



UNIVERSITY OF SWAZILAND
Faculty of Health Sciences

DIPLOMA IN ENVIRONMENTAL HEALTH
FINAL EXAMINATION PAPER 2005

- TITLE OF PAPER** : WATER SUPPLY TECHNOLOGY
- COURSE CODE** : EHS 202
- DURATION** : 3 HOURS
- MARKS** : 100
- INSTRUCTIONS** :
- : ANSWER ANY FIVE QUESTIONS
 - : EACH QUESTION CARRIES 20 MARKS.
 - : 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.

QUESTION 1.

- a) Name the main characteristics of water and under each characteristic, at least mention two (2) components of those characteristics. (6)
- b) Detail the public health significance of the components you have mention in (a) in regard to water quality and treatment. (14)

QUESTION 2.

Discuss in details the disease transmission mechanism related to water supply and sanitation, giving at least two (2) diseases for each mechanism under the following mechanism:

- i) Water-borne mechanism. (5)
- ii) Water-washed mechanism (5)
- iii) Water-related mechanism (5)
- iv) Water-based mechanism (5)

QUESTION 3.

- a) Why do we need to treat water before it is distributed to the consumers? (10)
- b) Water standards are very important in water supply! Support this statement. (10)

QUESTION 4.

- a) Chemical coagulation in water treatment plant is accomplished by the addition of trivalent metallic. Name two (2) of these. (4)
- b) Name and discuss the four (4) mechanisms that occur during coagulation and flocculation. (16)

QUESTION 5.

- a) Name three types of settling basins employed for solids removal in water treatment plants. (3)
- b) With aid of a diagram, describe the four (4) functional zones of a longitudinal-rectangular settling tank. (17)

QUESTION 6.

“Filtration is one of the physical processes in a conventional water treatment plant”

- i) Compare and contrast between rapid sand filters and slow sand filters. (10)

- ii) State advantages and disadvantages of both filters. (10)