



TECHNICAL UNIVERSITY OF MOMBASA

Faculty of Engineering and Technology

Department of BUILDING & Civil engineering

UNIVERSITY EXAMINATION FOR: BACHELOR OF SCIENCE IN CIVIL ENGINEERING

ECE 2302 : ENGINEERING GEOLOGY

END OF SEMESTER EXAMINATION

SERIES: DECEMBER 2016

TIME: 2 HOURS

DATE: 15 Dec 2016

Instructions to Candidates

You should have the following for this examination

-*Answer Booklet, examination pass and student ID*

-*Drawing instruments.*

This paper consists of five questions.

Attempt question ONE (Compulsory) and any other TWO questions.

Do not write on the question paper.

- Q1. (a) Explain the following terms used in sedimentary petrology
- i. Diagenesis
 - ii. Lithification
 - iii. Cement (6 marks)
- (b) Referring to the geological map (Figure page Figure);
- (i) Draw and label strike lines
 - (ii) Draw Geological section x-y
 - (iii) Find Dip and Strike of beds
 - (iv) Write a brief geological history of the site (16 marks)
- (c) Discuss the geologic factors that affect selection of gravels and sands (8 marks)
- Q2. (a) Differentiate between the following;
- ii) Dike and Sill
 - iii) Dip slip fault and Strike slip fault (4 marks)
- (b) (i) Describe Luster
(ii) List six descriptive terms used for describing non-metallic luster (6 marks)
- (c) Outline the Silica tetrahedra classification of silicate groups (12 marks)
- Q3. (a) (i) List three agents of metamorphism
Explain the processes which the listed agents in 3 a(i) cause metamorphism. (6 marks)
- (b) (i) Explain five methods used in prospecting for quarries
i) Outline four limitations of blasting as a method of quarrying. (14 marks)
- Q4 (a) Briefly describe the main objectives of site investigations (8 marks)
- (b) Differentiate between the following terms:-
- i) Profiling and Sounding
 - ii) Cleavage and Fracture
 - iii) lopolith and Phacolith (6 marks)
- (c) i) Explain four factors that affect igneous rock textures
ii) Define the following textural terms:-

➤ Granoblastic

➤ Porphyritic

(6 marks)

- Q5. (a) Explain **eight** geological considerations made in tunneling (8 marks)
- (b) Outline Geologic factors considered in the identification of Natural Building Stones (6 marks)
- (c) Explain the relevance of the geologic time scale (6 marks)

Figure

