



NATIONAL OPEN UNIVERSITY OF NIGERIA
14-16 AHMADU BELLO WAY, VICTORIA ISLAND LAGOS
SCHOOL OF SCIENCE AND TECHNOLOGY
MAY/JUNE 2012 EXAMINATION

ESM 444 INDUSTRIAL WASTES AND INDUSTRIAL WATER TREATMENT
Duration: 2½ hrs

Instruction: Answer 4 questions out of 6

1.
 - a. Differentiate between the following recirculation water systems: additive systems, open systems and closed systems
 - b. Identify 3 ways by which closed recirculation water system can be applied in an industry *(25 marks)*
2. Discuss at least 5 advantages of a closed recirculating water system *(25 marks)*
3.
 - a. Give a brief description of a boiler and list the various methods of boiler water treatment
 - b. Briefly describe the various methods of boiler water treatment *(25 marks)*
4. As an Environmental Officer of a food company, why do you need to treat your waste water? *(25 marks)*

5. In most places, the easiest form of waste disposal is the landfill.
What is landfilling and what are the challenges of this kind of waste disposal method? (25 marks)
6. a. How does waste recycling differ from waste reduction?
- b. State the advantages of recycling of wastes (25 marks)