

**FEDERAL UNIVERSITY OF TECHNOLOGY, MINNA
SCHOOL OF PHYSICAL SCIENCES
DEPARTMENT OF GEOLOGY**

**FIRST SEMESTER EXAMINATION FOR THE DEGREE OF BTech GEOLOGY
2017/2018 SESSION**

COURSE CODE: GEL 412

UNIT: 3

COURSE TITLE: HYDROGEOLOGY

INSTRUCTIONS: ANSWER TWO QUESTIONS FROM EACH SECTION

TIME ALLOWED: 2 HOURS 30 MIN.

DATE: 28 APRIL 2018

SECTION A

1. With the aid of suitable diagrams explain the origin and occurrence of groundwater and attempt a classification of subsurface water.
2. What is groundwater development? Explain the various ways groundwater can be developed for domestic, irrigation and industrial purposes.
3. Write brief notes on any two (2) of the following;
 - i. Hand dug wells and other less common ways of accessing groundwater
 - ii. Siting boreholes and wells
 - iii. Pumping tests and their importance in hydrogeology

SECTION B

1. What are aquifers and how are they classified?
2. (a) State and discuss Darcy's equation
(b) List and discuss any four methods used in determining hydraulic conductivity
3. Mention and explain any five methods by which aquifers attenuate contaminant