



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

DEGREE IN ENVIRONMENTAL HEALTH SCIENCE

MAIN EXAMINATION DECEMBER, 2018

TITLE OF PAPER : RURAL WATER SUPPLY

COURSE CODE : EHS 211

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

- i) List the five important water uses in Swaziland. (5)
- ii) Compare the amounts of water required by the various users in Swaziland (10)
- iii) What is the relative worth of water in its various uses (10)

TOTAL 25 MARKS

QUESTION 2

- i) What are the differences from the chemical point of view between water derived from shallow and deep wells? (10)
- ii) Describe the possible sources of pollution in each type of wells (15)

TOTAL 25 MARKS

QUESTION 3

Nitrogen and Phosphorus are nutrients of concern in water supply. Describe these nutrients under the following headings:

- i) Their sources (10)
- ii) Their impact on water quality (10)
- iii) How they are measured in water (5)

TOTAL 25 MARKS

QUESTION 4

As an Environmental Health Officer, you have been requested by the Matsapha Town Council to design a sampling and analysis programme for Little Usuthu (Lusushwana) River as it passes through Matsapha Industrial Area.

- i) What are the steps that should be taken to design a sampling and analysis programme (10)
- ii) What are the factors that should be controlled when samples are to be taken? (10)
- iii) How will the general "activity" of aquatic bacteria be measured? (5)

TOTAL 25 MARKS

QUESTION 5

As an Environmental Health Officer in charge of a rural area in the Lubombo region with a population of 2000 inhabitants, a water supply scheme is planned for the area with groundwater as a source.

- i) How would the construction of the scheme be organized and carried out? (10)
- ii) What steps would be taken to ensure its portability and fitness for human consumption (5)
- iii) What role would each family play to ensure clean domestic water supply to the community? (5)
- iv) State two (2) factors that are likely to contaminate the groundwater water supply (5)

TOTAL 25 MARKS