UNIVERSITY OF SWAZILAND

Faculty of Health Sciences

DEGREE IN ENVIRONMENTAL HEALTH
FINAL EXAMINATION PAPER 2005

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.
	:	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.

Final examination.

Question 1.

Write brief notes on the following water pollution parameters, stating how they have impact on water quality.

i) Nutrients (10)

ii) Micro-pollutants (organics) (10)

Question 2.

A) With an aid of a diagram, discuss stratification process in a reservoir and how it affects water quality. (10)

B) Discuss the nutrients (Nitrogen and Phosphorus) as limiting factors for algae growth (10)

Question 3.

Discuss the biological water quality monitoring under the following:

i) Monitoring with macro-invertebrates (10)

ii) Early-warning bio-monitoring (10)

Question 4.

A) Describe briefly Receiving Water Quality Objective (RWQO) approach in developing the pollution control standards. (10)

B) State the advantages and disadvantages of the RWQO approach. (10)

Question 5.

A) What are the responsibilities of a surface Water Pollution Organization (WPC)? (10)

B) How would you develop capacity building for a WPC organization? (10)

Question 6.

A) The use of wastewater for agriculture is a very old practice and land disposal was the first wastewater treatment system:

i) What was the limiting factors of the rate of application for the wastewater? (6)

ii) Give and explain two (2) categories of risks associated with the re-use of wastewater. (4)

B) With regard to the mathematical approach adopted, water quality models can be classified as Empirical or Statistical, Stochastic and Deterministic.

Describe briefly the characteristic of each model. (10)