

INSTRUCTIONS.

Answer **question one** and any other two from the subsequent questions.

DCE 054 GEOLOGY

SECTION A

1. a) List five important points why a civil engineer should study geology and its relevance in the day to day handling of a project. (5marks)
- b) State any three (3) surface exploration methods. (3marks)
- c) Explain the following physical properties used to identify minerals.
 - i) Cleavage
 - ii) Lustre
 - iii) Tenacity (6marks)
- d) Define specific gravity of a mineral and list the common methods of determining specific gravity of a mineral. (3marks)
- e) Write short notes on standard penetration test and its application. (5marks)
- f) Distinguish between disturbed samples and undisturbed samples. (2marks)
- g) Distinguish between dynamic metamorphism and contact metamorphism. (6 marks)

SECTION B

2. a) List the factors that affect weathering. (4marks)
- b) Define cycle of erosion. (2marks)
- c) Explain the following terms as related to consolidation.
 - i) Compaction
 - ii) Cementation (4marks)
- d) Differentiate between mechanical and chemical weathering. (4marks)
- e) Explain the following terms related to agents erosion.
 - i) Abrasion
 - ii) Attrition
 - iii) Deflation (6marks)

3. a) Differentiate the following with aid of sketches: folds, faults, and joints as concerns rocks. (6marks)
- b) State five (5) main features of sedimentary rocks. (5marks)
- c) List five (5) important features done during reconnaissance phase while performing site investigation. (5marks)
- d) Describe the electrical resistivity method of sub-surface exploration. (4marks)
4. a) state and explain all the processes that lead to the formation of clastic sedimentary rocks. (9marks)
- b) Differentiate between clastic sedimentary rocks and chemical sedimentary rocks. (2marks)
- c) Define geological maps and their purpose (2marks)
- d) List the steps taken in the development of geological maps (4marks)
- e) Explain the following three features used in geological maps
- i. colored areas
 - ii. symbols
 - iii. map key (3marks)