

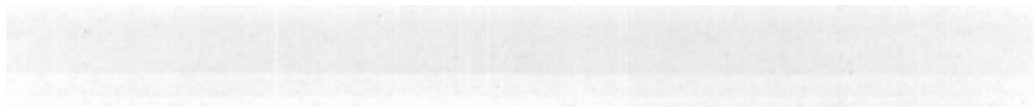


**UNIVERSITY OF SWAZILAND**  
**Faculty of Health Sciences**

**DEGREE IN ENVIRONMENTAL HEALTH**  
**SUPPLEMENTARY EXAMINATION PAPER 2016**

<b>TITLE OF PAPER</b>	<b>:</b>	<b>WATER RESOURCES MANAGEMENT</b>
<b>COURSE CODE</b>	<b>:</b>	<b>EHM 321</b>
<b>DURATION</b>	<b>:</b>	<b>2 HOURS</b>
<b>MARKS</b>	<b>:</b>	<b>100</b>
<b>INSTRUCTIONS</b>	<b>:</b>	<b>READ THE QUESTIONS &amp; INSTRUCTIONS CAREFULLY</b>
	<b>:</b>	<b>ANSWER ANY FOUR QUESTIONS</b>
	<b>:</b>	<b>EACH QUESTION CARRIES 25 MARKS</b>
	<b>:</b>	<b>WRITE NEATLY &amp; CLEARLY</b>
	<b>:</b>	<b>NO PAPER SHOULD BE BROUGHT INTO THE EXAMINATION ROOM</b>
	<b>:</b>	<b>BEGIN EACH QUESTION ON A SEPARATE SHEET OF PAPER</b>

**DO NOT OPEN THIS QUESTION PAPER UNTIL PERMISSION IS GRANTED BY THE INVIGILATOR.**



**QUESTION ONE**

1. What do you understand by Integrated Water Resources Management? (5)
2. Mention five dimensions of integrated water resources management? (5)
3. What does sustainable use of water resources mean? (5)
4. Mention five demand-oriented measures in water resources management. (5)
5. Mention two advantages of an increasing block rate as opposed to flat rate in water tariffs (5)

**QUESTION TWO**

1. What are the components of a robust plan and what are the advantages of linear planning method over cyclic planning? (10)
2. 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 is exported? (10)
3. Describe two consumptive uses and two non-consumptive water uses. (5)

**QUESTION THREE**

A family has not more than E100.00 per month to spend on water bills. At present at present the family pays E70.00.

- a. Do you expect their reaction to a price increase of 10% to be elastic or rigid? Give reason(s) for your answer. (10)
- b. A few years later after a number of price increases, the amount of money the family is paying amount to E100.00 per month. If the price is again increased by 10% how do you expect their reaction with regards to water demand to be? Explain your answer. (10)
- c. Is evaporation a loss to the water resources of a country? Explain your answer. (5)

**QUESTION FOUR**

1. What make water an important resource above all other natural resources? (Give five reasons). (7)
2. Give five factors that contribute to global water shortage. (6)

3. Global water shortage is a recipe for international conflicts. Given an opportunity to work towards harmonizing different interest for the world water uses, what will you do to avoid international conflicts? (6)
4. List five factors that contribute to unsustainable water resources development. (6)

**QUESTION FIVE**

1. What does closing a cycle mean in water resources? (5 Marks)
2. Describe the shortest possible closed water resources and nutrients cycles. (10 Marks)
3. Describe a concept of “virtual” water in import of maize for Swaziland. (10 Marks)