



THE MOMBASA POLYTECHNIC UNIVERSITY COLLEGE

(A Constituent College of JKUAT)

(A Centre of Excellence)

Faculty of Engineering & Technology

DEPARTMENT OF BUILDING & CIVIL ENGINEERING

**DIPLOMA IN CIVIL ENGINEERING
DIPLOMA IN BUILDING & CIVIL ENGINEERING**

EBC 2214: ENGINEERING GEOLOGY

SPECIAL/SUPPLEMENTARY EXAMINATION

SERIES: OCTOBER 2012

TIME: 2 HOURS

Instructions to Candidates:

You should have the following for this examination

- *Answer Booklet*

- *Scientific Calculator*

This paper consists of **FIVE** questions. Answer any **THREE** questions

Maximum marks for each part of a question are as shown

This paper consists of **TWO** printed pages

Question One (20 Marks)

- a) Outline the role of engineering geology to construction industry. **(5 marks)**
- b) Distinguish igneous from volcanic as seen in hand specimens and in the field. **(5 marks)**
- c) Briefly explain the following igneous structures **(6 marks)**
 - i) Dyke
 - ii) Sill
 - iii) Batholith
- d) State major sedimentary processes that continue to affect land masses. **(4 marks)**

Question Two (20 Marks)

- a) Explain the term “metamorphism” **(2 marks)**
- b) State main considerations of **FOUR** categories of igneous rock classification based on Silica content. **(6 marks)**
- c) With the aid of sketches distinguish the following. **(14 marks)**
 - i) Normal fault from reverse fault
 - ii) Wrench fault from TRUST fault

Question Three (20 Marks)

- a) Briefly the **THREE** types of sources of ground water. **(6 marks)**
- b) Explain the terms. **(8 marks)**
 - i) Aquifer
 - ii) Regional metamorphism
- c) Distinguish a ‘schist’ from gneiss **(8 marks)**

Question Four (20 Marks)

- a) Explain the **FOUR** main methods applied to prospecting for rocks and soils as construction materials. **(8 marks)**
- b) State **FIVE** purposes of tunnel construction. **(8 marks)**
- c) Explain the term Dam, as used in engineering geology. **(2 marks)**

Question Five (20 Marks)

- a) With the aid of sketches, describe **TWO** of the following: **(8 marks)**
 - i) Syncline
 - ii) Overthrust
 - iii) Symmetrical fold
 - iv) Isoclinal

b) Explain **SIX** factors considered when selecting rocks or soil as construction material. (12 marks)