



# CRAWFORD UNIVERSITY, IGBESA,

FAITH CITY, IGBESA, OGUN STATE  
COLLEGE OF NATURAL AND APPLIED SCIENCES  
DEPARTMENT OF PHYSICAL & EARTH SCIENCES  
GEOLOGY & MINERAL SCIENCES

Harmattan Semester Examinations (B.Sc. Degree), 2016/2017  
COURSE: GEM 463 – Hydrogeology

UNIT: 2 Units

TIME ALLOWED: 2hrs 30mins

INSTRUCTIONS: ANSWER QUESTION 1 AND 3 OTHERS

1 a. What is the relationship between hydrogeology and hydrology?

b. Explain 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 You have just been appointed as the General Manager of your State Water Corporation. On taking over the office, you discovered that the water supply system is almost comatose. Explain the steps you will take to ensure continuous water supply.

3 a. Explain the following terms;

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

b. What are 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. Explain the factors that determine the occurrence of groundwater in the following rock formations:

- i. Sedimentary
- ii. Limestone
- iii. Basement Complex

b. What steps are involved in borehole development?

5 a. On a map of Nigeria, give the locations of the 11 groundwater provinces in Nigeria?

b. Describe the 3 methods of carrying out groundwater exploration.