



UNIVERSITY OF SWAZILAND
Faculty of Health Sciences

Department of Environmental Health
Science

Main Examination 2011

Title of paper: RURAL WATER SUPPLY TECHNOLOGY

Course code: EHS 212

Time allowed: 2 HOURS

Marks allocation: 100 Marks

Instructions:

- 1) Answer **Four (4)** questions
- 2) Each question is weighted 25 marks
- 3) Write neatly and clearly
- 4) Begin each question in a separate sheet of paper

This paper is not to be opened until the invigilator has granted
permission

Main Examination: December 2011

EHS 212

QUESTION 1.

With an aid of a diagram, describe the Hydrological Cycle, paying attention to the five (5) main components or phases. (25)

QUESTION 2.

Total dissolved solids are chemical parameters of concern in water supply. Describe these parameters under the following:

- a) Sources of pollution. (10)
- b) Impacts on water quality. (10)
- c) How would you measure them in water supplies? (5)

QUESTION 3.

With an aid of a diagram, describe spring protection under the following headings:

- a) Definition of Point spring. (3)
- b) Data necessary before protection is done, and reasons why such data is necessary? (7)
- c) Detail the protection of the spring. (15)

QUESTION 4.

You are appointed as an Environmental Health Officer in charge of a rural area (in the Low-veld) with a population of 2 000 inhabitants. A water scheme is planned for the area with water from underground as a source.

- a) How would you organize and carry out the construction of the scheme? (10)
- b) What steps would you take to ensure its potability and fitness for human consumption? (5)
- c) What role would each family play to ensure clean domestic water supply to the households? (5)
- d) State two (2) factors likely to contaminate the ground water supply. (5)

QUESTION 5.

- a) Describe the use of *Escherichia coli* and total coliform counts as indicators of contamination of water by pathogenic organisms. (15)
- b) Give a brief for both:
 - i) Advantages (5)
 - ii) Disadvantages (5)

involved in using these organisms as indicators.