



# MACHAKOS UNIVERSITY

University Examination 2019/2020

**SCHOOL OF ENGINEERING AND TECHNOLOGY  
DEPARTMENT OF BUILDING AND CIVIL ENGINEERING  
FIRST YEAR THIRD SEMESTER EXAMINATION FOR  
DIPLOMA IN BUILDING CONSTRUCTION MODULE**

**2705/105: GEOTECHNOLOGY I**

**DATE:**

**TIME:**

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***INSTRUCTIONS TO CANDIDATE***

**All Questions carry equal marks**

**Maximum marks for each part of a question are as shown**

**QUESTION ONE (20 MARKS)**

- a) Explain the following terms:
- i. 'Minera,'
  - ii. 'Rock' (4 marks)
- b) Distinguish the following minerals:
- i) Quartz from Calcite based on cleavage
  - ii) Mica from halite based on Form
  - iii) Quartz from Magnetite based on Magnetic
  - iv) Corundum from Fluorite based on Hardness (8 marks)
- c) Distinguish a volcanic rock from an intrusive rock if they occur on a construction site (8 marks)

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

- a) Explain the significance of mineral hardness. (6 marks)
- b) Outline FOUR characteristics of Basalts. (8 marks)
- c) Distinguish dehydration from Decarbonation giving mineral examples. (6 Marks)

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

- a) Distinguish Quartz from Obsidian. (4 marks)
- b) Explain formation and construction uses of Tuff. (6 marks)
- c) Outline contact metamorphism. (10 marks)

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

- a) Explain the following:
  - i) Role of Mineral cleavage in rocks,
  - ii) Rate of cooling for intruding magma. (4 marks)
- b)
  - i) Distinguish Conglomerate from sedimentary Breccia.
  - ii) Explain the effect of pressure in metamorphic changes. (6 marks)
  - iii) Mica from halite based on Form.
- c) Explain the following terms:
  - i) 'Diagenesis' as plied to sedimentary rocks,
  - ii) 'Porphyritic texture' (10 marks)

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

- a) Explain the following:
  - i. Fossiliferous limestone
  - ii. Cross bedding (6 marks)
- b) Compare the response of Marble to Granite based on cutting (4 marks)
- c) Explain the following terms:
  - i. 'Form' as plied to sedimentary rocks,
  - ii. --'Ripple marks' and;
  - iii. 'Flute casts'as applied to sedimentary rocks. (10 marks)