



**UNIVERSITY OF SWAZILAND**  
**Faculty of Health Sciences**

**DIPLOMA IN ENVIRONMENTAL HEALTH**  
**FINAL EXAMINATION PAPER 2007/2008**

**TITLE OF PAPER** : **URBAN WATER TREATMENT TECHNOLOGY**

**COURSE CODE** : **EHS 213**

**DURATION** : **2 HOURS**

**MARKS** : **100**

**INSTRUCTIONS** :

- READ THE QUESTIONS & INSTRUCTIONS CAREFULLY**
- ANSWER ANY FOUR (4) QUESTIONS**
- EACH QUESTION CARRIES 25 MARKS**
- WRITE NEATLY & CLEARLY**
- NO PAPER SHOULD BE BROUGHT INTO NOR OUT OF THE EXAMINATION ROOM**
- BEGIN EACH QUESTION ON A SEPARATE SHEET OF PAPER**

**DO NOT OPEN THIS QUESTION PAPER UNTIL PERMISSION IS GRANTED BY THE INVIGILATOR**

Main Examination: May 2008

EHS 213

QUESTION 1.

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

Describe the physical treatment processes 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. (5)

b) Name four (4) mechanisms that occur during coagulation and flocculation. (5)

c) Describe briefly the four mechanisms during coagulation and flocculation. (15)

QUESTION 3.

a) What is understood by “filtration” in connection with the treatment of a water supply for drinking purpose. (10)

b) Describe rapid gravity filtration used on a big scale by water authority. (15)

QUESTION 4.

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

b) With an of a diagram, describe the four (4) functional zones of a longitudinal-rectangular settling tank. (20)

QUESTION 5.

“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, explain the chlorine residual and break-point Chlorination. (10)