



MACHAKOS UNIVERSITY

University Examinations for 2021/2022 Academic Year

SCHOOL OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF BUILDING AND CIVIL ENGINEERING

THIRD YEAR FIRST SEMESTER EXAMINATION FOR

BACHELOR OF SCIENCE (CIVIL ENGINEERING)

ECV 300: ENGINEERING GEOLOGY

DATE: 23/8/2022

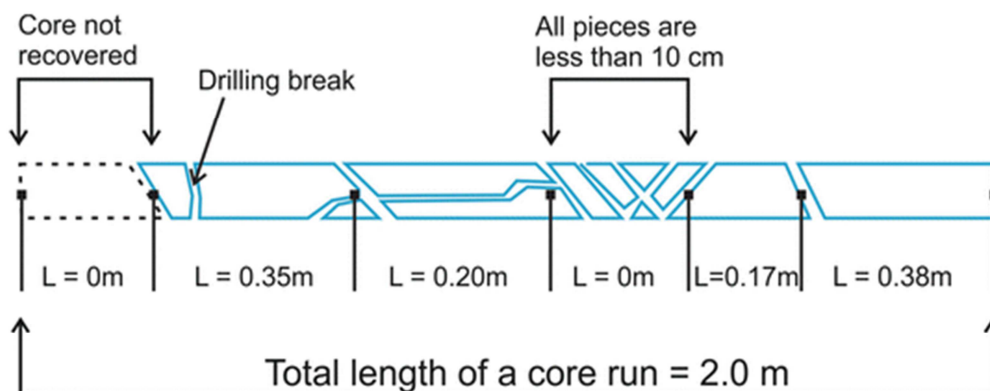
TIME: 8.30-10.30 AM

INSTRUCTIONS:

- This paper comprises of five questions. Answer **three** questions
- Question one is **compulsory** and carry 30 marks
- Use well labeled and neat diagrams where applicable.
- Answer any other **two** questions

QUESTION ONE (COMPULSORY) (30 MARKS)

- Differentiate between folds and faults as applied in engineering geology. (2 marks)
- Define engineering geology and its importance to civil engineering. (12 marks)
- With the help of a well labeled diagram discuss the structure of the earth that is relevant to civil engineers. (10 marks)
- A civil engineer working together with an engineering geologist recovered the below core for a dam site that is under investigations. (6 marks)



Determine the following core parameters and show your workings

- i. Total core recovery
- ii. Solid core recovery
- iii. Rock quality designation

QUESTION TWO (20 MARKS)

Discuss in detail the physical properties of minerals and the importance of minerals in civil engineering.

QUESTION THREE (20 MARKS)

Before any engineering construction project is started the responsible engineers must conduct thorough site investigations of the areas susceptibility to geological hazards like earthquakes.

- a) Explain the causes of earthquakes
- b) Classification of earthquakes
- c) Elucidate the precautions you have to undertake to ensure your building is earth quake proof

QUESTION FOUR (20 MARKS)

Write a critical essay on weathering and its significance in engineering construction

QUESTION FIVE (20 MARKS)

With the help of well labeled diagrams discuss the types of geophysical investigations a civil engineer should conduct to check suitability of construction sites.