



TECHNICAL UNIVERSITY OF MOMBASA

Faculty of Engineering and Technology
Department of ARCHITECTURE & BUILT ENVIRONMENT

UNIVERSITY EXAMINATION FOR: DIPLOMA IN ARCHITECTURE DIPLOMA IN QUANTITY SURVEYING

EAR 2104 : GEOLOGY AND CLIMATOLOGY

SPECIAL/SUPPLEMENTARY EXAMINATION

SERIES: MARCH 2025

TIME: 2 HOURS

DATE: Pick Date MARCH 2025

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 any THREE questions.

Do not write on the question paper.

QUESTION ONE

(a) (i) State the principal objective of engineering geologist.

(2 Marks)



(ii) Outline the FIVE stages of construction where engineering geological studies are important.

(5 Marks)

(b) Identify and explain FIVE areas in building and civil engineering where geology is applied.

(10 Marks)

(c) In regards to structure of earth, describe Mantle.

(3 Marks)

QUESTION TWO (20 Marks)

(a) In regard to igneous rocks, describe TWO processes of their formation.

(4 Marks)

(b) Briefly describe a sill and its formation.

(6 Marks)

(c) With aid of sketches, describe the following types of faults:

(i) Vertical

(ii) Reversed

(10 Marks)

QUESTION THREE (20 Marks)

(a) Outline FOUR typical hazards and other adverse conditions that should be evaluated and mitigated by engineering geologist.

(6 Marks)

(b) (i) Explain the term Liquefaction.

(ii) Outline FIVE factors upon which liquefaction potential depend.

(7 Marks)

(c) Identify and explain TWO factors affecting climate.

(5 Marks)

(d) Briefly explain the importance of climatology in Architecture.

(2 Marks)

QUESTION FOUR (20 Marks)

(a) Identify and describe FOUR elements of climate.

(8 Marks)

(b) Identify and explain FOUR characteristics of tropical climate.

(8 Marks)

(c) (i) Distinguish between macro-climate and micro-climate.

(ii) Briefly explain the importance of macro-and micro-climate in built environment

(4 Marks)

QUESTION FIVE (20 Marks)

(a) Outline FOUR aims of enhancing micro-climate around building.

(6 Marks)

(b) In regard to effect of climate on architectural expressions, explain THREE areas of consideration in respect of Sun.

(6 Marks)

(c) The form of a building can have a great effect on the impact of wind. Outline EIGHT ways of ensuring safety on buildings.

(8 Marks)

