



ELIZADE UNIVERSITY
Pragmatic Innovation for Development

FACULTY: ENGINEERING
DEPARTMENT: CIVIL ENGINEERING
FIRST SEMESTER EXAMINATION (MARCH 2017)
2016/2017 ACADEMIC SESSION

Course Title: Engineering Geology

Course Code: CVE 303

HOD'S SIGNATURE

Instructions:

- 1) **Attempt any four Questions**
- 2) **Time Allowed: 3 hours**
- 3) **SEVERE PENALTIES APPLY FOR MISCONDUCT, CHEATING, POSSESSION OF UNAUTHORIZED MATERIALS DURING EXAM**



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DEPARTMENT OF CIVIL AND ENVIRONMENTAL ENGINEERING

Session: 2016/17

Semester: First

Course: Engineering Geology

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Units: 3

Instruction: Attempt Four Questions

Time Allowed: 3 hrs

Question 1

- a. Define the following terms:
- i. Geology 2 Marks
 - ii. Geochemistry 2 Marks
- b. Briefly explain the following:
- i. Chemical weathering 2 Marks
 - ii. Mechanical weathering 2 Marks
 - iii. Biological weathering 2 Marks
- c. Briefly discuss some commonly occurring processes in chemical weathering. 5 Marks

Question 2

- a. Briefly discuss the work of river as an agent of erosion 3 Marks
- b. i. Define minerals. 2 Marks
- ii. State the two techniques that are employed to identify minerals. 4 Marks
- c. A study of the regularity of crystal forms, including the values of interfacial angles, shows that all crystals possess certain elements of symmetry. State these three elements. 6 Marks

Question 3

- a. Discuss the following terms:
- i. Igneous rock 2 Marks
 - ii. Sedimentary rock 2 Marks
 - iii. Metamorphic rock 2 Marks

- b. i. Mention the two most important features that are produced when strata are deformed by earth movements. **2 Marks**
- ii. Draw a pictorial diagram illustrating the dip and strike orientation in a bed rock. **3.5 Marks**
- iii. Draw the block diagram of a non-plunging overturned anticline and syncline showing various fold elements. **3.5 Marks**

Question 4

- a. Briefly explain the following:
- i. Stratigraphy: **2.5 Marks**
- ii. A time rock units **2.5 Marks**
- iii. Geological systems **2.5 Marks**
- iv. The Geological time scale **2.5 Marks**
- b. Explain what you understand by Fossils in relation to its importance. **5 Marks**

Question 5

- a. Explain the following: i. Infiltration **2 Marks** ii. Percolation **2 Marks**
- iii. Capillary fringe and water table **2 Marks**
- b. Draw a schematic diagram of the following:
- i. The Hydrological Cycle. **3 Marks**
- ii. The conditions in pore spaces above the water table. **3 Marks**
- iii. The cross-section through an Embankment Dam. **3 Marks**

Question 6

- a. State the five stages of the systematic exploration and investigation of a new site. **10 Marks**
- b. Briefly discuss the relevance of geology to civil engineering. **5 Marks**