



UNIVERSITY OF MINES AND TECHNOLOGY, TARKWA

FIRST SEMESTER EXAMINATIONS, NOV/DEC 2018

COURSE NO: GL 231

COURSE NAME: BASIC HYDROGEOLOGY

CLASS: GD 2

TIME: 3hrs

Name: _____ Index Number: Unihubgh.com

ATTEMPT ALL QUESTIONS

Marks will be allocated for nice presentation.

1 Briefly explain the following as used in hydrogeology. Use diagrams where appropriate.

- | | |
|---------------------|------------------------|
| i. Transmissivity | ii. Artesian well |
| iii. Drawdown | iv. Cone of depression |
| v. Ephemeral stream | vi. Discharge |
| vii. Vadose zone | viii. Pressure head |

4 marks each

2 a. With the aid of a well labelled diagram describe total head, elevation head and pressure head as used in hydrogeology. **10 marks**

i. Why is it believed that the hydrological cycle has no beginning and no end?

4 marks

b. Give four (5) reasons why the study of hydrogeology is important to a driller

5 marks

c. Give four (5) natural discharge from groundwater systems.

5 marks

3 a. Can all rocks serve as aquifers? Explain your answer. **5 marks**

b. Differentiate between groundwater pollution and contamination. **5 marks**

c. Differentiate between an aquifer, aquiclude and aquitard. Give two (2) examples in each case **12 marks**

4. The following data were collected at a nest of boreholes

	A	B	C
Elevation at surface (m a.s.l)	225	225	225
Depth of borehole	150	100	75
Depth of water (m below surface)	80	77	60

a. What is the hydraulic head at A, B and C?

b. What is the pressure head at A, B and C?

c. What is the elevation head in each well?

d. What is the vertical hydraulic gradient between the piezometers?

20 marks

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