



UNIVERSITY OF SWAZILAND

Faculty of Health Science

Department of Environmental Health
Sciences

Main Examination 2010

Title of paper: URBAN WATER TREATMENT TECHNOLOGY

Course code: EHS 213

Time allowed: 2 hours

Marks allocation: 100 Marks

Instructions:

- 1) Read the questions and instructions carefully
- 2) Answer ALL questions
- 3) Each question is weighted 25 marks
- 4) Write neatly and clearly
- 5) Begin each question on a separate sheet of paper

This paper is not to be opened until the invigilator has granted
permission

Main Examination: May 2010

EHS 213

QUESTION 1.

Screening and Straining are some of the physical treatment in a convectional water treatment plant.

Describe the physical treatment process noting the different type of screens and strainers. (25)

QUESTION 2.

a) Chemical coagulation in water treatment plant is accomplished by the addition of trivalent metallic chemicals; name two (2) of these. (2)

b) Name four (4) mechanisms that occur during coagulation and flocculation. (4)

c) Describe briefly the four mechanisms during coagulation and flocculation. (19)

QUESTION 3.

a) Name five (5) types of settling basins employed for solids removal in water treatment plants. (5)

b) With an aid of a diagram, describe the four (4) functional zones of a longitudinal-rectangular settling tank.

QUESTION 4.

“Disinfection is the chemical process which kills micro-organisms in a convectional water treatment plant” using chlorine as a disinfectant!

a) Describe the action of chlorine in water under the following:

i) Monochloramines (5)

ii) Dichloramines (5)

iii) Trichloramines (5)

b) With an aid of a diagram, describe the chlorine residual and break-point Chlorination. (10)