



UNIVERSITY OF SWAZILAND
Faculty of Health Science

**Department of Environmental Health
Sciences**

Final Examination 2007

- TITLE OF PAPER : WATER SUPPLY TECHNOLOGY**
- COURSE CODE : EHS 202**
- DURATION : 3 HOURS**
- MARKS : 100**
- INSTRUCTIONS :**
- READ THE QUESTIONS & INSTRUCTIONS CAREFULLY**
 - 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 THE QUESTION PAPER UNTIL PERMISSION HAS BEEN GRANTED BY THE INVIGILATOR.**

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QUESTION 1.

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

QUESTION 2.

Discuss in details the four disease transmission mechanism related to water supply and sanitation, giving at least two (2) diseases for each mechanism. (20)

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 may be accomplished by the addition of trivalent metallic. Name two (2) of these. (4)
- b) Name and discuss the four (4) reactions that occur the during the coagulation and flocculation of water. (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”

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- i) Compare and contrast rapid sand filters and slow sand filters. (10)
- ii) State advantages and disadvantages of both filters. (10)