



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

BSc. in WATER RESOURCES AND ENVIRONMENTAL  
HEALTH MANAGEMENT

MAIN EXAMINATION PAPER: NOVEMBER, 2019

**TITLE OF PAPER** : **WATER QUALITY MANAGEMENT I**

**COURSE CODE** : **EHS 327**

**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**

Surface freshwater systems are often subjected to man-made pollution!!

- a) Describe the main sources of pollution (15)
  
- b) How do they affect the cycling of nutrients in freshwater bodies such as Mntjoli dam? (10)

**TOTAL 25 MARKS**

**Question 2**

- a) Describe the transport process of groundwater contamination with a typical plume pollutant. (15)
  
- b) Explain three (3) reactions that can occur due to contamination of groundwater and give examples (10)

**TOTAL 25 MARKS**

**Question 3**

- a) Discuss how thermal turnover process occur in reservoirs and lakes? (15)
  
- b) How does thermal turnover affect water quality (10)

**TOTAL 25 MARKS**

**Question 4**

Write short notes on the following water pollution parameters, stating how they impact on water quality:

a) Nutrients (10)

b) Micro-pollutants (organics) (15)

**TOTAL 25 MARKS**

**Question 5**

a) Discuss the adverse health effects that can be caused by toxic chemicals pollutants. (15)

b) How does Eutrophication impact water quality? (10)

**TOTAL 25 MARKS**