents of Erosion. **(6marks)**
- d) Briefly describe the following physical properties of rock forming materials;
 - i) Hardness
 - ii) Tenacity
 - iii) Luster
 - iv) Cleavage
 - v) Fracture **(10marks)**
- e) Describe the three (3) main types of rocks. **(6marks)**

ANSWER ANY TWO QUESTIONS FROM THIS SECTION

QUESTION TWO (20 Marks)

- a) Describe the following; i) Groundwater ii) Porosity iii) Permeability
iv) Water table **(6marks)**
- b) Briefly discuss the major objectives of site investigation. **(10marks)**
- c) Describe "Form" of a mineral. Outline crystal types **(4marks)**



QUESTION THREE (20 Marks)

- a) Briefly discuss the three (3) types of Quarries. **(7marks)**
- b) Using illustrations, discuss three intrusive igneous structures. **(10marks)**
- c) Differentiate between Diagenesis and Lithification. **(3marks)**

QUESTION FOUR (20 Marks)

- a) Describe the metamorphic changes that take place in a rock. **(6marks)**
- b) Using illustrations, discuss types of Aquifers. **(7marks)**
- c) Briefly describe the engineering properties of rocks. **(7marks)**

QUESTION FIVE (20 Marks)

- a) Outline the geological factors considered in the selection of natural building stones. **(6marks)**
- b) Outline the classification of igneous rocks based on silica content. **(6marks)**
- c) Outline a simple classification of sedimentary rocks. Give examples. **(8marks)**