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*(University of Choice)*

**MASINDE MULIRO UNIVERISTY OF  
SCIENCE AND TECHNOLOGY (MMUST)**

**MAIN CAMPUS**

**UNIVERSITY EXAMINATIONS**

**2021/2022 ACADEMIC YEAR (REGULAR)  
FIRST YEAR FIRST SEMESTER EXAMINATIONS**

**SUPPLEMENTARY/SPECIAL EXAMS**

**CERTIFICATE IN GENERAL AGRICULTURE**

**COURSE CODE: CAG 009**

**COURSE TITLE: FUNDAMENTALS OF SOIL SCIENCE**

**DATE: 29.7.22**

**TIME: 11-1PM**

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**INSTRUCTIONS TO STUDENTS**

Answer all questions in section A

Answer any TWO questions in section B

MMUST observes ZERO tolerance to examination cheating

### SECTION A (30marks)

1. Distinguish between the following terms; (6marks)
  - i. Cation exchange capacity and cation exchange sites
  - ii. Soil and soil texture
  - iii. Physical and chemical weathering
2. What the names given to the following types of soils that are transported by either;
  - i. Water (1mark)
  - ii. Wind (1mark)
  - iii. Gravity (1mark)
3. Outline factors that affect soil formation (5marks)
4. Explain why clay soils are always fertile as compared to sandy soils (2marks)
5. What are the advantages of organic matter to soil (4marks)
6. State the different types of soil (5marks)
7. Explain the key points that should be considered when collecting soil samples for laboratory analysis. (5 marks)

### SECTION B (40marks)

8. a) Define the term soil structure (2marks)
  - b) State the importance of a farmer having a good soil structure (2marks)
  - c) Discuss the different types of soil structure (16marks)
9. Distinguish between the following terms;
  - a. Solum and regolith (2marks)
  - b. Illuviation and eluviation process and state in which soil horizon does each process takes place (4 marks)
  - c. Explain the differences between surface soil and sub soil (14marks)
10. a) What is soil sampling (2marks)
  - b) Discuss the importance of soil sampling (6marks)
  - c) using illustrations, describe the 3 methods of soil sampling (6marks)
  - d) Discuss any 3 types of soil (6marks)