



MACHAKOS UNIVERSITY

University Examinations for 2019/2020 Academic Year

SCHOOL OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF BUILDING AND CIVIL ENGINEERING

FIRST YEAR SECOND SEMESTER EXAMINATION FOR

DIPLOMA IN BUILDING CONSTRUCTION

DIPLOMA IN CIVIL ENGINEERING

2705/105: GEOTECHNOLOGY I

DATE: 14/12/2020

TIME: 11.30-1.30 PM

INSTRUCTIONS TO CANDIDATES

Answer ALL Questions

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 construction uses of Tuff. (6 marks)
- c) Outline contact metamorphism. (10 marks)

QUESTION THREE (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)