



# MACHAKOS UNIVERSITY

University Examinations for 2022/2023

SCHOOL OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF BUILDING AND CIVIL ENGINEERING

THIRD YEAR ..... SEMESTER EXAMINATION FOR

BACHELOR OF SCIENCE (CIVIL ENGINEERING)

ECV 300: ENGINEERING GEOLOGY

DATE:

TIME:

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## ***INSTRUCTIONS***

**ANSWER QUESTION ONE AND ANY OTHER TWO QUESTIONS**

### **QUESTION ONE (COMPULSORY) (30 MARKS)**

- a) Discuss the three types of deformation that can occur on a rock (3 marks)
- b) With the aid of diagrams describe the two types of L waves /surface waves (4 marks)
- c) Describe any four of the most useful properties of minerals (4 marks)
- d) The vast majority of large earthquakes occur at plate boundaries with the aid of diagrams discuss earthquakes at plate boundaries (4 marks)
- e) Discuss the common types of joints in rocks (4 marks)
- f) Describe any three types of slope failure (3 marks)
- g) As an engineer in charge of dam site investigation , list and describe the various
- h) information that will be collected during the preliminary stage (4 marks)
- i) State four preparation Steps necessary before stone Quarrying. (4 marks)

## **QUESTION TWO (20 MARKS)**

- a) Discuss some of the most important recommendations that are required when one is planning for a field mapping (8 marks)
- b) State five uses of geological maps (5 marks)
- c) Describe the different types of field equipment required in field mapping (5 marks)
- d) List and explain two ways in which geological maps can be produced (2 marks)

## **QUESTION THREE (20 MARKS)**

- a) Discuss three methods that can be used to prevent slope failure (6 marks)
- b) List and discuss any four endogenetic factors affecting weathering (8 marks)
- c) Elaborate on the purpose of Slope Stability Analysis (6 marks)

## **QUESTION FOUR (20 MARKS)**

- a) With examples describe how different types of sedimentary rocks are formed (6 marks)
- b) Discuss any five factors affecting rock properties: (10 marks)
- c) Explain four index properties of rocks (4 marks )

## **QUESTION FIVE (20 MARKS)**

- a) Discuss five classification of minerals based on predominant anion or anion group. (10 marks)
- b) Discuss different types of geological structures (10 marks)