



**UNIVERSITY OF SWAZILAND**  
Faculty of Health Science

Department of Environmental Health  
Sciences

Final Examination 2007

- TITLE OF PAPER : WATER QUALITY MANAGEMENT
- COURSE CODE : EHS 542
- 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) Describe the transport process of groundwater contamination. Use a sketch to illustrate a typical plume pollutants. (10)
- B) State giving examples, three (3) reactions that can occur due to contamination of ground water. (10)

Question 2.

The so called Vollenweider Model is commonly used for prediction of eutrophication in lakes and reservoirs.

Describe this model by means of a graph and discuss what assumptions are made in developing this model. (20)

Question 3.

- A) State ten (10) basic rules for a successful water quality assessment program. (10)
- B) Discuss briefly how to choose sampling sites on the following:
- i) River. (5)
  - ii) Lake or Reservoir. (5)

Question 4.

- A) Describe Uniform Effluent Standard (UES) approach in developing Pollution Control Standard (PLS) (14)
- B) State at least three (3) advantage and three (3) disadvantages of a UES. (6)

Question 5.

Discuss the impacts on public health and water environment of the following:

- i) Oil Pollution. (10)
- ii) Toxic Pollution. (10)

Question 6.

Malaria is a water-related disease. Describe its mechanism of spreading and how it can be controlled. (20)