



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

COURSE CODE: ESM444

COURSE TITLE: INDUSTRIAL WASTES AND INDUSTRIAL WATER TREATMENT

TIME ALLOWED: 2 HOURS

INSTRUCTION: Answer any four questions

Q1

- (a) Describe the closed recirculation water system. (3½ marks)
- (b) Explain how scales and corrosion can be controlled in a closed recirculation water system (5 marks)
- (c) List six advantages of closed recirculating water system (6 marks)
- (d) Explain briefly the industrial applications of closed recirculation water system (3 marks)

Q2

- (a) Describe the need for External and Internal treatments for boilers (7½ marks)
- (b) List four important features of an Industrial boiler water treatment (4 marks)
- (c) Discuss problems associated with the use of boilers (6 marks)

Q3

- (a) Identify the various sources and composition of industrial wastewaters. (5 marks)
- (b) Industrial Wastewaters are treated to obtain good quality water for specific purposes. List the different procedures used in industrial wastewater treatment. (5 marks)
- (c) Describe briefly the Preliminary and Primary treatments for an industrial wastewater. (7½ marks)

Q4

- (a) Identify some industries that generate waste and comment on the types of waste they generate (8 marks)
- (b) Discuss briefly the Impact of Industrial Waste on the Environment (10 marks)

Q5

- (a) Discuss the integrated methods of waste disposal (10 marks)
- (b) List 5 methods of waste reduction (7½ marks)

Q6

- (a) What is recycling in waste management?(7 marks)
- (b) What is meant by 'biological reprocessing'?(6 marks)
- (c) List 5 advantages of recycling. (5 marks)