



UNIVERSITY OF SWAZILAND
Faculty of Health Sciences

DEGREE IN ENVIRONMENTAL HEALTH

FINAL EXAMINATION PAPER 2016

TITLE OF PAPER : WATER RESOURCES MANAGEMENT

COURSE CODE : EHM 321

DURATION : 2 HOURS

MARKS : 100

INSTRUCTIONS :

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

1. What do you understand by water resources management? (5 Marks)
2. In one or two sentences explain the **role** of the following in water resources management.
 - a. Water engineers
 - b. Lawyers
 - c. Ecologists
 - d. Economists
 - e. Environmental Health Officers (10 Marks)
3. Explain how the above interact with each other in coordination of their services. (10 Marks)

Question two

1. Describe five components of integrated water resources management. (10 Marks)
2. Describe the two listed dimensions considered in water resources management.
 - a. Spatial distribution
 - b. Temporal scales and patterns (10 marks)
3. Explain one **major cross-cutting** issue in the integrated water resources management (5 marks)

Question three

1. Mention an advantage of an increasing block rate as opposed to flat rate in water tariffs? (2 Marks)
2. What does sustainable use of water resources mean? (3 Marks)
3. Describe five demand-oriented measures in water resources management to achieve sustainability. (20 marks)

Question Four

1. What does closing a cycle mean in water resources? (5 Marks)
2. Make example where water resources cycles is closed. (5 Marks)
3. Describe a concept of “virtual” water in import and export of water resources (10 Marks)

4. Give an estimate of the amount of “virtual” water that is equivalent with the production of 70kg of maize. If a ton of maize was exported to Mozambique how much virtual water was exported? (5 Marks)

Question Five

1. Describe two consumptive uses and three non-consumptive water uses. (5 Marks)
2. Describe the four aims of river basin management that need to be addressed in equity water allocation. (8 Marks)
3. Write about water pricing as an important element and key instrument for the implementation of demand management in water resources management. (12 Marks)