



CRAWFORD UNIVERSITY, IGBESA,

FAITH CITY, IGBESA, OGUN STATE

COLLEGE OF NATURAL AND APPLIED SCIENCES

DEPARTMENT OF GEOLOGY AND MINERAL SCIENCES

2020/2021 HARMATTAN SEMESTER EXAMINATIONS

COURSE TITLE: HYDROGEOLOGY

COURSE CODE: GEM 463

TIME ALLOWED: 3 HRS

INSTRUCTION: ANSWER QUESTION 1 AND 3 OTHERS

1 a. Explain the relationship between hydrogeology and hydrology?

b. Describe 5 out of the following terms:

- i. Hydraulic head
- ii. Porosity
- iii. Permeability
- iv. Water Content
- v. Hydraulic Conductivity
- vi. Transmissivity
- vii. Specific Storage
- viii. Specific Yield

2 a. Explain the following terms;

- i. Aquifer.
- ii. Aquiclude.
- iii. Aquifuge.
- iv. Aquitard.
- v. Perched Aquifer.

b. Describe the differences between a confined aquifer and unconfined aquifer in terms of the following?

- i. Depth
- ii. Pressure
- iii. Purity

- iv. Recharge
 - v. Saturation
- 4 a. Discuss the factors that determine the occurrence of groundwater in the following rock formations:
- i. Sedimentary
 - ii. Limestone
 - iii. Basement Complex
- b. What are the steps involved in borehole development?
- 5 a. Using a well annotated diagram, show the locations of the 11 groundwater provinces in Nigeria?
- b. Describe the 3 methods of carrying out groundwater exploration.
6. a. Give a detailed explanation of Well Development.
- b. How do you prevent borehole failure?
- c. Enumerate the solutions to borehole failure.

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