



**Uva Wellassa University of Sri Lanka**  
**Faculty of Science and Technology**  
**Mineral Resources and Technology Degree Programme**  
**3<sup>rd</sup> Year 2<sup>nd</sup> Semester Examination – August/September 2014**



**Uva Wellassa  
University**

**MRT 381-3 – Water Treatment Methods**

Number of Questions : Six (06)

Answer **all** questions

Time allocation: Three (03) hours

Mark allocation: 100 marks

Illustrate your answers with sketches/diagrams where necessary

1. Flocculation and coagulation play a very important role in water and wastewater treatment. Explain about the two processes in details. Jar test is being used in optimizing the chemical use. Explain the steps of jar test to optimize the alum and lime concentrations. (15 marks)
2. Differentiate the use of sedimentation and floatation with the examples from both water and wastewater treatment. Explain the main parameters used in designing sedimentation tank. Explain two different types of floatation systems in water treatment with appropriate sketches. (20 marks)
3. Explain the filtration in details on different removal mechanisms. Explain about the units of rapid sand filter with the flow directions of filtration and backwashing. (15 marks)
4. What is membrane filtration? What are four different types of membrane filtration? Explain the use of membrane technology in different industries. (15 marks)
5. Explain three different types of biological methods used in wastewater treatment processes with appropriate sketches. (15 marks)
6. Propose a suitable wastewater treatment system to treat domestic wastewater to meet surface discharge water quality. (20 marks)