

Uva Wellassa University
Faculty of Science and Technology
Mineral Resources and Technology Degree Programme
1st Semester Examination – March/ April 2013



MRT 482-1 Advanced Water Treatment Methods
Repeat Only

Instructions to Candidates

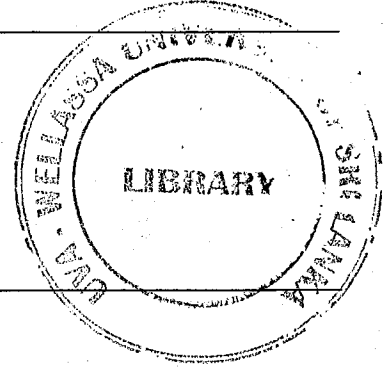
Total 04 (four) Questions

Answer all questions

Total time allocated: 01 (one) hour

Total marks allocated: 100

Draw sketch diagrams where necessary.



1. Sri Lanka is recognized as the major exporter of coconut shell based activated carbon. Activated carbon has a high demand in water and wastewater industry.
 - a. Explain the use of activated carbon in water industry. (15 marks)
 - b. Describe the scientific reasons for high adsorption capacity of activated carbon (10 marks)

2. Both aerobic and anaerobic treatment systems are used in wastewater treatment. However, at present world is moving towards anaerobic system than aerobic. Waste is now considered as a resource.
 - a. Explain giving examples the above two systems and their applications. (15 marks)
 - b. Describe the appropriate wastewater technologies for developed countries. (10 marks)

3. Wetland treatment is one of the ecological treatment technologies which use natural systems in treating wastewater. There are several types of wetland systems currently deployed in the world.
 - a. Discuss the advantage and disadvantages of wetland systems as a wastewater treatment technology. (15 marks)

b. Explain the function of trees/ plants in a wetland system with respect to their contribution to nutrient removal. (10 marks)

4. Nitrate pollution in groundwater is one of the major challenges faced by the water supply engineers in various part of the world. Some parts of Sri Lanka such as Jaffna, Puttalam, and Nuwaraeliya also suffers from this problem.

a. Explain your solutions / suggestion to treat groundwater in Sri Lanka for its common pollutants such as nitrate, fluoride and hardness. (20 marks)

b. List the water related issues found in Sri Lanka. (5 marks)