



UNIVERSITY OF SWAZILAND
Faculty of Health Sciences
Department of Environmental Health Science

BSc. in WATER RESOURCES AND ENVIRONMENTAL
HEALTH MANAGEMENT

MAIN EXAMINATION PAPER: 2021

TITLE OF PAPER : WATER QUALITY MANAGEMENT II

COURSE CODE : EHS 421

DURATION : 2 HOURS

MARKS : 100

INSTRUCTIONS :

- : READ THE QUESTIONS & INSTRUCTIONS CAREFULLY
- : ANSWER **ANY FOUR** QUESTIONS
- : EACH QUESTION **CARRIES 25** MARKS.
- : WRITE NEATLY & CLEARLY
- : NO PAPER SHOULD BE BROUGHT INTO OR 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

Discuss the key basis for setting water standards

25 MARKS

QUESTION 2

There are different approaches to Water Pollution Control. Describe the following approaches, stating their advantages and disadvantages.

- i) Uniform Effluent Standard (UES) approach (15)
- ii) Receiving Water Quality Objective (RWQO) approach (10)

25 MARKS

QUESTION 3

- A) Describe point-source of pollution (5)
- B) Discuss the following types of industrial effluent:
 - i) General Manufacturing Effluent (5)
 - ii) Specific Effluent (5)
 - iii) General Service Effluent (5)
 - iv) Intermittent Effluent (5)

25 MARKS

QUESTION 4

In the Swaziland Water Act, 2003, The Department of Water Affairs was established!!

As a Director of the new Department under this Act, Outline how you would develop Capacity Building for Water Pollution Control within the Department?

25 MARKS

QUESTION 5

With regard to the Water Qualities Prediction and Simulation approach adopted in Water Quality Management, water quality models can also be classified as mathematical model representation.

- i) Describe and give the differences between empirical and deterministic models. **(15)**
- ii) You are given the Streeter-Phelps equation and its integration. Analyse the different processes involved and draw the corresponding curves. **(5)**
- iii) Name and explain the parameters involved. **(5)**

TOTAL 25 MARKS