

**W1-2-60-1-6**

**JOMO KENYATTA UNIVERSITY OF AGRICULTURE AND TECHNOLOGY**

**UNIVERSITY EXAMINATIONS 2018/2019**

**THIRD YEAR SECOND SEMESTER SPECIAL/ SUPPLEMENTARY EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE IN COMMUNITY HEALTH AND DEVELOPMENT**

**ICH 2304: LIQUID WASTE MANAGEMENT**

**DATE: OCTOBER, 2019 TIME: 2 HOURS**

INSTRUCTIONS: ANSWER ALL QUESTION IN **SECTION A** (COMPULSORY) AND ANY OTHER ONE QUESTION IN **SECTION B**

**SECTION A: 48 MARKS**

1. a. Define waste water treatment. (2 marks)

 b. State various methods of waste water management. (4 marks)

2. Explain various assessment parameters for solids. (6 marks)

3. Explain what determines the quantity of Dissolved oxygen in waste water. (6 marks)

4. Explain various forms of settling in primary waste water treatment.

(6 marks)

5. State the factors that determine biological treatment in secondary stage of waste water treatment. (6 marks)

6. Explain the disadvantages of tricking filters in waste water management. (6 marks)

7. State the advantages of Ion exchange resins in waste water treatment.

 (6 marks)

8. Discuss the growth of bacteria in a biological treatment plant.

(6 marks)

**SECTION B: 22 MARKS**

9. Discuss various Health effects of Chemical parameters. (22 marks)

10. a. Discuss the biological removal of carbon and Nitrogen in waste

 water. (14 marks)

 b. Explain various Health effects of septic Tanks. (8 marks)

11. a. An industrial effluent was found to contain the following water

quality parameters, Cr6+ , I,Hg2+, and Pb2+, Na+ in concentrations higher than those permitted for discharge into aquatic environment. Using chemical reactions explain how the effluent can be treated using Ion exchange resins. (10 marks)

 b. Discuss water stabilization ponds in waste water treatment.

 (12 marks)