



KENYATTA UNIVERSITY
UNIVERSITY EXAMINATIONS 2011/2012
FIRST SEMESTER EXAMINATION FOR THE DEGREE OF BACHELOR OF
SCIENCE

SET 319: GEOLOGY OF ENGINEERS

DATE: Wednesday 30th November 2011

TIME: 8.00a.m – 10.00a.m

Instructions: Question ONE is compulsory. Answer any other two

QUESTION ONE

a). Define sedimentary environments. Explain in detail various parameters which control deposition.

(9 marks)

b) .Describe the following with an example:

1. Joints
2. Strike-slip fault

(6 marks)

c) Explain briefly any four important physical properties of minerals that are commonly studied for their identification. Describe the terms used to describe each.

(8 Marks)

d).Explain the following using sketches where appropriate:

1).Composition of the Earth from surface to centre

(4 marks)

2). Briefly describe the following methods of rock and soil excavation

- Blasting
- Augering

(2 marks)

3). When are drift edition of geological maps used in engineering work

(1 mark)

QUESTION TWO

A) Describe the following stones and their economic uses

- Limestone
- Marble
- Granite

(15 marks)

B)Differentiate between weathering and erosion and their agents. (5 Marks)

QUESTION THREE

- A) What are the reasons for folding? Discuss how a recumbent fold differ from monocline fold and illustrate your answer with help of neat sketches. (7 Marks)
- B) i) What is the main force responsible for mass movement processes? How is this force affected by slope angle? (5 Marks)
- ii) Define the following. a) angle of response, (b) sensitive soils, (c) hydrocompacting clays, (d) groundwater, (e) quick clays (5 marks)
- (iii) What is factor the factor of safety and how does it apply to slope stability (3 Marks)

QUESTION FOUR

- A) Name and explain the agent which causes metamorphism. Explain different types of metamorphism. (12 Marks)
- B) Describe ways of supporting underground excavations to prevent ground around exaction becoming unstable. (8 marks)

QUESTION FIVE

- A) Describe the solid and drift editions of geological maps and their uses. (5 Marks)
- A) why are the spacing and frequency of joints important ?(5 Marks)
- B) the following are processes of weathering. Describe each one of them stating what type of weathering they belong.
- i) Hydrolysis
 - ii) Hydration
 - iii) Wetting and drying
 - iv) Crystallization
- (8 marks)
- C) Give any two factors that determine the texture of igneous rocks (2 Marks)