

Uva Wellassa University of Sri Lanka

Faculty of Applied Sciences

Department of Science and Technology

200 Level 1st Semester Examination – July/August 2019

MRT 253-2 Principles of Hydrogeology



014

Instructions

Duration: 02 hours

Index Number:-

Number of questions: Part A (Structured Essay) – 06 Questions, Part B (Essay) - 3

Number of questions to be answered: All questions in both Part A and B

Mark allocation: 100 (Part A: 30 marks and Part B: 70 marks)

Illustrate your answers with sketches/diagrams where necessary.

Density of water = 998.2 kg/m³ at 25° C, Dynamic viscosity of water = 1.005 x 10⁻³ kg/ms at 25° C

Part A (Answer within the given space itself)

1. Briefly explain reasons for possible water flow directions in;

a. Unsaturated zone

.....
.....
.....

b. Saturated zone

.....
.....
.....
.....
.....

2. What are the factors that govern the groundwater flow?

.....
.....
.....
.....

3. What are the hydrogeological differences in confined and unconfined aquifers

Identify an
and not br

10

assing Weight (%)

.....
.....
.....
.....
.....

4. A water filled fracture within a crystalline rock is selected to abstract water through a tube well. What kind of aquifer it is? Explain your answer.

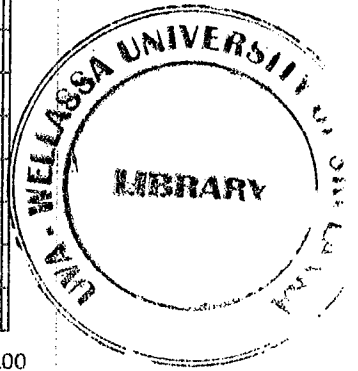
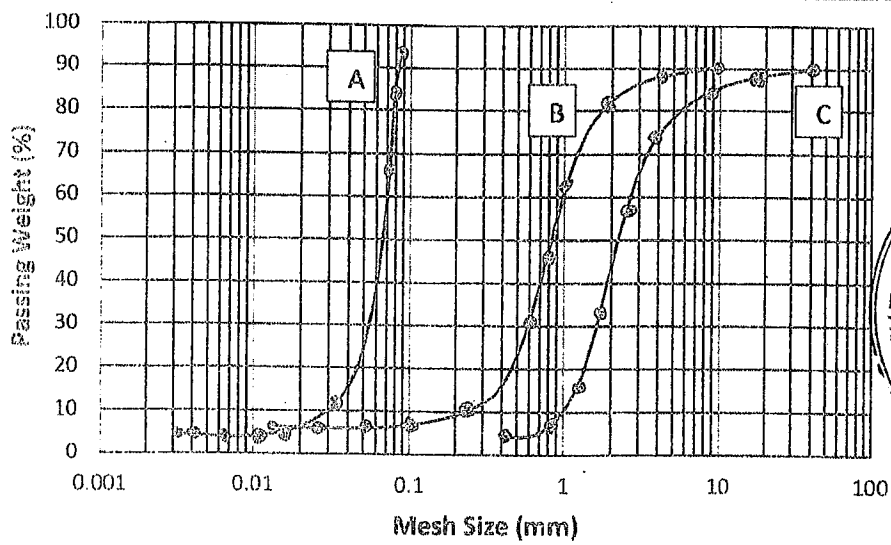
.....
.....
.....
.....
.....
.....
.....
.....
.....

5. What is the contribution of porosity and permeability for a better aquifer?

.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....



Identify and interpret the following grain size grading curves (These are natural materials and not broken or crushed rocks).



Hint: Grain sizes

Type	Grain size range (mm)
Clay	0.001- 0.01
Silt	0.01 – 0.1
Sand	0.1 - 10
Gravel	10 - 100

A:

.....

.....

.....

.....

.....

.....

.....

.....

B:

.....

.....